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February 24, 2014
(1569)

RE: Removal Action Work Plan
Former Two Rivers Manufactured Gas Plant Site, Two Rivers, Wisconsin
USEPA ID No.: WIN000509953

Dear Ms. Gielniewski:

On behalf of Integrys Business Support, LLC (IBS), managing Wisconsin Public Service Corporation's Former Two Rivers Manufactured Gas Plant (MGP) Site, please find enclosed the Removal Action Work Plan for addressing source material at the site.

If you have any questions, please contact Mr. Naren Prasad at IBS (312-240-4569).

Sincerely,

NATURAL RESOURCE TECHNOLOGY, INC.

A handwritten signature in black ink that reads "Kenneth R. Mika".

Kenneth R. Mika, PE
Environmental Engineer/ Project Manager

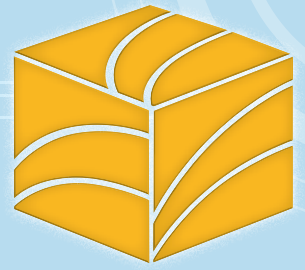
A handwritten signature in black ink that reads "Jennifer M. Hagen".

Jennifer M. Hagen, PE
Senior Engineer

Encl: (1 hard copy, Removal Action Work Plan)

cc: Ms. Cheryl Bougie, Wisconsin Department of Natural Resources (WDNR) (3 hard copy)
Ms. Annette Weissbach, WDNR (1 hard copy)
Ms. Catherine Schripsema, CH2M Hill (electronic only)
Mr. Naren Prasad, IBS (electronic only)
Ms. Stacy Brault, IBS (electronic only)

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VALUE

Removal Action Work Plan

**Former Two Rivers Manufactured Gas Plant Site
Two Rivers, Wisconsin**

Project No: 1569

February 24, 2014



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REMOVAL ACTION WORK PLAN

FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE TWO RIVERS, WISCONSIN

Project No. 1569

Prepared For:

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130 E. Randolph Street, 22nd Floor
Chicago, Illinois 60601

Prepared By:

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February 24, 2014

A handwritten signature in black ink that reads "Kenneth R. Mika".

Kenneth R. Mika, PE
Environmental Engineer

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Jennifer M. Hagen, PE
Senior Engineer

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ABBREVIATIONS / ACRONYMS

AAC	Acceptable air concentration
ANS	American Nuclear Society
ASTM	American Society of Testing and Materials
BTEX	Benzene, toluene, ethylbenzene, and xylenes
bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Concentrations of concern
CQA	Construction quality assurance
EDI	EDI Engineering and Science, Inc.
ES	Enforcement Standard
FAM	Fixed air monitor
FEMA	Federal Emergency Management Agency
FS	Feasibility study
IBS	Integrus Business Support, LLC
ISS	In situ solidification/stabilization
MGP	Manufactured gas plant
MSL	Median Sea Level
NAPL	Non-aqueous phase liquid
NRT	Natural Resource Technology, Inc.
PAH	Polynuclear aromatic hydrocarbon
PAL	Preventative Action Limit
PID	Photoionization detector
PUF	Polyurethane foam
QA	Quality assurance
QC	Quality control
RAOR	Remedial Actions Options Report
RAWP	Removal action work plan
RCL	Residual Contaminant Levels
RCRA	Resource Conservation and Recovery Act
RI	Remedial investigation
TVOC	Total volatile organic compounds
UCS	Unconfined compressive strength
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VOC	Volatile organic compound
WAC	Wisconsin Administrative Code
WDNR	Wisconsin Department of Natural Resources
WPSC	Wisconsin Public Service Corporation

1 INTRODUCTION

1.1 Overview

This *Removal Action Work Plan (RAWP)* is for the former Two Rivers manufactured gas plant (MGP) (Site) in Two Rivers, Wisconsin (Figure 1). Wisconsin Public Service Corporation (WPSC), a subsidiary of Integrys Energy Group, owns the former MGP. Integrys Business Support, LLC (IBS) will manage the removal action on behalf of WPSC. WPSC and the United States Environmental Protection Agency (USEPA) entered into an Administrative Order on Consent and Statement of Work, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No. V-W-'06-C-847, effective May 31, 2006, to perform Remedial Investigation/Feasibility Study (RI/FS) activities at six WPSC sites under the Superfund Alternative Sites Program.

Although the RI/FS activities have not been completed, site investigations have identified MGP source material at and near the ground surface that may present an exposure risk. Therefore, this work plan outlines an emergency response (i.e., time critical) removal action to mitigate the exposure risk. The removal action addressed by this RAWP is focused on addressing MGP residuals characterized as source material that pose a potential exposure risk. This RAWP and subsequent addenda outline the scope of the proposed removal action and will serve as the statement of work for a final Administrative Order on Consent between USEPA and WPSC pertaining specifically to this removal action.

The removal action is intended as an interim action to address exposed and subsurface MGP source material that will contribute to the overall remediation goals under the RI/FS Settlement Agreement.

1.2 Project Information

Regulatory Contact: United States Environmental Protection Agency
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Chicago, IL 60601
Naren M. Prasad, P.E., MPH, LEED AP
Senior Environmental Engineer
(312) 240-4569

Site Name: WPSC Former Two Rivers MGP Site

Site Location: T19N, R24E, Section 1 and 2
200 21st Street
Two Rivers, Wisconsin
Manitowoc County

USEPA ID #: WIN000509953

WDNR ID #: BRRTS # 02-36-000255

Environmental Consultant: Natural Resource Technology, Inc. (NRT)
234 W. Florida Street, Fifth Floor
Milwaukee, Wisconsin 53204

NRT Project Contact: Ms. Jennifer M. Hagen
Senior Engineer
(414) 837-3607

1.3 Site History

WPSC owned and operated the Two Rivers MGP from 1925 to 1946 and coal gas was produced using the carbureted water gas method. The locations of former MGP structures, based on historic Site drawings provided by WPSC, are shown on Figure 2 and include the following:

- Boiler and meter building
- Pipe shed
- Three gas holders: 10,000 cubic feet (ft³), 80,000 ft³, and 90,000 ft³ capacity
- Two oil tanks
- Two propane tanks
- Three warehouses and garages

After 1946 the facility was used for propane storage and distribution prior to the availability of natural gas in the area. WPSC maintains ownership of the Site.

1.4 Site Description

The Site encompasses approximately 4-acres in Section 1 and 2, T19N, R24E (Figure 1). Specific Site features, sampling locations, and adjacent properties are shown on Figure 2. The Site is bounded by:

- 2022 School Street to the south, owned by Manitowoc County

- The School Street right-of-way and the following private properties to the east:
 - 2100 School Street
 - 2104 School Street
 - 2110 School Street
 - 1913 22nd Street
- 1926 22nd Street to the north, owned by the US Oil Company, Inc.
- The West Twin River to the west

Site features include historic concrete building foundations. A chain link fence secures the Site perimeter. A wetland exists in the center and western portion of the property. Large portions of the Site east of the wetland are covered in crushed stone and asphalt. The vegetation in the wetland consists of a fringe scrub/shrub on the eastern edge of the wetland dominated by aspen and dogwood. Emergent and wet meadow species such as green bulrush and horsetail, are located closer to the bank of the West Twin River.

The Site has elevations ranging from approximately 579 feet mean sea level (MSL) to 584 feet MSL. Surface water drainage flows overland to the West Twin River. The majority of the Site is within the 100-year flood zone as mapped by Federal Emergency Management Agency (FEMA, 2011). Existing Site contours, wetland information, and the 100-year flood zone are show on Figure 3.

1.5 Previous Upland Investigations and Reporting

Previous Site investigations and reporting have been conducted by EDI Engineering and Science, Inc. (EDI) and NRT. A summary of previous investigations and reporting is provided in Sections 1.5.1 through 1.5.5.

1.5.1 Phase I Investigation performed by EDI in 1986

Site Investigation, Former Coal Gas Manufacturing Plant, School Street, Two Rivers, Wisconsin; EDI Engineering & Science, Inc., 1986.

The EDI (EDI, 1986) investigation consisted of collecting soil, groundwater, and air samples; advancing soil borings; and installing monitoring wells. The Phase I investigation indicated the Site is covered by wetland soils, muck, and fill. Beneath the top layer of soil is up to approximately 20 feet of inter-bedded peat, marl, sand, silt, and clay; which is underlain by a thick layer of clay. Groundwater flow is west

toward the West Twin River and depth to groundwater across the Site was reported at 0 to 0.3 feet bgs (below ground surface).

During the Phase I investigation, soil, air, and groundwater samples were collected and analyzed for volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), cyanides, and metals. The results are summarized below;

- Total cyanide and Benzo(a)pyrene were detected in soils at the surface and cyanide and PAHs were detected in the subsurface.
- Several parameters were detected in an up gradient monitoring wells, but none above either the Wisconsin Administrative Code (WAC) NR140 Enforcement Standard (ES) for groundwater.
- Benzene, benzo(a)pyrene, and naphthalene were detected in down gradient monitoring wells above the WAC NR 140 ES.
- Low level PAHs and VOCs were detected in down gradient monitoring wells.
- Cyanide and sulfate were detected in southern, down gradient monitoring wells.
- Low level zinc and phenol were detected in all monitoring wells.
- Nickel was detected in all down gradient monitoring wells.

1.5.2 Phase II Investigation performed by NRT in 1994

Phase II Environmental Investigation Report, Former Manufactured Gas Plant Site, Two Rivers, Wisconsin; NRT 1995.

NRT conducted a Phase II investigation in November 1994 which included test pits and soil borings and the installation and sampling of groundwater monitoring wells. The results of the investigation are summarized below:

- Soils beneath the Site include fine and silty sands, clay, and occasional, discontinuous peat layers. The surface soils are dominated by fine sands, silts and fill material comprised of glass, wood, brick, concrete, wire, and ash/cinder. A clay layer is present between 4 and 7 feet bgs and extends to 30 feet bgs in most locations. The clay is gray to red-gray, soft, wet, and plastic, and contains varying amounts of sands and silts.
- Groundwater occurs between 0.58 and 3.20 feet bgs at the Site. Groundwater flow in both the shallow and deep wells is southwest, toward the West Twin River. The calculated horizontal hydraulic gradient is low, and moderate to strong upward gradients were calculated in all well nests. The horizontal groundwater flow is estimated to be approximately 1 to 16.5 feet per year.

- The areas of benzene and PAH impacted soil are approximately 20,000 and 24,500 square feet (or 0.47 and 0.56 acres), respectively. The depth of impacts lies below the water table. Therefore, it is likely that some of the soil impacts may be due to the shallow depth of groundwater and migration of highly impacted groundwater just beneath the surface of the Site.
- Cyanide impacts were noted at well nest MW-603 and test pit TP-605 refer to Figure 2. Cyanide impacted soils lie outside the area of BTEX and PAH impacted soils.
- Evidence of MGP tar or oil wetted material was noted between 7 and 14 feet bgs at well nests MW-605 and MW-608. At well nest MW-605 the clay layer separating the upper and lower portion of the aquifer may be mitigating tar impacts in the lower portion of the aquifer.
- BTEX, PAHs, and cyanide impacts in groundwater are widespread across the Site. BTEX and PAH results suggest that impacts on the northern portion of the property may be partially due to an off-site, up gradient source.
- Results from the piezometers suggest that deeper groundwater impacts increase with distance from source areas. Well nests MW-607 and MW-608, farther down gradient from source areas, indicate groundwater impacts are present in both the shallow and deep portion of the aquifer, but concentrations decreased by an order of magnitude with depth.
- Possible MGP residuals were noted in the boring and wells on the north side of the Site (i.e. well nest MW-605). Groundwater gradients indicate that a bulk fuel terminal directly up gradient of the Site could contribute off-site sources impacting the Site.

1.5.3 Phase II Addendum Investigation performed by NRT in 1996

Phase II Addendum Investigation Results, Former Two Rivers Manufactured Gas Plant (MGP) Site, Two Rivers, Wisconsin. WDNR Transmittal; NRT, Nov. 13, 1996.

During the Phase II Addendum Investigation (NRT, 1996), NRT installed additional soil borings and monitoring wells to gather additional information on the Site. The sampling events for this Addendum occurred in March and September of 1996. A summary of the investigation is provided below:

- Soil samples around and to west of the MGP facilities, surface and subsurface, had BTEX detected above the WAC NR 720 RCL values.
- Total PAHs around and west of the Site, surface and subsurface, had PAHs ranging from 0 to 616 ppm.
- Groundwater samples around and down gradient of the Site indicated BTEX, cyanide, cadmium, and lead were detected and in some instances were above WAC NR140 ES or PAL.

1.5.4 Pre-Remedial Design Site Investigation performed by NRT in 2003

Pre-Remedial Design Investigation and Remedial Action Options Report; Former Manufactured Gas Plant Site, Two Rivers, Wisconsin; NRT, December 2003 (RAOR)

NRT conducted a pre-remedial design investigation during development of a Remedial Action Options Report in 2003 (NRT, 2003), the RAOR is included as Appendix A. Soil samples collected in August 2003 from test pits in the vicinity of the former MGP structures were generally unsaturated to moist and contained large amounts of fill material (ash/cinders, wood, brick, etc.). Soil samples collected from test pits and soil borings west of the former MGP structures were generally saturated and represent the intervals exhibiting potential MGP impacts based on visual and/or olfactory observations or elevated PID measurements. Emulsified coal tar was observed in soil borings and test pits generally located within and to the west of the wetland area. Beneath a majority of the Site, a clay layer was present between 4 and 7 feet bgs and extends to the bottom of the piezometer borings (25 to 30 feet bgs).

Analytical results of soil sampling indicated the following contaminant distribution trends:

- Off-property soils to the north were not impacted by benzene and naphthalene.
- Analytical results of off-property soils to the south indicated benzene and naphthalene concentrations above the generic groundwater pathway NR720 RCLs, in effect at the time.
- Site soils are generally above the NR720 standards for benzene and naphthalene at low levels across the Site. Concentrations are significantly higher at select locations where coal tar was observed to occur within the soil matrix.

Remedial action objectives for the WPSC property from the RAOR included:

- Address contaminants of concern, as identified in NR 720 and NR 140 for soil and groundwater, respectively.
- Minimize potential threats to human health, safety and welfare and the environment to the extent practicable as defined in NR 722.09.
- Meet the evaluation criteria identified in NR 722.07, including initial screening of individual technologies and evaluation of assembled alternatives based on contaminants present, media contaminated and site characteristics.
- Be considerate of future use.
- Be cost-effective compared to other options, considering cost categories listed in NR 722.07 for each assembled alternative and as allowed in NR 722.09 (1).

Based on the investigation, the site was split up based upon contaminants of concern associated with emulsified coal tar and other MGP process residuals. The three areas of concern identified for remedial actions include:

- **Upland Area:** approximately 32,600 square feet and approximately 5,000 cubic yards, generally unsaturated fill materials extending 4 to 5 feet bgs in the vicinity of historic MGP structures.
- **Source Area:** approximately 35,800 square feet and approximately 15,000 cubic yards, generally saturated soil containing emulsified coal tar within the soil matrix in the vicinity of the wetlands, considered to be the primary source of dissolved MGP groundwater impacts. Emulsified tar is observed from ground surface to 17 feet bgs.
- **Downgradient Area:** approximately 18,600 square feet and approximately 2,600 cubic yards, (including saturated soil west of the Source Area and shallow groundwater), extends from the wetland to the West Twin River and contains emulsified coal tar in thinner layers than the Source Area within the soil matrix at depths ranging from 9 to 14 feet bgs.

The three areas listed above were used for the RAWP preliminary removal action areas as listed in Section 3.4; Areas A (Upland Area), B (Source Area), and C (Downgradient Area).

Five alternatives were assembled in the RAOR from the remaining remedial options. The alternatives included:

- Alternative 1: Excavation and On-Site Thermal Desorption of Upland and Source Areas; In-Situ Chemical Oxidation Downgradient and Natural Attenuation for Groundwater Response.
- Alternative 2: Excavation and Off-site Disposal of Upland Area; In-Situ Stabilization of Source Area; and, Funnel and Gate Permeable Reactive Barrier for Groundwater/ Downgradient Response.
- Alternative 3: Asphalt Capping for Upland Area; In-Situ Chemical Oxidation of Source Area; and, In-Situ Chemical Oxidation Downgradient and Natural Attenuation for Groundwater Response.
- Alternative 4A: Excavation and Off-site Disposal of Upland Area; In-Situ Chemical Oxidation for Source Area; and In-Situ Chemical Oxidation Downgradient and Natural Attenuation for Groundwater Response.
- Alternative 4B: Excavation and Off-site Disposal of Upland Area; In-Situ Chemical Oxidation for Downgradient, and Slurry Wall Containment with Pump and Treat and Phytoremediation for Groundwater Response.

1.5.5 Groundwater Quality Data Transmittal; Former Two Rivers Manufactured Gas Plant, Two Rivers, Wisconsin; NRT, 2005-2013

Beginning in 2005, groundwater samples and elevation measurements were collected annually to monitor conditions in Site monitoring wells. Samples were analyzed for PVOCs, PAHs, and field parameters measured during previous activities. A summary of the results is provided below;

- As in previous sampling events, the BTEX analytical results indicate a wider distribution of elevated concentrations compared to the PAHs. Benzene, the other BTEX parameters, and 1,2,4-trimethylbenzene exceeded WAC NR 140 at most of the down gradient wells and piezometers. Although benzene concentrations at some locations fluctuated above and below the groundwater quality standards, no strong correlation with the groundwater elevation was identified. The highest benzene (and other PVOC) concentrations occur in shallow groundwater near the source areas.
- 1-methylnaphthalene is the PAHs most often observed above the WAC NR140 ES. In addition, numerous other PAHs (including BaP, benzo(b)fluoranthene, chrysene, and naphthalene) have been detected above the ES, and these impacts are primarily confined to the wells located within the former MGP property boundary.

2 SUMMARY OF SITE CONDITIONS

2.1 Regional Geology and Hydrology

The regional geology of the Two Rivers area consists of Paleozoic sedimentary bedrock units overlain by unconsolidated Quaternary deposits. The regional bedrock strata is a sequence of undifferentiated Silurian dolomites underlain by Ordovician dolomite, sandstone, and shale units and Cambrian sandstones (Skinner and Borman, 1973). The unconsolidated Quaternary units in the Two Rivers area are dominated by lake deposits. The remaining Quaternary deposits found in Manitowoc County include glacial till, glacial outwash, and ground end moraine deposits.

In the Two Rivers area, the Quaternary deposits are between 50 and 100 feet thick and the Silurian dolomites are between 650 and 700 feet thick. Each of these units is a major aquifer in the vicinity of Two Rivers. The unconsolidated deposits contain the sand-and-gravel aquifer and the Silurian dolomites contain the Niagara aquifer (Skinner and Borman, 1973). In the vicinity of the Site, the Silurian dolomite is likely greater than 50 feet bgs. The WDNR high capacity well database includes five well summaries which indicate the bedrock is encountered between 86 and 108 feet bgs. Due to the depth and thickness of these units, most private wells in the area were completed in these aquifers. However, due to the proximity of the City of Two Rivers to Lake Michigan, all water for municipal use comes directly from Lake Michigan and the city has no municipal water wells.

2.2 Site Geology

Soil encountered during previous Site investigations include lacustrine and glacial deposits intermixed with fill material. Previous investigations demonstrate that the MGP Site is underlain by soils primarily composed of fine and silty sands, clay units, and discontinuous peat layers. The surface soils are dominated by fine sands, and silts. Fill material consisting of ash/cinders, fine sands, silts, glass, wood, wood chips, brick, concrete, and wire is found in the vicinity of the former MGP building locations. The fill material found likely originated on-site and the ash/cinder fill resembles a black, fine to coarse sand and silt. The ash/cinder layers are in a fill pattern.

The shallow surface soils at the Site are dominated by sands and silts. These sands and silts are an inconsistent mixture of ash/cinder fill and natural soils, including peat. Beneath a majority of the Site, a clay layer is present between 4 and 7 feet bgs and extends to the bottom of the piezometer borings

(deepest borings extended 25 to 30 ft bgs). This clay has varying amounts of sands and silts, and it appears that this clay is native material. The clay is gray to red-gray, soft, wet, and plastic. The sand layers are discontinuous and facies changes occur over short distances. Also, there are sand layers present at depth on the west end and southwest corner of the Site. None of the soil borings installed during previous Site investigations encountered bedrock. This is consistent with the regional geology of the area in which the Silurian dolomite has been encountered between 86 to 91 bgs.

2.3 Site Hydrogeology

2.3.1 Groundwater Flow

From 1994 to 2013, groundwater has occurred between approximately 0.5 feet bgs (MW-603B, June 2002) and 7.2 feet bgs (MW-603B, October 2003) at the Site. The upper and lower groundwater flows to the southwest towards the West Twin River. The 2013 Groundwater Quality Data Transmittal is in Appendix B. The transmittal includes historic groundwater monitoring data and groundwater flow information based on the September 2013 sampling event.

2.3.2 Horizontal Groundwater Gradients

The horizontal hydraulic gradient across the Site is low and ranges between 0.004 to 0.009 ft/ft based on water levels collected between June 2002 and September 2013. The average horizontal gradient of shallow wells is 0.0067 ft/ft. between October 2007 and September 2013. During these same years the groundwater elevations in the piezometers fluctuated between approximately 1.8 and 6.7 feet. The shallow wells fluctuated between approximately 1.8 and 7.1 feet.

2.3.3 Vertical Groundwater Gradients

Vertical gradients were determined for all of the well nests. Following development of the wells, well nests MW-607A/B, MW-608A/B, and MW-609A/B generally exhibited moderate to strong upward vertical gradients. The upward vertical gradients at these well nests generally range on the order of 10^{-2} to 10^{-3} ft/ft (Table 5 of RAOR). Well nest MW-605A/B generally indicated downward vertical gradients until the shallow well was replaced in 2004. This may have been a localized influence from the sand unit in this portion of the Site. The shallow well intersected the sand unit and the deeper well is screened in clay. Since the shallow well was replaced, MW-605A/B generally indicates upward vertical gradients. Well nest MW-603A/B frequently changes between upward and downward vertical gradients.

The overall upward gradients in most of the well nests indicate that the Site is a groundwater discharge area. These conditions are expected at the Site given the proximity of the West Twin River and the wetlands on the property.

2.4 Wetlands

2.4.1 Initial Wetland Delineation

A wetland boundary delineation was completed by STS Consultants, LTD. (STS) on behalf of WPSC in July 2003. Prior to the Site visit, STS reviewed WDNR Wisconsin Wetland Inventory (WWI) maps which indicated broad-leaved deciduous scrub/shrub and persistent emergent wet meadow wetland with palustrine soil conditions on the western half of the Site. STS also reviewed the U.S. Department of Agriculture (USDA) Soil Conservation Service Soil Survey (SCS) of Calumet and Manitowoc Counties, Wisconsin, (1980) which classified Site soils as Granby fine sandy loam. Granby soils are classified as hydric soils.

A wetland boundary delineation was conducted on July 22, 2003 in accordance with the US Army Corps of Engineers (COE) 1987 Wetland Delineation Methodology. STS used hydric soils, vegetation, and hydrology indicators to delineate the boundary of the wetland. The boundary was marked with pin flags that were surveyed by Carow Land Surveying Company, Inc., Appleton, Wisconsin.

2.4.2 2013 Wetland Delineation

In 2013, WPSC hired AECOM to re-delineate the Site and update the wetland boundary using the 1987 Wetland Delineation Methodology and all applicable regional supplements. The 2013 report concluded that there are approximately 2.0 acres of wetlands on the Site. A copy of AECOM's wetland report is included in Appendix C. Delineated wetland limits from 2013 are shown on Figure 3.

2.5 Existing Utilities and Site Constraints

2.5.1 Existing Utilities

Utility mapping has identified aboveground and underground utilities near the Site boundaries. The identified utilities are shown on Figure 4. Preliminary removal action areas are shown on Figure 5.

Identified utilities include the following:

- **Sanitary Sewers:** A sanitary sewer ranging in size from 6-inch to 8-inch exists along the gravel driveway entering the Site at School and 21st Streets. This line may be affected by construction activities. An 18-inch sanitary sewer line exists along School Street. This 18-inch line is outside of the WPSC property and will not be affected by the removal action activities.
- **Storm Sewers:** A 12-inch storm sewer exists along School Street with three catch basins located at the intersection of School and 21st Streets. The storm sewer is outside of the WPSC property and will not be affected by removal action activities. The catch basins may require erosion protection during removal action activities.
- **Water Mains:** A water main originates from the intersection of School and 21st Streets and exists along the gravel road to the location of the former building. This utility will be affected by the removal action activities and may require coordination with the utility provider to support, relocate, or remove the utility prior to or during removal action activities. This utility exists near removal action Area A.
- **Overhead Utilities:** Overhead utilities exist along the gravel drive and the southern and northern entrances inside of the Site boundaries. Additional overhead utilities exist along 21st Street. Overhead utilities that exist along the gravel drive may require coordination with the utility provider to support, relocate, or remove the utility prior to or during removal action activities. This utility exists near removal action Area A.
- **Gas Utilities:** A 6-inch gas main exists on the WPSC property from the intersection of School and 21st Street along the gravel driveway and the eastern properties over to the location of the former building. A second gas main is along the southern property boundary terminating into the buildings located on the property to the south. Additional gas mains are located on the north side of the Site. Two 6-inch gas mains originate at the former building and extend to the north and then turn east to the northern entrance of the gravel drive at School and 22nd Streets. There is an additional gas main along the northern property boundary from the West Twin River to the former building with a T-intersection to the south in the middle of the WPSC property. It is unknown if this gas main terminates at the West Twin River and at the T-intersection. All of the gas mains will require coordination with the utility provider to support, relocate, or remove the utilities prior to or during removal action activities with the exception of the utility along the southern property boundary.

2.5.2 Site Constraints

Based on previous site investigations removal action construction to mitigate source material will be limited to the WPSC property. If additional source material is discovered during the pre-removal site characterization data collection or during removal action construction, the removal action limits may be extended to encompass additional area.

2.6 Site Soil Data Compilation and Interpolation

Previous boring logs, field observations, and analytical data were compiled and summarized to evaluate potential source material and delineate removal action areas as part of the removal action planning.

Proposed removal action limits were primarily defined based on descriptions of visual NAPL identified as MGP source material as described in Section 3.2. Soil analytical data were used to correlate visual indicators of NAPL. The visual descriptions of NAPL were used to delineate lateral and vertical extents of source material in soil boring locations. This approach is consistent with the USEPA-approved time-critical removal action at Crawford Station Parcels A, B, and O, Chicago, Illinois and North Plant MGP Site Parcels 1 and 2 in Waukegan, Illinois.

2.7 Risk to Public Health, Welfare, or the Environment

Compared to factors in the National Contingency Plan Section 300.415(b)(2), conditions at the Site may present an imminent risk to public health, welfare, and the environment. Selected factors that are applicable to this determination include the following:

1. Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants
 - No active operations are conducted in the vicinity of exposed MGP residuals on the WPSC property. Secured fencing has been installed by WPSC to limit potential exposure.
 - A potential exposure risk exists from MGP residuals at ground surface. Subsurface contaminant migration is a potential threat to additional receptors.
2. Elevated levels of hazardous substances or pollutants or contaminants in soils at or near the surface that may migrate
 - MGP residuals meeting the classification of source material were identified at the ground surface in the Source Area (Removal Action Area B), as described in Section 1.5.4. The MGP residuals exhibit elevated concentrations of PAHs and VOCs.

Given the Site conditions, the nature of known and suspected hazardous substances, and the potential exposure pathways, actual or threatened releases of hazardous substances, pollutants, or contaminants are evident. A removal action consisting of In Situ Solidification/Stabilization (ISS) and shallow excavation of MGP source materials will mitigate the direct contact exposure pathway and reduce the potential for migration to soil, groundwater, sediment, or surface water. Other alternatives discussed in Section 1.5.5 have been reviewed as well, but due to Site geology, groundwater levels, and types of remedial options presented in Section 1.5.5, ISS is the most appropriate option for the mitigating source material. If not addressed by implementing this removal action, the Site conditions will continue to be a risk to public health, welfare, or the environment.

3 BASIS FOR REMOVAL ACTION

3.1 Removal Action Objectives and Strategy

The objectives for the removal action include the following:

1. Immobilize and/or remove identified MGP source material within the defined removal action areas and eliminate residual MGP residuals at the surface and associated direct contact concerns to the extent practicable.
2. Immobilize and remove other materials from the Site that may be impacted by MGP residuals, but are not considered source material, on a selective basis to support long-term Site management within the Multi-Site Framework and avoid future remediation below or immediately surrounding the removal areas.
3. Restore the Site by replacing removed material with clean fill and construction of a clean soil cover over the stabilized material.

The removal action was developed with the following strategy:

- Select a removal strategy that can be feasibly and economically implemented within a short timeframe.
- Use a planning and design process that addresses MGP source material defined by prior investigations and verified by pre-removal site characterization.
- Limit the removal action scope to areas of the site where immediate implementation is feasible considering issues such as property ownership, access constraints, and practical considerations.

The selected removal action strategy includes a combination of ISS, shallow soil excavation and landfill disposal, including removal of historical structures. In the event that obvious non-MGP contamination is evident during the removal action (e.g., buried drums, previously unidentified underground storage tanks, or other types of impacts that are visually distinct from the MGP source material) appropriate procedures will be employed to address the contamination in accordance with federal, state, and local requirements. As appropriate, the USEPA On-Scene Coordinator will be promptly notified. If the type of contamination encountered is not consistent with Site investigation data or the Site waste profile, supplemental sampling and waste characterization may be performed to ensure proper management, handling, and/or disposal of the material.

3.2 MGP Source Material Definition

As a time-critical removal action, the proposed source removal is proceeding without a complete RI/FS or quantitative risk assessment. To accomplish project objectives, the removal action relies on investigative visual assessment methods supplemented with soil sampling and analysis. This is consistent with USEPA-approved approaches at other sites in Region 5 such as the time-critical removal action at Crawford Station in Chicago, Illinois and North Plant MGP Site in Waukegan, IL. The USEPA-approved removal actions at Crawford Station and North Plant MGP are being performed in general accordance with Removal Action Work Plans prepared by NRT and dated September 6, 2011 and September 21, 2012, respectively. Soils exhibiting visual NAPL conditions described below are considered source material. Areas exhibiting lesser degrees of NAPL that do not meet the source definition (e.g., sheen or MGP odors) will not be considered MGP source material.

MGP source material that will be addressed and visually identified during the removal action is defined as follows:

MGP Source Material Description

Descriptive Term	Soil boring log descriptions from prior investigation work	Definition
Tar at ground surface	Tar at surface	Areas where tar is visible at the ground surface
Oil Wetted	Tar saturated Free product	Visible brown or black oil wetting the soil sample. Oil appears as a liquid and is not held by soil grains.
Oil Coated	Tar coated, Oily, Hard tar	Visible brown or black oil coating soil particles. Typically associated with coarse-grained soil such as coarse sand, gravel, and cobbles.

3.3 Removal Action Decision Criteria

The following decision criteria will be applied to the removal action in Areas A, B, and C:

- Removal/ISS of MGP source material from 0 to 6 feet bgs to mitigate the direct contact exposure pathway and the potential impact to the river. If groundwater is encountered, soil excavation may be terminated. Soil excavation may extend below the groundwater surface and laterally outside of removal areas to remove subsurface MGP structures (e.g., foundations and piping) as shown on Figure 5.

- ISS of MGP source material to depths of up to 17 feet bgs to mitigate potential exposure to future construction workers and migration to soil, groundwater, and/or West Twin River.
- ISS of MGP source material to depths greater than 17 feet bgs to support long-term site management within the Multi-Site Framework and avoid future remediation below or immediately surrounding the removal action areas. Based on available data, the greatest planned depth of the removal action is approximately 20 ft bgs.

Following shallow soil excavation and removal of subsurface MGP structures (e.g., foundations and piping), MGP source material within the delineated removal action areas will be solidified by ISS. Completed ISS will be sampled for verification that specifications and design parameters are achieved. Construction quality assurance (CQA) details are described in Sections 5 and 7.

3.4 Estimated Removal Action Volume

The approximate lateral and vertical extents of MGP source material removal action areas and volumes associated with each are based on the RAOR and presented on Figure 5. Removal action areas include the following:

- **Area A:** Includes the eastern portion of the WPSC property where the former MGP operations were and where source material impacts are generally considered to be at or near ground surface and extend to a depth of approximately 6 bgs. Approximate removal action volume of this area is 7,100 cubic yards of excavation and disposal.
- **Area B:** Includes the central portion of the WPSC property and the delineated wetland areas. Source material impacts are generally considered to be at or near ground surface and extend to a depth of approximately 20 feet bgs. Approximate removal action volume for this area is 22,600 cubic yards of ISS.
- **Area C:** Includes the western portion of the WPSC property and delineated wetland areas along the West Twin River. Source material impacts are generally considered to be at or near ground surface and extend up to a depth of approximately 20 feet bgs. Preliminary estimates indicate the approximate removal action volume for this area is 11,600 cubic yards of ISS. Additional data collection is required to complete the delineation of this removal action area. Pre-removal data collection, as outlined in Section 4.2, will complete the delineation of source material in this area.

The total estimated volume of material to be addressed during the removal action is 41,300 cubic yards; including 34,200 cubic yards of ISS and 7,100 cubic yards of excavation and off-site disposal. The volume of material to be addressed may be increased based on the pre-removal data collection activities or if subsurface MGP structures extend beyond the preliminary removal area limits, as described in Section 5.4.1.1.

4 PRE-REMOVAL DATA COLLECTION AND *IN SITU* SOLIDIFICATION/STABILIZATION TREATABILITY STUDY

4.1 Existing Utilities

The utility information provided in Section 2.5 and on Figure 4 is from a utility survey conducted in 2003. Based on reviewing recent aerial maps (Google Maps, October 2013) of the Site, above ground utilities appear to be different now than in 2003. A utility Site survey will be conducted to confirm existing Site utilities, determine whether the existing utilities are active or abandoned, and presence/absence of previous utilities.

4.2 Pre-Removal Data Collection Objectives and Overview

Pre-removal data collection will be required to meet the following major objectives:

- Confirm the area that will be included as part of the removal action.
- Further delineate the extent of former MGP foundations and/or structures that will need to be considered for completion of the remedial action.
- Delineate and confirm the depths to the lower clay layer.
- Delineate and confirm the presence and extent of potential MGP source material previously identified on properties located north and south of the WPSC property.
- Obtain representative soil samples for an ISS treatability study from each of the areas and materials targeted for removal action.

Planning, implementation and documentation of the data collection activities will be conducted in accordance with the approved Multi-Site Documents. The results of the data collection will be compiled into separate addendums.

4.2.1 Pre- Removal Data Collection

Pre-removal data collection is planned for completion during early 2014. Soil borings and test pit excavations will be completed to achieve the following specific objectives:

- Refine the proposed removal action areas delineated as described in Section 2.7 and as shown on Figure 5.
- Verify subsurface observation and analytical data from previous investigations indicating the presence of source material.
- Verify the vertical extent of MGP impacts and depths for ISS in the lower confining clay layer.
- Assess the presence of former MGP foundation structures and/or debris in the removal action areas.
- Characterize the subsurface fill for excavatability considerations including side slope stability and dewatering.
- Characterize material for off-site disposal.
- Assess odors and air quality conditions to prepare for air monitoring and fugitive emission controls during full-scale removal actions

To meet the objectives outlined above approximately 41 soil boring locations have been identified as shown on Figure 5. Additional sample locations will be added, as appropriate, to complete lateral and vertical delineation of source material and removal action areas. As indicated on the figure, boring locations have been established to complete and confirm source area delineation for each of the targeted removal action areas (Areas A, B and C) and further assess the vertical and lateral extent of potential source material previously identified on properties north and south of the WPSC property (Off-Property Assessment Areas). Additional borings are also planned in the interiors of each removal area to further define the depth to the lower clay layer. Specific data collection activities include the following:

- Soil boring locations will initially be located using handheld GPS equipment (Trimble).
- Since field operations may occur in the winter, the drilling subcontractor may be requested to provide snow removal equipment to clear boring and test pit locations as required to effectively perform the work in a safe and effective manner.
- Continuous sampling will be conducted approximately 2 feet into the lower clay layer using direct push method.
- Several test pits will be excavated to further assess the extent of MGP foundations and/or subsurface structures that will require removal. Test pits will be backfilled with excavated material.

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- Additional samples will be collected during this time for the ISS treatability study as further discussed in Section 4.2.2.
- Samples will be logged, photographed and visually assessed for the presence of source material.
- Chemical analytical samples may be collected from the clay layer at two to three boring locations inside of each removal action area and submitted for laboratory analysis of BTEX (Method 8260), PAHs (Method 8270 for 18 key indicator parameters) and total cyanide (Method 9012). Where source material is identified at a given boring location, additional borings will be “stepped out” until source material is no longer identified to confirm the limits for removal action and/or extent of source material. Accordingly borings may also be “stepped in” to reduce the extent required for removal action. At removal action perimeter boring locations, borings will be initiated in anticipated “clean” areas and stepped in with additional borings as appropriate to minimize the potential for cross contamination between boring locations.
- Soil cuttings will be drummed and staged at a designated on-property location pending completion of waste profiling and acceptance at a WPSC approved landfill disposal facility.
- Direct push augers will be decontaminated between boring locations where analytical samples are planned for collection from the lower clay layer. Decontamination water will be drummed at a designated on-property location pending approval for off-site disposal with the soil cuttings.
- One composite sample of the soil cuttings will be collected and submitted for analysis of landfill acceptance parameters
- Following completion of the field activities, soil boring locations will be surveyed by WPSC to document the investigation locations.

An addendum to this RAWP will be prepared summarizing the data collection activities and conclusions.

The addendum will include:

- Description of the boring assessment and the rationale for identification of source material where and what type of samples were collected
- Updated figures indicating the updated extent of source material and confirmatory limits for removal action
- Preparation of lower clay layer topographic map that will be used to establish vertical limits for the removal operations in Areas A, B and C
- Boring logs for each of the boring locations
- Tabulated summaries of laboratory analytical and geotechnical data
- Copies of all laboratory analytical data reports and other pertinent forms (e.g., chains of custody)

4.2.2 ISS Treatability Study

A bench scale/treatability study for ISS will be performed to develop a basis for design of ISS as the remedial technology. The results of the study will be submitted as an addendum to this document when it is available in 2014. Objectives for the study consist of the following:

- Develop an ISS mix design capable of stabilizing/solidifying MGP residuals, and designed to enhance protection of human health and the environment.
- Develop an economical mix design for implementation of ISS using locally available reagents.
- Assess the physical and chemical properties of the solidified/stabilized monolithic materials.
- Assess volumetric expansion associated with an ISS operation on the Property.
- Demonstrate that the solidified monolith will provide suitable geotechnical conditions for future property development.

Proposed performance goals for the study are summarized below:

Parameter	Performance Goal	Methodology
Hydraulic Conductivity	$\leq 1 \times 10^{-6} \text{ cm/s}^1$	ASTM D5084
Unconfined Compressive Strength	$\geq 50 \text{ psi}$	ASTM D1633
Durability (freeze and thaw)	Weight loss $\leq 15\%$	ASTM D4842
Durability (wetting and drying)	Weight loss $\leq 15\%$	ASTM D4843
Slake (Submergence Testing)	Minimal deterioration of specimen and discoloration of water, and no phase-separated tar or soil	Empirical Observations
Volumetric Expansion	$< 30\%$ if possible	Empirical Measurement
Leachability	BTEX $\leq \text{WAC ES}$ PAHs $\leq \text{WAC ES}$ Total Cyanide $\leq \text{ES}$ (for free cyanide)	ANS-16.1 leaching 8260B analysis for BTEX 8270 for PAHs and Total Cyanide
pH	TBD	Any acceptable methodology

1. This permeability may be revised based on composite soil permeability data obtained during the treatability study.

Implementation of ISS will create a stable and relatively impermeable monolith. Per USEPA's *Technology Performance Review: Selecting and Using Solidification/Stabilization Treatment for Site Remediation* (EPA/600/R-09/148 November 2009), the methodology for evaluating the physical design criteria is based on the appropriate American Society of Testing and Materials (ASTM) standards or qualitative analysis (slake testing and volumetric expansion).

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To evaluate chemical design criteria, concentrations of constituents of concern (COC) are determined in leach samples. Since the application of ISS in the field will result in a monolithic material, a leach test that leaches an undisturbed monolithic column with demineralized water will be performed for the bench scale study that is based on the American Nuclear Society (ANS) Method 16.1 leaching method with some modifications to the leaching intervals. Leaching of the COCs will be evaluated at 14, 28, 42, and 56 day intervals for each mix design selected for leach testing by analyzing samples of the leachate collected from the demineralized water bath at the specified intervals.

The general process for sample collection and performance of the bench scale study is summarized below. Sample collection will include the following:

- Both composite and discrete soil samples will be collected to represent the types of soils, moisture content, and concentrations of MGP constituents that will pose the greatest concern for effective ISS that will meet the performance goals.
- Proposed sample locations are indicated on Figure 5. Each of the removal action areas (A, B and C) are targeted for sampling; however sample collection from Area A will only be completed if ISS is proposed in lieu of excavation in this area.
 - Proposed sampling in Area A will be conducted in the vicinity of the former MGP structures in Area A. This area is representative of unsaturated to moist conditions and contains large quantities of fill materials.
 - Proposed sampling in Area B will be west of the former MGP structures, in the wetland. This area represents saturated conditions. Source material observed in several soil borings from this area and soil from these borings contained measurable concentrations of benzene and naphthalene.
 - Proposed sampling in Area C will be near the river where source material was identified during previous investigations.
- Several undisturbed samples will be collected using Shelby tubes. These samples will be used for determining the soil's permeability, density, moisture content, Atterberg Limits and gradation. Data from these undisturbed samples will be used for mass and volume calculations, to scale the treatment regimen from laboratory to full-scale, and to assist in assessment of acceptable permeability reduction performance goals following ISS. Undisturbed soil samples will be collected and submitted to a local geotechnical laboratory.
- Soil samples for the ISS treatability will be collected from each of the areas using auger and/or backhoe excavating methods. The quantity and location of samples will be evaluated based on observed field conditions. If soil at a location exhibits no evidence of any MGP impacts, the location will be properly abandoned and a new location selected and sampled. Evidence corroborating the presence of source material will be based on visual assessment. Samples representative of general soil conditions may be composited with samples that are more highly impacted.

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A treatability study is an iterative process. Figure 6 provides a conceptual treatability study protocol for visualization of the process. It shows in a single graphic the scope and sequence of activities to complete the study. The study assumes nine treatment regimens will be evaluated, three reagents and three doses of each reagent. More or less reagents and more or less doses might be used after collecting soil samples and determining the types and amounts of contamination. Performance of the bench scale study is summarized below:

- Representative soil samples will be analyzed to determine both chemical and physical characteristics. Laboratory analyses will include BTEX, PAHs and total cyanide. Geotechnical laboratory analyses will include bulk density, moisture content, Atterberg Limits and grain size analyses.
- After determining the physical and chemical characteristics of soil samples collected for this study, similar soil types will be combined to create at least two composite soil samples for bench-scale testing. One composite sample will be created to represent expected conditions and the other worst-case conditions. Mixes will be prepared by mixing a known dry mass of a reagent with a known dry mass of soil. Specimens will be created for all testing to be completed. Tests include strength, permeability, durability, slake, and leachability.
- NRT has utilized a 3:1 blend of ground granulated blast furnace slag and Portland cement as a reagent to stabilize soil impacted by MGP residuals. This will be the primary regimen evaluated. However, other additives such as silica fume, bentonite, and organoclay might be incorporated into a regimen to enhance the treatment's effectiveness or to reduce the dose of cementitious reagents. For example, stabilizing sandy soil that is poorly graded (uniform particle size) might benefit from bentonite as a component of a treatment regimen because bentonite will fill the pore spaces between sand particles thereby decreasing the stabilized material's permeability and also lessening the demand for cementitious materials which would otherwise have to fill this pore space.
- Prepared test specimens will be allowed to cure for 7, 14 and 28 day intervals prior to unconfined compressive strength and permeability testing. Based on these results, the mix designs will be further screened to reduce the number that will be carried forward for leachability, slake freeze/thaw and durability testing.
- To compress the schedule as much as possible, a full range of specimens that might be used for every anticipated test will be created. Many of these specimens might not be tested because as testing progresses some regimens will perform better than others and only the most effective regimens will continue to be tested through the entire study.

An addendum to this RAWP summarizing the bench scale work and conclusions will be prepared after the study has been completed. The addendum will include:

- Description of the sample collection process and the rationale for where and what type of samples were collected
- Description of all sample handling and compositing procedures and methodologies, chemical analyses, and physical analyses used to initially characterize samples

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- Description of the treatment regimens selected to be evaluated and the rationale for selecting them including handling procedures (e.g., cure times and methods), selection for testing procedures, and quality assurance/quality control procedures. Description of the process, work progression, and rationale for including (or excluding) regimens from continued testing
- Tabular summaries of all test data
- Copies of all raw testing data, lab reports, and chain of custody forms
- A detailed analysis of all data including conclusions drawn from the study including recommendations for the regimen(s) that economically achieve the study objectives and ISS performance goals
- Preliminary recommendations for a pilot scale and full scale construction implementation and a discussion about scaling the process to full-scale implementation

5 REMOVAL ACTION IMPLEMENTATION

5.1 Preliminary Activities

5.1.1 Site Security and Controls

The Site is secured with an existing chain link fence that surrounds Site. WPSC currently maintains a gated and secured entrance to the Site near 200 21st Street, Two Rivers, Wisconsin. The gate will serve as the access and exit point during the removal action. The gate will be locked when no workers are present. A visual barrier may be added to the existing fence and gate surrounding the Site.

All visitors will be required to sign a visitor's log when entering and exiting the Site. Access to removal action areas will be limited to authorized personnel approved by IBS and will be required to participate in a site-specific health and safety briefing by the site supervisor or health and safety officer prior to entry.

5.1.2 Surveying

At a minimum, the following items will be surveyed at the Site:

- Stake out of the proposed removal action areas
- ISS column locations and top and bottom elevations
- Lateral extents of shallow soil excavations
- Locations and elevation of former MGP pipes and/or foundations left in-place at the removal extents, if applicable
- Location and elevation of ISS swell material
- Final lateral and vertical surface contours of areas disturbed during construction
- Final Site improvements and surface elevations
- Property boundaries
- Current and remaining wetlands (if applicable)
- Existing and new utilities

5.2 Site Preparation

Site preparation will include protection, removal, or relocation of utilities if needed, installation of erosion controls, clearing and grubbing of vegetation, abandonment of monitoring wells located in removal action areas, construction of a temporary on-site truck access road, and establishment of truck routes. Trees that do not interfere with removal actions will be protected from construction activities to the extent practical. Concrete barricades or steel traffic bearing plates will be placed around or on monitoring wells that will remain.

5.2.1 Protection of Utilities and Construction Utilities

As discussed in Section 2.5.1, active underground utilities have been identified that will interfere with proposed removal action Areas A, B, and C. Overhead utilities exist along the eastern portion along the removal action Area A. Underground and overhead utilities in removal action areas may require coordination with the utility provider to support, relocate, or remove the utility prior to or during removal action activities.

If utility modifications are necessary, IBS will coordinate with the utility provider. Additionally, coordination with utility providers will occur to facilitate installation of utility services as necessary for construction operations. Construction operations will require, at a minimum, electrical and/or communication services for office trailers, air monitoring equipment, and the ISS batch plant. In addition, the contractor's site superintendent will be specifically tasked with ensuring all utility conflicts are cleared as construction progress.

5.2.2 Runoff and Erosion Control

Runoff and erosion control measures will be implemented in accordance with WAC NR 216 and City of Two Rivers requirements. Prior to beginning Site work, the following minimum erosion control activities will be performed:

- A tracking pad of open graded stone will be placed at truck entrances/exits to minimize off-site tracking of material from truck tires
- Silt fence will be placed around removal action areas or around the Site perimeter, as appropriate
- Material management and decontamination areas will be bermed on all sides to prevent sediment run-off

- Filter fabric will be placed above existing storm sewer catch basins, if any exist near the Site, to prevent sediment from entering state waterways
- Street sweeping will be used, as necessary, to promptly remove potentially tracked materials on public right-of-ways
- If necessary, additional measures will be taken to prevent run-on of surface water, particularly to prevent surface water contact with the removal action areas

Installation methods and maintenance procedures for silt fence and inlet protection will follow best management practices. Trucks, grading equipment, and other construction vehicles will use constructed tracking pads to minimize tracking of soil off site. Erosion control measures will be maintained throughout construction activities until permanent erosion control measures are in place.

The contractor will be responsible for implementing an adequate erosion control plan and complying with all applicable requirements including conducting site inspections. At a minimum, inspections will satisfy the following requirements:

- Document the conditions and/or repair of silt fences and/or catch basin filter fabric
- Document sediment accumulation amounts adjacent to fences and/or on catch basin filter fabric
- Evaluate eroded or potentially unstable soils

Inspections will be made weekly and within 24-hours after rainfall events of 0.5 inches or greater, or as directed by the oversight engineer. Maintenance activities may include removal of sediment from fences and/or catch basin filter fabric, and repair as needed. Weekly inspection logs will be maintained at the Site.

5.2.3 Clearing and Grubbing

Clearing of trees and brush was completed by WPSC in the fall of 2013. Grubbing will be performed as part of excavation during the removal action following placement of temporary erosion control measures. It will include the removal of stumps and root balls from within the removal action and operational areas. Roots and root balls removed during the removal action will be transported off site for disposal.

5.2.4 Route of Ingress and Egress for Construction

Construction ingress and egress points will be through the existing gates on the WPSC property.

A temporary truck access road may be constructed that may consist of placement of an 8-oz non-woven geotextile (if needed) and a 6 to 12-inch layer of stone or base course material.

During construction activities, trucks will enter and exit the property at gated entrances, where appropriate signage will be posted to identify the construction entrance and exit. All truck beds will be covered and securely fastened before leaving the property.

5.2.5 Monitoring Well Abandonment

Existing monitoring wells within proposed removal action areas will be abandoned prior to construction. The following wells shown on Figure 5 are targeted for abandonment:

- MW603A and MW603B
- MW604
- MW605A and MW605B
- MW606

The following wells are near removal action areas and may require abandonment if removal action limits are expanded or the wells could be damaged by the removal action:

- MW607A and MW607B
- MW608A and MW608B
- MW609A and MW609B

Monitoring wells will be abandoned in accordance with the *Multi-Site Field Sampling Plan Revision 4*, dated September 8, 2008, consistent with WAC NR 141.

5.3 Fugitive Emission Control

Site activities could generate fugitive emissions including vapor, dust, odor, and noise. A standard level of care will be taken to minimize fugitive emissions. Fugitive emission control measures may include the use of sheet plastic and/or water or foam-based vapor suppression agents. Plastic sheeting may be used to provide a physical barrier to fugitive vapor and dust emissions specifically on inactive stockpiles or open excavations. Soil wetting using potable water with or without additives may be sufficient to control fugitive dust emissions from stockpiles, excavated areas, and access roads. A vapor suppression agent (e.g. Rusmar™ Foam or similar) will be applied to open excavations, completed ISS areas, and stockpiles of

MGP impacted materials when necessary to mitigate odors. Fugitive emission controls will be applied in accordance with the fugitive emissions management plan.

5.4 Removal Action Operations

Removal action operations will consist of the following elements:

- Pre-excavation and Excavation
- Management and Disposal of Excavated Materials
- In situ Solidification/Stabilization
- On-site Materials Management
- Excavation Dewatering
- Equipment Decontamination

5.4.1 Pre-Excavation and Excavation

Pre-excavation and excavation within the removal action areas will be conducted to remove and demolish subsurface structures/foundations and debris and excavate removal action Area A. Depending on the ISS treatability study results, removal action Areas B and C may require shallow excavation of soil for construction of an ISS work platform and to accommodate ISS swell generated from ISS treatment. Pre-excavation and excavation activities, if necessary will be performed in each removal action area prior to ISS construction.

Oversized debris and materials excavated, removed, and generated during demolition of subsurface MGP structures will be managed within removal action areas or material management areas and taken off site for landfill disposal in conjunction with disposal of excavated shallow soils.

5.4.1.1 *Shallow Soil Excavation*

Shallow soils will be removed within removal action Area A as shown on Figure 5. Shallow excavation may stop at the groundwater table if shallower than 2 feet. An exception will be made in areas where subsurface MGP structures and foundations require demolition and removal. In these cases, soil excavation and structure removal will extend as deep as necessary to remove the debris. Excavated soils will either be used to fill voids following structure and debris removal within removal action areas and managed with ISS or will be transported off site for landfill disposal. Additionally, subsurface structures that extend beyond the removal action limits may be removed depending on contractor and equipment

capabilities and structural considerations for surrounding roads and infrastructure, if applicable. As presented in Section 3.4, approximately 7,100 cubic yards of soil and debris are proposed for excavation and disposal.

During shallow soil excavation, soils will be inspected for MGP residuals and additional MGP related structures/foundations at the delineated limits. If MGP residuals or subsurface structures are present beyond the proposed removal action area, the shallow excavation may be expanded, as access allows, to remove remaining MGP-related materials.

The excavation process will occur in a staged progression to minimize the duration of open excavations and allow for adequate access to removal action areas for completing ISS construction. Soil excavation will be performed with conventional hydraulic excavators. To the extent practical, excavators will load soil directly from the excavation into trucks for transport and landfill disposal. Temporary stockpiling of these soils is discouraged but may be necessary. Phasing and work sequencing will be further developed during the final design phase.

5.4.1.2 Pre-Excavation for ISS

Pre-excavation will be conducted within removal action areas to depths greater than required for shallow soil removal to verify removal of all subsurface structures, obstructions, and oversized debris. All subsurface structures and obstructions are expected to be removed within the removal action areas. Additionally, subsurface structures that extend beyond the removal action limits may be removed depending on contractor and equipment capabilities and structural considerations for surrounding roads and infrastructure, if applicable.

If encountered, remnant MGP piping will be evaluated for MGP residuals. If MGP residuals are present in the piping, they will be removed to the extent practicable and treated or disposed following characterization. At the removal action limit, pipes will be abandoned in place and capped.

Following debris removal, excavations may be backfilled with the excavated MGP impacted soils within the removal action areas in preparation for ISS construction.

5.4.2 Management and Disposal of Excavated Materials

During the pre-excavation and excavation activities, materials will be visually inspected for MGP residuals and segregated into the following categories:

- Non-MGP impacted construction debris
- MGP impacted construction debris
- MGP impacted soil/source material

Segregation and management of excavated materials will include the following activities:

- Non-impacted construction debris will be temporarily stockpiled on site in a designated clean stockpile area prior to loading and transport to a recycling facility or disposal facility as construction debris.
- MGP impacted construction debris will be loaded and transported in covered trucks to the landfill for disposal. MGP impacted construction debris that is not directly loaded for immediate disposal will be temporarily stockpiled within the removal action area limits or within the appropriate material management area. MGP impacted construction debris that is too large for transport will be mechanically demolished prior to transport. Fugitive emission controls will be employed for stockpiles that remain after work hours.
- Remnant MGP piping will be cut or broken into manageable sections for loading and transport in covered trucks to the landfill for disposal. MGP residuals will be removed from the piping to the extent practicable and characterized prior to treatment or disposal. The piping may be temporarily stored either within the removal action area or in the appropriate material management area.
- MGP impacted soil/source material may be placed within the removal action areas for ISS treatment or transported in covered trucks for landfill disposal. Soil that is not directly loaded for immediate disposal or placed for ISS treatment will be temporarily stockpiled within the removal action area limits. Fugitive emission controls will be employed to stockpiles as necessary.

5.4.3 On-Site Materials Management

To facilitate proper on-site segregation and staging of materials during the removal action, the following staging areas will be set up:

- Material Management Area: MGP source material and MGP impacted debris that requires stockpiling prior to transport for disposal may be stockpiled within this area. The area will be constructed with a low permeability working surface (e.g., asphalt pavement or polyethylene lined pad), a sump, and berms.
- Decontamination Area: This area will be used to decontaminate construction equipment. The area will be constructed with a low permeability working surface, a sump, and berms. Liquids generated during decontamination activities will be managed similarly to the excavation dewatering treatment discussed in Section 5.4.4.

- Clean Staging Area: Clean, imported fill materials will be stockpiled in this area. The Clean Stockpile Area will consist of silt fence or berms around the perimeter to minimize potential storm water run-off.
- Water Treatment Pad: If required, a mobile pre-treatment system will be staged here. Water collected from excavation dewatering will be treated prior to discharge and is assumed to discharge to the sanitary sewer system, as described in Section 5.4.4.

5.4.4 Excavation Dewatering

If required, excavations and removal action areas will be dewatered to facilitate removal activities. Dewatering will be performed via a trench along the bottom of the excavation or via down-hole sumps equipped with pumps of adequate capacity. Water will be pumped to frac tanks for solids settling. The water may either be directly discharged to a City of Two Rivers sanitary sewer on site, pumped through a mobile pre-treatment system and then discharged to the sewer (as approved by the City of Two Rivers), or reused in the production of ISS grout at the batch plant. If a pre-treatment system is required, it may consist of bag filters and granular activated carbon units.

Residuals resulting from the groundwater pretreatment system may include:

- Granular Activated Carbon
- Bag or cartridge filters
- Solids from frac tanks

Bag or cartridge filters and solids will be transported for landfill disposal. Granular activated carbon may either be regenerated at a dedicated facility or transported for landfill disposal.

5.4.5 *In Situ* Solidification/Stabilization Construction

Following completion of shallow excavation and pre-excavation, ISS will be performed to solidify/stabilize MGP source material within the removal action areas to the anticipated depths indicated in Section 3.4. ISS construction will be completed as described below.

5.4.5.1 *ISS Layout and Design*

The layout of the ISS construction activities including the designed limits, depths, and alignment of the ISS treatment is provided in Section 3.4 and on Figure 5. And may be modified pending the results of the pre-removal action data collection activities disclosed in Section 4.2.

A layout of the ISS column locations will be provided by the ISS contractor prior to construction for review and approval by USEPA. Typical ISS column diameters range from 8 to 12 feet. Various diameter columns may be used depending on the subsurface soil conditions, site constraints or layout, or project schedule. Columns will be spaced based on a “neat line” overlap (i.e., 0 feet of overlap where three columns intersect). This pattern of overlap represents the industry standard design of ISS remediation projects.

Each ISS column will include continuous application from the ISS platform surface to the depths designated in Section 3.4. Each ISS column will have a unique lateral location (northing, easting) and top and bottom treatment elevations. Each column is survey located prior to construction.

ISS columns completed in removal action will be constructed to a depth of at least 6 inches below the top elevation of the confining clay layer. Top of clay elevation contours will be provided to the selected remediation contractor for precise design of each ISS column. The final bottom ISS column elevation may be adjusted in the field based on the actual depth to the clay surface if determined different based on field conditions.

Based on the removal action areas and depths the planned ISS construction, the preliminary quantity of MGP impacted soil/source material that will be stabilized/solidified is approximately 34,200 cubic yards, as indicated in Section 3.4.

5.4.5.2 ISS Operations

Final ISS equipment requirements will be evaluated and confirmed following selection of the ISS contractor. Typically, the following equipment will be required to complete ISS construction:

- **Earth Moving Equipment:** Conventional earth moving equipment including bulldozers and hydraulic excavators will be used during ISS construction to manage materials including soil and ISS swell. Ancillary equipment needed for daily operations and construction will include front-end loaders, fork lifts, man lifts, vibratory compaction equipment, and quad-axle or semi dump trucks.
- **ISS Batch Plant:** ISS grout will be prepared using an on-site batch plant. Grout plants operate by mixing known quantities of reagents and water to form an ISS grout of predetermined proportions in accordance with the mix designs specified from the ISS treatability study. Grout is then pumped from the mixing plant to the point of use. Typically, the grout plant will consist of, at a minimum: a storage silo, mixing tank, storage tank, and grout pump (e.g., moyno pump, a type of progressive cavity pump). A secondary bulk dry reagent storage vessel, sometimes called a “pig” is typically added to the system as additional on-site storage for reagent, which prevents delivery trucks from having to supply reagents directly to the overhead silo. The storage vessel can hold approximately six truckloads of reagents as opposed to the storage silo that can hold approximately one truckload. This setup will aid in scheduling reagent deliveries and minimize operational downtime.

- Vertical Rotary Mixing System (ISS rig): Vertical rotary mixing systems utilize a Kelly-bar drive system either attached to a track-type crawler crane or a hydraulic type unit (e.g., Delmag) that includes the following key components:
 - Power Unit: Supplies power that turns the Kelly bar. Systems can be diesel, electric, hydraulic, or a combination of these. The power unit can be a drill table attached to a crawler type crane or a hydraulic unit (e.g., Delmag).
 - Kelly: The rod that mixing tools are attached to and grout is conveyed through to the mixing tool. The Kelly can be modified depending on the required treatment depth.
 - Tool: Augers that are advanced through the subsurface while mixing the soil and grout. Tools sizes can be modified depending on required mixing area. For this project, mixing tools are anticipated to be 8 to 10 feet in diameter.

Typical ISS construction uses vertical rotary mixing systems to stabilize soil in place by mixing a cementitious grout and impacted soil. Grout is pumped to the top of the hollow Kelly. Grout flows through a secondary pipe inside the Kelly and exits through ports on a multi-blade mixing tool attached to the bottom end. The tool loosens the soil while a grout is pumped into the loosened soil as the tool advances from the ground surface to a target depth. Since a mixing tool loosens but does not remove soil, a drilling fluid is needed to lubricate the tool as it turns and advances through the subsurface. For this application the lubricant is typically the ISS grout itself.

Once the appropriate ISS mix design is prepared at the ISS batch plant, the ISS rig is lined up over an ISS column location and ISS treatment of the targeted soils can commence. A typical sequence of activities for installation of each ISS column is as follows:

1. The ISS rig positions the auger over the column and the location is confirmed via total station survey. This ensures each ISS column is placed in the correct location and ensures the integrity of the column overlap with adjacent columns.
2. The appropriate mix design is prepared in the batch plant and the ISS grout is transferred to the ISS rig.
3. The ISS rig begins advancing the auger into the targeted soils. As the auger is advanced, the flow of the mix design slurry is started and is injected into the soils through orifices in the mixing paddles on the auger. The mixing paddles blend the mix design slurry with the soil as the auger continues to advance until the target depth is reached. In general, the majority of the mix design slurry is mixed with the soils as the auger penetrates downward.
4. Once the auger reaches the column target depth, the remainder of the mix design slurry is injected as the auger is withdrawn from the ISS column so that the blending process is repeated.
5. The auger may make repeated up and down passes as necessary to adequately blend each ISS column. Often, a minimum of three passes are performed at each column location.
6. Upon completion of the ISS column, the ISS rig is moved to the next column location.

ISS performance will be monitored with an ISS CQA Plan as described in Section 7.5 and will be primarily based on the established design goals for unconfined compressive strength (UCS) and hydraulic conductivity as presented in Section 4.2.

5.4.5.3 ISS Swell Management

Full-scale ISS construction will result in expansion of the treated soil. The expansion, often referred to as “swell,” is a result of blending reagent mixtures with the soil. Depending on the soil type, the swell can range from 10% (sandy materials) to 40% (clayey materials) of the original treatment volume. Final testing during the ISS treatability study and the ISS pilot test will provide an estimate of ISS swell expected for this application. An ISS swell management plan will be developed during final design and is anticipated to be based on the following parameters:

- To minimize off-site disposal of contaminated materials, ISS swell material will be managed on site and within the removal action area limits to the extent practical.
- ISS swell will be managed in place following ISS column completion when appropriate. If necessary ISS swell could be transported for management in other removal action areas and graded to the elevation contours developed during final design.
- Elevation contours developed during final design will promote positive drainage of surface water and infiltration of surface water at the edges of removal action areas.

5.4.6 Equipment Decontamination

Decontamination of equipment and management of generated decontamination wastes will be performed in accordance with the site-specific Health & Safety Plan. All equipment will be decontaminated within the designated decontamination area. Final equipment decontamination, prior to demobilization, will consist of dry mechanical removal (i.e., scraping or brushing) of any loose material followed by pressure washing.

Road trucks will not be allowed within the removal action limits to prevent off-site tracking of excavated materials. A tracking pad will be located at the truck entrances and exits as an additional measure to prevent off-site tracking of excavated materials.

Excavation and ISS equipment visibly containing MGP-impacted materials will be decontaminated prior to being moved from one location to another, as necessary to control cross-contamination between removal areas and areas not being removed.

Additional equipment decontamination procedures are described in the *Multi-Site Field Sampling and Analysis Plan* (Integrus 2007).

5.5 Site Restoration

The Site will be restored to pre-removal action conditions and grades to the extent practicable. Surface grades will be sloped to promote drainage similar to current site topography. Final ground surface in select areas will either be vegetated or consist of coarse aggregate. For vegetated areas, topsoil, with appropriate seeding and mulch, will be placed on top of the clean backfill. For gravel areas, such as access roads, a layer of gravel will be placed on top of the clean backfill.

It is anticipated clean soil cover will be constructed over the removal action areas following ISS construction and ISS swell management. The soil cover will consist of clean imported fill and topsoil and will be constructed with the intent to meet the requirements of a direct contact barrier per WDNR guidance. The purpose of the earthen cover systems are to function as WAC NR 720 soil performance standard by protecting human health by preventing direct contact with underlying impacted soils. Imported clean fill will be used as backfill. Backfill material will be imported from a clean borrow source and may include stone, coarse aggregate, or fine-grained material depending on local availability and future site use.

Wetland mitigation at an alternate agreed upon location, will be in substantive conformance with wetland mitigation requirements of WDNR, USACE and USEPA. Final elevations for completion of removal action operations will consider the current 100 year flood plain and maintain flood storage capacity as acceptable to local ordinances based on technical assistance from WDNR and FEMA.

All erosion controls used during construction activities will be removed at the completion of the removal action. Post-construction erosion controls will be installed along the down gradient edge of the disturbed areas and as needed until vegetation is established.

6 STATE AND LOCAL REQUIREMENTS

6.1 Storm Water Discharge

A construction site Notice of Intent (NOI) for storm water discharges associated with land disturbing construction activities under WAC NR 216 will be submitted to the WDNR since the disturbed portion of the site is more than one acre. A Notice of Termination will be prepared and submitted to WDNR once site conditions are fully stabilized following the completion of construction activities.

6.2 Wetlands

As described in Section 2.4 and shown on Figure 3, a wetland delineation was completed on the WPSC property identifying approximately 2.0 acres of wetland in the western and central portions of the Site. Based on correspondence with USEPA, a document drafted by the U.S. Army Corps of Engineers and the Wisconsin Department of Natural Resources titled *Guidelines for Wetland Compensatory Mitigation in Wisconsin*, will serve as the guidance document for mitigation at this site. This document indicates that the standard starting ratio for wetland mitigation is 1.7 to 1.0 per acre of wetland impacted. Through correspondence with WDNR and USACE, USEPA agrees that there will be no permits required with WDNR and USACE for wetland disturbance. WPSC and USEPA also agree the wetland mitigation will occur at an off-Site location. Future wetland mitigation will meet the requirements of the *Guidelines for Wetland Compensatory Mitigation in Wisconsin* document, or as approved by the USEPA. Future addendums to this RAWP will document a final wetland restoration agreement between WPSC and USEPA.

6.3 Additional Coordination and Permitting

Coordination with governmental agencies and utility providers will be required for the following project elements; treated contact water discharge to the City of Two Rivers sanitary sewer system, gas utilities with WPSC, Two Rivers Water and Light for water and power utilities.

WPSC will coordinate with the City of Two Rivers for approvals and permits on the following activities:

- Transportation and routing of equipment and materials through City Streets
- Construction hours and noise ordinances

- Temporary electrical permit
- Temporary water use permit
- Permit to discharge possible MGP impacted groundwater or surface water as part of the remedial activities. If required, the MGP impacted groundwater and/or surface water may be pre-treated to meet the City's discharge requirements.

Additional permit equivalences for construction will be prepared as needed during construction activities by the affected contractors.

6.4 Off-Site Disposal

Excavated MGP-impacted debris and soil is planned to be profiled and disposed at an approved Subtitle D landfill.

Due to the site location, the close proximity of the residents, and desire to limit public exposure to VOC emissions, a waiver may be requested to WAC NR 419.07(4) (d), which limits the maximum tonnage of VOC impacted soil a landfill may accept per day. The waiver, if needed and approved, will reduce the timeframe for completion of the project and minimize disruption to the community.

6.5 Beneficial Use of Ground Granulated Blast Furnace Slag

In accordance with the requirements of WAC NR 538.10(2), a request for approval to beneficially reuse ground granulated blast furnace slag as one of the ISS reagents will be submitted to WDNR. Submission of this request is anticipated in Spring 2014.

7 CONSTRUCTION QUALITY ASSURANCE MEASURES

This section describes the following construction quality assurance measures that will be employed during the removal action.

- Air Monitoring
- Fugitive Emissions Management
- Health and safety
- Sampling and analysis

7.1 Air Monitoring Plan

Removal action activities have the potential to generate emissions, including odor, fugitive respirable particulate matter less than 10 μm in diameter (PM_{10}), and vapor phase COCs. Potential emission sources include the following:

- Soil Excavation: Potential emissions consist of VOC vapors and fugitive dust during soil excavation and loading into trucks.
- In Situ Solidification/Stabilization: Potential emissions consist of non-MGP related fugitive dust (i.e., dry reagent) and MGP-related vapor/odor emissions as the soil is disturbed by mixing.
- Excavated Material Management: Potential emissions consist of fugitive dust and/or vapor/odor emissions from stockpiles and during material handling.

Consistent with other IBS managed removal actions (i.e., Crawford and North Plant), pre-construction air monitoring will be performed to document background levels of particulates and vapor phase COCs at the Site. Air monitoring will be conducted at the Site perimeter during removal action activities to ensure engineering measures are being protective of public health and the environment and to determine when response actions are warranted. Specific air monitoring elements are likely to include the following:

- Establishing a dedicated continuously operated weather station at the Site to monitor meteorological conditions.
- Collecting pre-construction background air samples to establish baseline ambient air concentrations.

- Continuously monitoring TVOCs and PM₁₀ with fixed air monitoring (FAM) stations at the Site perimeter.
- Supplemental periodic handheld operational air monitoring for TVOCs, benzene, and PM₁₀ during active work periods using portable and handheld equipment for comparison with established Action Levels.
- Collecting 24-hour time-weighted SUMMA canister samples along the Site perimeter during active construction. SUMMA canisters will be used to collect 24-hour time-weighted average samples for VOC analysis. Results will be compared to the site-specific risk-based acceptable air concentrations (AAC) which will be developed and provided in an addendum to this document at a later date.
- Collecting 24-hour time-weighted polyurethane foam (PUF) samples along the Site perimeter during active construction. PUF samples will be used to collect 24-hour time-weighted average samples for PAH analysis. Results will be compared to the site-specific risk-based AACs which will be developed and provided in an addendum to this document at a later date.

Air monitoring activities will be conducted by NRT. The air monitoring contractor will support planning, implementation, and documentation of a comprehensive perimeter air monitoring program during removal action activities. The air monitoring contractor will work with the removal action contractor and the engineer through all phases of the removal action to ensure appropriate control and mitigation of vapor phase, fugitive dust, and odor emissions.

7.1.1 Real-Time Perimeter Air Monitoring

Real-time air monitoring for TVOCs and PM₁₀ will be conducted along the Site perimeter continuously at FAM stations. The intent of the real-time monitoring program is to provide an early detection of short-term emissions and potential off-site migration of removal action related TVOCs and PM₁₀. Real-time FAM stations will operate 24-hours per day, 7-days per week, during periods of removal action activity. The real-time perimeter air monitoring system consists of FAM stations that are supported by a central computer and an alarm notification system.

The FAM stations are typically programmed to measure 15-minute average TVOC and PM₁₀ concentrations. Each station will include a gas chromatograph programed to differentiate individual BTEX compounds if the 15-minute TVOC average exceeds the Action Levels described in Section 7.1.5. The FAM stations will transmit data in real-time to a central computer via wireless radio telemetry. The central computer will be programed to compare the TVOC and PM₁₀ 15-minute averages to the Action Level. If an Action Level is exceeded, an alarm will display on the central computer and predetermined individual(s) will be notified.

7.1.2 Time Weighted Average (24-Hour) Perimeter Air Monitoring

The proposed air sampling strategy is divided into three categories: background monitoring, full-scale startup, and full-scale operations. Each category has distinct sampling frequencies and quantity requirements. Frequencies and quantities may be revised during construction. Sampling requirements include the following:

- **Background:** Prior to startup of full-scale operations, background air sampling and monitoring will be conducted to establish baseline concentrations for comparison with AACs. In addition to continuous real-time monitoring with the FAMs, 24-hour SUMMA and PUF sampling will be performed at upwind and downwind locations along Site perimeter. The SUMMA samples will be analyzed for VOCs including naphthalene (USEPA Method TO-15). The PUF samples will be analyzed for PAHs (USEPA Method TO-13A).
- **Full Scale Startup:** During approximately the first two months of full-scale operation, 24-hour SUMMA samples will be collected at upwind and downwind locations along the Site perimeter three times per week. 24-hour PUF samples will be collected at upwind and downwind locations along the Site perimeter a minimum of once per week. Priority (3-day) laboratory turnaround will be requested for rapid assessment of the analytical results. The duration of the Full Scale Startup period may be extended based on site-specific conditions that could include weather and work activities.
- **Full Scale:** During the remaining duration of full-scale operations, 24-hour SUMMA samples will be collected twice per week at upwind and downwind locations along the Site perimeter. PAH data will be collected with 24-hour PUF samples at upwind and downwind locations along the Site perimeter once per week or may be monitored indirectly by measuring the PM₁₀ concentration (i.e., using real-time monitor), rather than using PUF samplers.
- With the exception of full scale startup, samples will be analyzed within the 14-day holding time unless real-time monitoring results indicate that the sample analysis should be expedited to evaluate potential on-site exceedances of AACs.
- Upwind and downwind samples will be located along the Site perimeter based on removal action activities, accessibility, receptors, and weather conditions.
- Field duplicates for the SUMMA canisters and PUF samples will be collected at a frequency of one per 20 samples. Duplicates will be obtained by collecting two concurrent samples from a single location and having both analyzed by the laboratory.

7.1.3 Real-Time Handheld and Observational Monitoring

Periodic real-time air monitoring using portable and handheld devices will be conducted along the Site perimeter prior to and during the removal action operations. The frequency and locations for monitoring will be based on site-specific conditions encountered during the removal operations and potential sensitivity of off-site receptors. Key requirements include of the following:

- TVOCs will be monitored at least once daily along the Site perimeter during active work periods using a handheld photoionization detector (PID) at upwind and downwind locations
- Benzene will be monitored at upwind and downwind locations using a handheld PID with a vapor-specific separation tube that analyzes specifically for benzene only when sustained concentrations of TVOCs are observed at or above the Action Level
- PM₁₀ will be monitored at least once daily during active work periods using portable DustTrak™ aerosol monitoring equipment, or similar
- Odor will be periodically assessed along the Site perimeter during active work periods
- Fugitive dust will be continuously monitored by visual assessment during construction operations.

7.1.4 Assessment of Meteorological Conditions

An on-site meteorological station will be used to measure wind speed, wind direction, relative humidity, ambient air temperature, and barometric pressure. Data will be relayed to a dedicated computer that will receive continuous meteorological data and compute a 5-minute running average of the wind speed and direction. The 5-minute running average wind direction will be used to identify upwind and downwind sample locations and to monitor off-site receptors. The information will be stored electronically and included in daily reports. Average daily temperatures and barometric pressures will be used to calculate 24-hour time-weighted average air sample volumes for the SUMMA canisters and PUF samples. Meteorological data may also be obtained from the National Data Buoy Center (Two Rivers Station C58W3) in the event of a malfunction of the on-site station.

7.1.5 Action Levels

Action Levels will be used as a screening tool to manage construction activities to minimize the potential for off-site emissions. Action levels are selected at appropriate levels to avoid exceeding an action level from ambient air concentrations (e.g., exhaust from nearby parked cars) versus concerns that could be resulting from removal action operations. Exceedance of an Action Level at the Site perimeter will require a response action for vapor phase, particulate, and/or odor mitigation based on the conditions presented in Section 7.2.1. The effectiveness of the Action Levels to maintain off-site vapor phase emissions below the AACs will be assessed during the full-scale startup and may be adjusted, as appropriate. Proposed Action Levels for periodic real-time perimeter monitoring are summarized in the table below:

Action Levels

Parameter	Action Level
TVOCs	1.0 ppm greater than background (15-minute average concentration)
Benzene	0.5 ppm
PM ₁₀	1.0 mg/m ³ greater than background (15-minute average concentration)

These action levels are based on the Wisconsin Bureau of Environmental and Occupational Health, Department of Health Services' *Health based Guidance for Air-Management, Public Participation, and Risk Communication During the Excavation of Former Manufactured Gas Plants*.

7.2 Fugitive Emissions Management Plan

Action Levels for fugitive air emissions will be used in a tiered approach to determine necessary response actions to different exposure conditions. In addition to the Action Levels provided in Section 7.1.5, a qualitative assessment will be performed for odor at the Site perimeter. An odor Action Level will be defined as conditions perceived to present a public nuisance or if a public complaint is received. Dust will also be assessed qualitatively based on observed off-site migration.

7.2.1 Emission Conditions

Three Emission Conditions have been developed based on the type and duration of an Action Level exceedance. The three conditions are depicted on Figure 7 and have the following definitions:

- **Emission Condition 1:** Air conditions for either TVOCs or particulates exceed the Action Level at the Site perimeter. Emission Condition 1 may also be triggered by odor at the Site perimeter that could pose a public nuisance and/or sustained off-site migration of visible dust. This condition initiates a yellow flag.
- **Emission Condition 2:** BTEX concentrations exceed the Action Level or particulates continue to exceed the Action Level longer than 15 minutes. Emission Condition 2 will also be triggered if mitigation measures for an Emission Condition 1 are ineffective in reducing odors or visible off-site dust migration. This condition initiates a red flag.
- **Emission Condition 3:** Concentrations of BTEX or particulates continue to exceed an Action Level for an additional 15 minutes after Emission Condition 2 is initiated. Emission Condition 3 will also be triggered if mitigation measures for an Emission Condition 2 are ineffective in reducing odors or visible off-site dust migration or if a public complaint is received. This condition continues the red flag.

Site Condition information will be conveyed to the air monitoring contractor via visual confirmation on the base computer monitor paired with an automated cell phone notification to the air monitoring contractor's field technician. Following the receipt of the information, verbal notification will be made directly to the engineer by the air monitoring contractor's field technician.

In addition to monitoring Action Levels, monitoring of AACs at the perimeter will be conducted using 24-hour time-weighted sampling methods for target compounds. The objective for monitoring AACs is to confirm that any off-site fugitive emissions are below levels that would pose an exposure concern. If exceedances of the AACs are identified, modifications to the fugitive emissions response strategy may be required that could include more aggressive application of fugitive emission controls/measures and/or reducing Action Level concentrations for Site Condition response.

7.2.2 Notification, Communication and Response Procedures

Clear lines of communication and understanding of roles and responsibilities is critical to effectively responding to and implementing appropriate mitigation measures. Notification, communication, and response procedures will be in accordance with the following general procedure:

- **Identification and Verification of an Emission Condition Alarm:** The air monitoring contractor identifies and verifies the condition from an on-site activity.
- **Notification and Communication:** The air monitoring contractor notifies the engineer and contractor for a collaborative determination of the appropriate mitigation measures.
- **Response Implementation:** The contractor implements the mitigation measures.
- **Assessment and Confirmation:** The engineer and air monitoring contractor determine if the mitigation measures implemented were effective in reducing perimeter emissions.

Communication of an Emission Condition Alarm will be initiated by the air monitoring contractor to the engineer who will then coordinate and communicate with the remediation contractor to implement the appropriate mitigation measures. During initial notification to the engineer, the air monitoring contractor will verify that the alarm is not due to off-site emission sources. Following verification, the notification will be confirmed with the engineer and the air monitoring contractor, engineer, and remediation contractor will discuss the Site Condition and appropriate mitigation measures. Following implementation, the engineer will assess the effectiveness of the mitigation measures by communication with the air monitoring contractor who will continue to monitor changes to Action Level parameter concentrations. Changes in concentrations will be reported directly to the engineer by the air monitoring contractor. If mitigation measures are not effective, the engineer, air monitoring contractor, and the remediation contractor will meet to discuss and implement appropriate additional and/or modified mitigation measures.

Following implementation of the appropriate mitigation measures the engineer will assess the effectiveness of the mitigation measures by communicating with the air monitoring contractor and the remediation contractor. Following demonstration that the perimeter concentrations have been effectively reduced below, the engineer will confirm with the remediation contractor a return to an operational condition.

7.2.3 Mitigation Measures

Mitigation measures for fugitive emissions are divided into the following categories:

- Physical Controls: Physical controls are the primary mitigation measures and incorporate a variety of activities (e.g., good housekeeping practices, maintaining exclusion zones, and covering stockpiles). If Emission Condition 2 or 3 mitigation measures are required, modifications to the physical controls may include more aggressive activities such as daily covering of stockpiles or continuous use of water for dust suppression.
- Work Sequencing: Sequencing the work will limit emissions from freshly exposed soil and the amount of material that may require stockpiling pending further management. Other sequencing aspects include planning the operations to avoid double-handling of impacted materials and scheduling loading and off-site hauling to minimize the duration that staged materials will need to be maintained. If Emission Condition 2 or 3 mitigation measures are required, work sequencing may be modified.
- Site Layout: Requirements for site layout include planning by the contractor to locate proposed stockpile and material management areas away from potentially sensitive receptors to the extent practicable. These requirements will also include reassessment of site layout as necessary throughout construction.
- Engineering Controls: Required during Emission Condition 2. Engineering controls will consist primarily of the use of Rusmar™ Long Duration Foam (AC-645) or an equal product approved by the Field Engineer. Application produces thick viscous foam for immediate suppression of fugitive emissions. Foam application is not required under Emission Condition 1 but may be used for control of localized emissions in the removal action areas. The use of Rusmar AC-900 series may only be required under Emission Condition 3. This foam provides an extended duration and higher level of suppression effectiveness than the Rusmar AC-645.

7.3 Health and Safety Plan

IBS, contractors, and NRT personnel will be qualified and knowledgeable with respect to health and safety requirements relating to the removal action. A site-specific Health & Safety Plan will be developed for IBS and oversight personnel working at the Site during all field activities in general accordance with the USEPA-approved *Multi-Site Health and Safety Plan Revision 2* (Prepared for Integrys, 2007). This plan will be a separate document and will be available upon request for review. Project team members will read and be familiar with the plan prior to beginning field work.

Contractors retained to conduct the removal action will be required to have a written Health & Safety Plan prior to the start of field activities and will maintain a copy at the Site at all times during work activities.

The Contractors' Health & Safety Plan will comply with all applicable OSHA regulations including 29 CFR 1910: Occupational Safety and Health Standards and 29 CFR 1926: Health and Safety Regulations for Construction. The plan will, at a minimum, address the following elements:

- Key Personnel
- Air Monitoring
- Health and Safety Risks
- Site Control
- Training Documentation
- Decontamination
- Protective Equipment
- Emergency Response
- Medical Surveillance

Contractor's employees and subcontractors performing work on this project involving excavation, movement, or treatment of solid waste or contaminated media will be required to have appropriate training as specified in the OSHA standards, including HAZWOPER Standard 29 CFR 1910.120. All work is to be performed in Level D personal protective equipment, but the contractor will have capability to upgrade to Level C.

7.4 Sampling and Analysis Plan

If soil and wastewater samples need to be collected, the following criteria will be followed:

- Analysis of environmental media samples will be performed by an analytical laboratory included in the USEPA-approved RI/FS Multi-Site QAPP – Revision 2 (Submitted to the USEPA in 2007). The approved laboratories anticipated for use are STAT Analysis, Pace Analytical, and Test America.
- All samples for laboratory analysis will be collected in laboratory-supplied containers.
- Each cooler of samples will contain a temperature blank and trip blank for BTEX (if aqueous samples are submitted for BTEX) to demonstrate proper sample preservation and handling.
- All QA/QC required by the analytical method will be completed. Lab QA/QC summary and chain of custody documentation will be submitted with analytical results.

Soil and water sampling procedures and analytical methods will be in accordance with the USEPA-approved RI/FS Multi-Site QAPP – Revision 2 (Submitted to the USEPA in 2007).

7.4.1 Pre-Disposal Sampling

If required by the landfill, pre-disposal samples of excavated soils will be collected prior to disposal to verify that MGP source material soils are not above the Subtitle D landfill requirements. If soils are above landfill requirements and require amendment, the soils will either be managed onsite with ISS or samples will be collected following amendment to document that landfill requirements are met. These samples will be submitted to a laboratory per landfill requirements.

7.4.2 Wastewater

If wastewater is generated, wastewater samples will be collected in accordance with the City of Two Rivers requirements prior to discharge to the sanitary sewer. Samples will be analyzed for the parameters specified by the City of Two Rivers to confirm concentrations are below the discharge limits required by the permit.

7.5 ISS Construction Quality Assurance Plan

During ISS construction, a CQA plan will be implemented to ensure the ISS columns are constructed to meet the design performance goals. A preliminary CQA Plan is provided in Table 1. This plan will be revised, if necessary, following ISS treatability study completion and provided as a report addendum submitted in summer 2014. Since the treatability study will correlate leaching performance to the physical parameters of the mix design (UCS and hydraulic conductivity), the CQA program will evaluate the physical parameters and no leach testing or durability tests will be performed during the removal action.

The CQA plan implemented during full-scale ISS construction will likely include collection of one CQA sample for every 1,000 cubic yards treated or once each day of ISS treatment, and collection of one CQA sample for every 200 linear feet along the treatment area perimeter to ensure compliance with the design parameters. Any ISS columns that do not meet the mix design parameters will be documented and retreated if necessary.

8 SCHEDULE

8.1 Schedule for Construction

Construction activities are tentatively scheduled to begin in summer 2014 subject to review and approval of this RAWP by the USEPA, issuance of a final Administrative Order on Consent, and governmental approvals. Property access and contractor availability are not expected to be constraints with respect to the project schedule; however, weather conditions may influence the production rate of the work.

The table below summarizes the estimate construction schedule based on the planned scope of work.

Preliminary Construction Schedule

Activity	Duration (Weeks)
Target Project Start Date	Summer 2014
Mobilization / Site Preparation	3
ISS and Shallow Excavation	12
ISS Swell Management	1
Site Restoration/Close Out	2
Contingency	2
Total Estimated Project Duration	20 (0.38 Years)
Target Completion	Fall 2014

Assumptions: A prudent estimate for typical ISS/excavation construction assumes approximately 700 cubic yards/day; which was utilized for this schedule. An estimate of 41,300 cubic yards of remediation is assumed.

8.2 Future Addendums

Future information will be submitted to the USEPA in regards to;

- Summary of the pre-removal action data collection activities
- Update figures of source material and confirmatory limits for removal action (Section 4.2.1)
- Results from the treatability study including recommended mix design(s), geotechnical and chemical results, and additional recommendations based upon the results (Section 4.2.2)

- Lower clay layer topographic map to establish vertical limits for the removal operations in Areas A, B and C
- Boring logs for each of the boring locations
- Tabulated summaries of laboratory analytical data
- Copies of all laboratory analytical data reports and other pertinent forms (e.g., chains of custody)
- Construction Quality Assurance Plan
- Site-specific risk-based acceptable air concentration memo
- Site staging for removal action activities
- ISS column layout
- Site restoration design (including wetland restoration)
- Final Wetland Mitigation Plan

8.3 Completion Report

A Removal Action Completion Report will be submitted to USEPA within 90 days following restoration of the Site.

9 REFERENCES

EDI, 1986, Site Investigation, Former Coal Gas Manufacturing Plant, School Street, Two Rivers, Wisconsin

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NRT, 2003, Pre-Remedial Design Investigation and Remedial Action Options Report; Former Manufactured Gas Plant Site, Two Rivers, Wisconsin.

USEPA, 1993, "Off-Site Rule," Regulatory citation is 40 CFR 300.440. September 22, <http://www.epa.gov/osw/hazard/wastetypes/wasteid/offsite/index.htm>

USEPA, 2009, *Technology Performance Review: Selecting and Using Solidification/Stabilization Treatment for Site Remediation*, National Risk Management Laboratory Office of Research and Development, EPA/600/R-09/148.

FIGURES



SITE LOCATION

REMEDIAL ACTION WORK PLAN
FORMER TWO RIVERS MANUFACTURED GAS PLANT
WISCONSIN PUBLIC SERVICE CORPORATION
TWO RIVERS, WISCONSIN

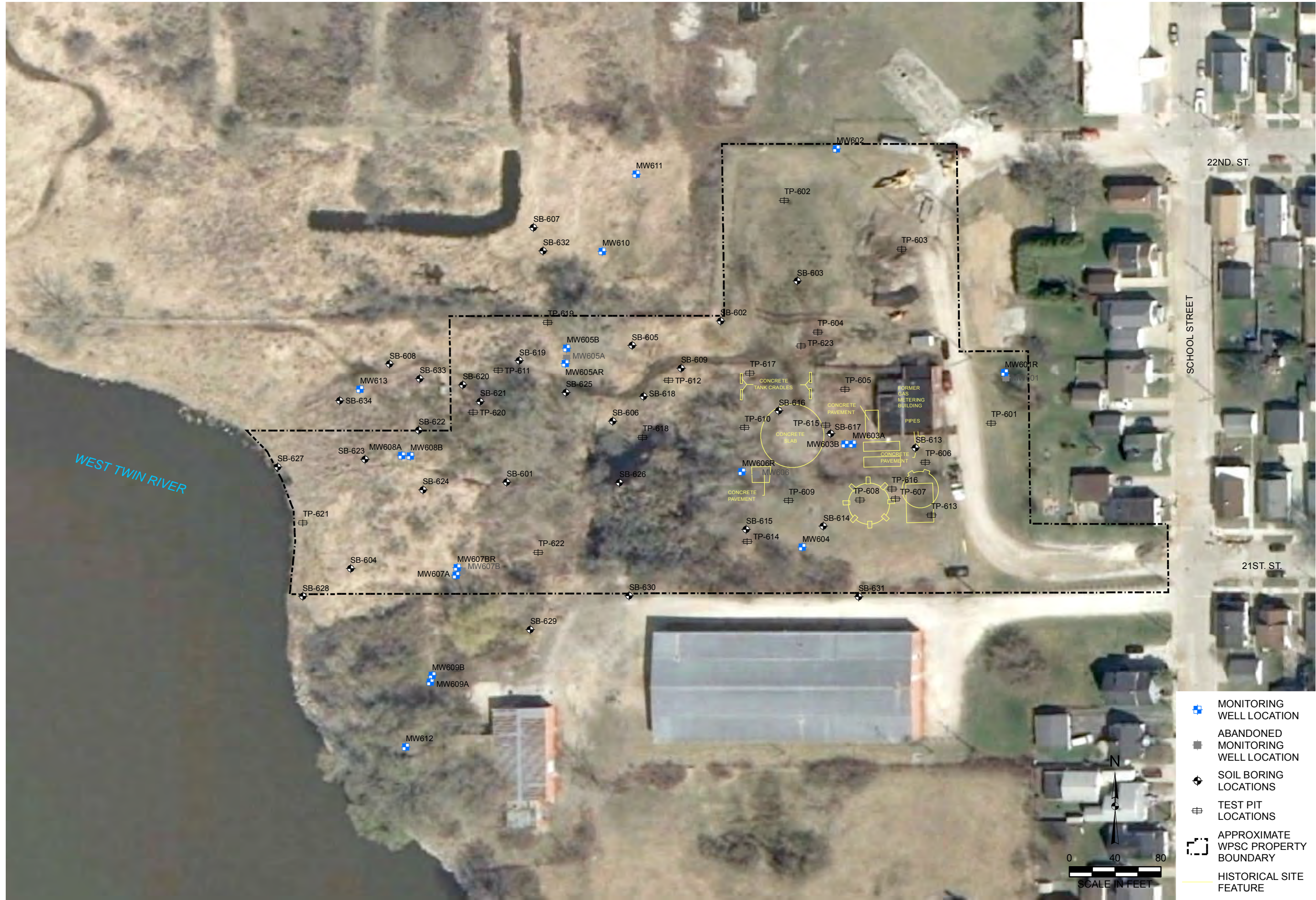
PROJECT NO: 1569

FIGURE NO: 1



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TDC 1/29/14
REVIEWED BY/DATE:
KRM 1/30/14
APPROVED BY/DATE:
KRM 2/4/14

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- MONITORING WELL LOCATION
- ABANDONED MONITORING WELL LOCATION
- SOIL BORING LOCATIONS
- TEST PIT LOCATIONS
- APPROXIMATE WPSC PROPERTY BOUNDARY
- HISTORICAL SITE FEATURE

HISTORICAL SITE LAYOUT, SOIL BORINGS,
AND TEST PIT LOCATIONS

REMEDIAL ACTION WORK PLAN
FORMER TWO RIVERS MANUFACTURED GAS PLANT
WISCONSIN PUBLIC SERVICE CORPORATION
TWO RIVERS, WISCONSIN

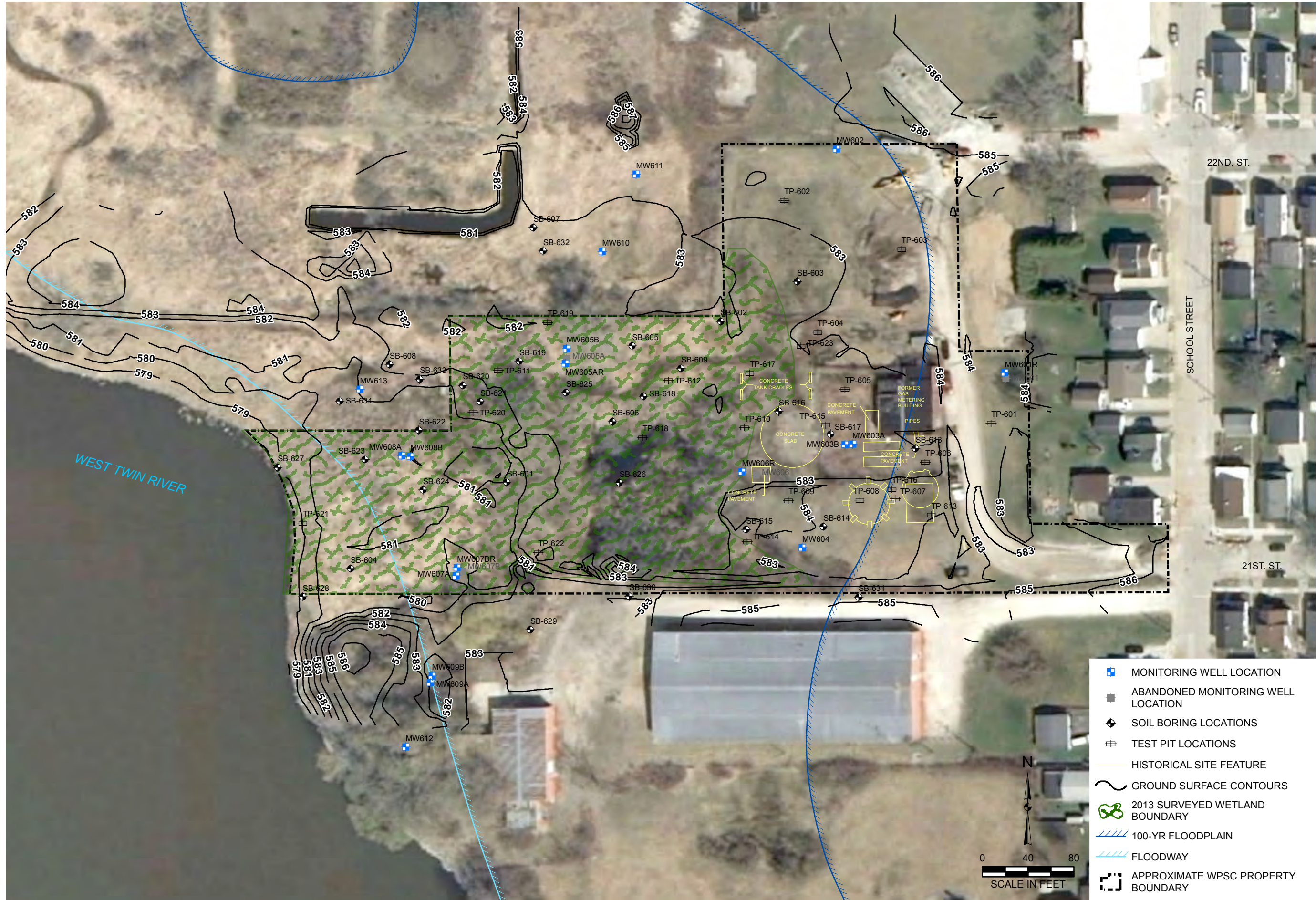
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KRM 2/11/14
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KRM 2/21/14

PROJECT NO: 1569

FIGURE NO: 2



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REVIEWED BY/DATE:
KRM 2/11/14
APPROVED BY/DATE:
KRM 2/21/14

SITE CONTOURS AND WETLAND DELINEATION

REMEDIAL ACTION WORK PLAN
FORMER TWO RIVERS MANUFACTURED GAS PLANT
WISCONSIN PUBLIC SERVICE CORPORATION
TWO RIVERS, WISCONSIN

PROJECT NO: 1569

FIGURE NO: 3



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KRM 2/11/14
APPROVED BY/DATE:
KRM 2/21/14

SITE UTILITIES

REMEDIAL ACTION WORK PLAN

FORMER TWO RIVERS MANUFACTURED GAS PLANT

WISCONSIN PUBLIC SERVICE CORPORATION

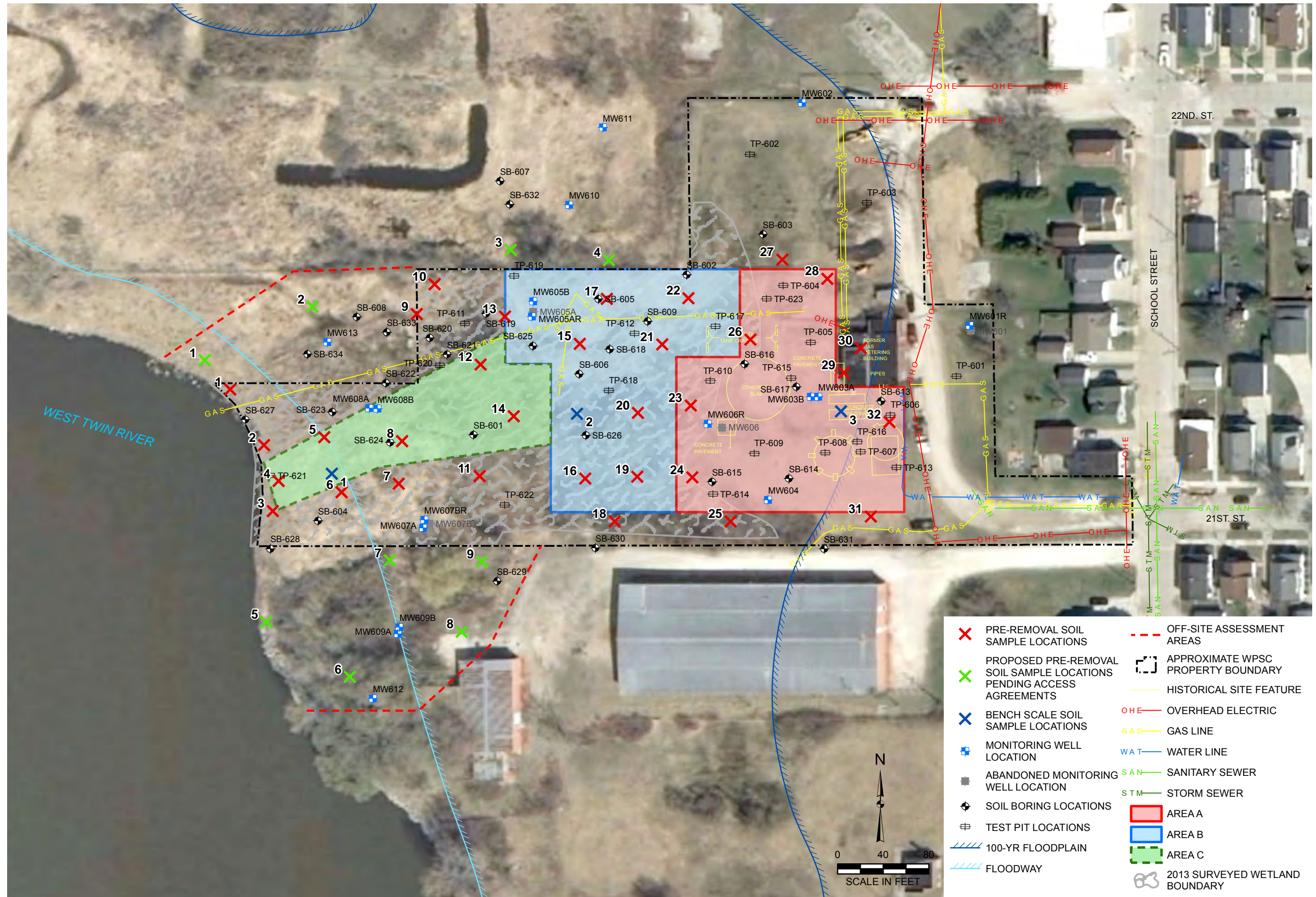
TWO RIVERS, WISCONSIN

PROJECT NO: 1569

FIGURE NO: 4



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KRM 2/11/14
APPROVED BY/DATE:
KRM 2/21/14

REMOVAL ACTION AREA EXTENTS

REMEDIAL ACTION WORK PLAN

FORMER TWO RIVERS MANUFACTURED GAS PLANT

WISCONSIN PUBLIC SERVICE CORPORATION

TWO RIVERS, WISCONSIN

PROJECT NO: 1569

FIGURE NO: 5



Bench Scale Treatability Study



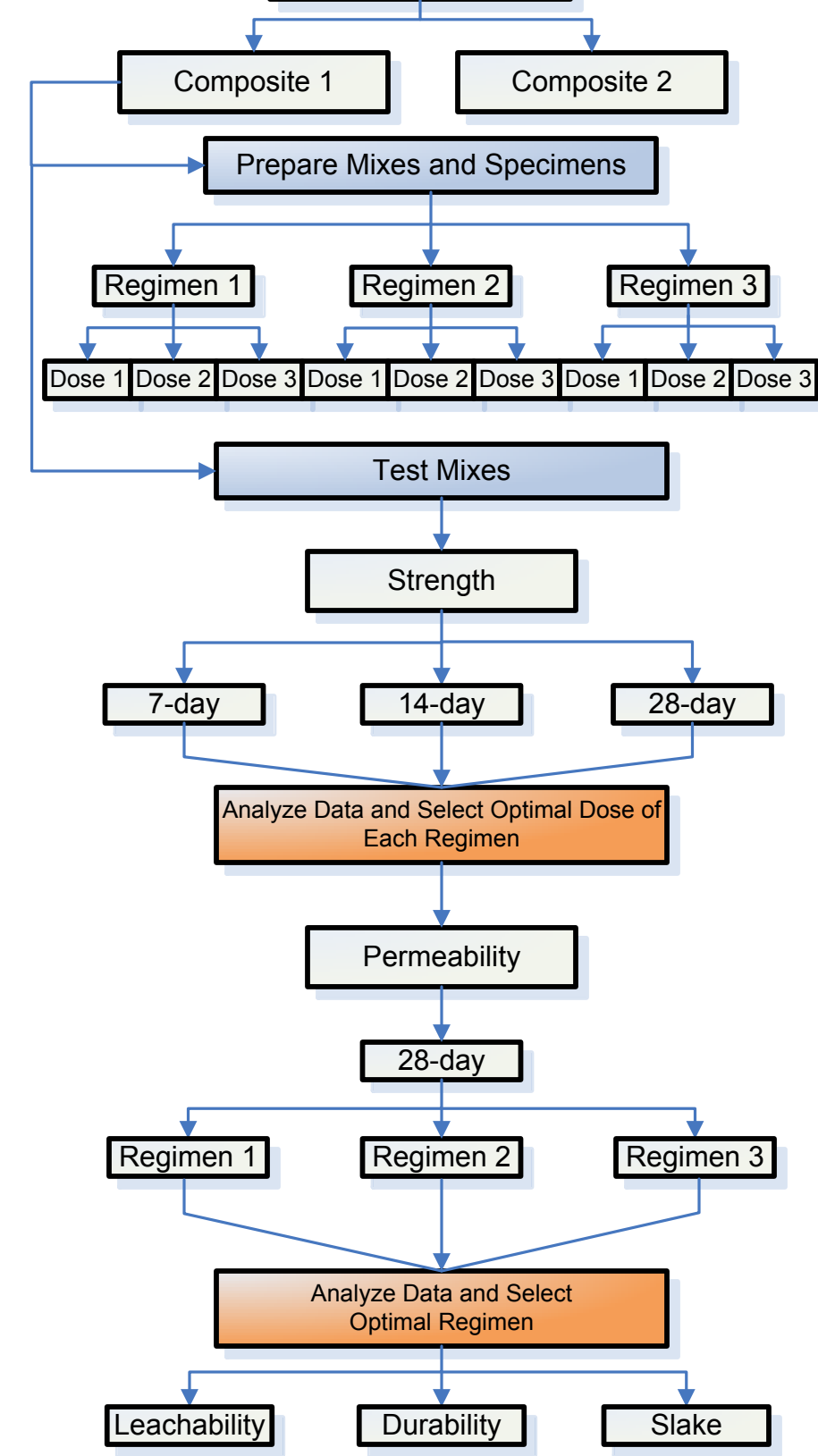
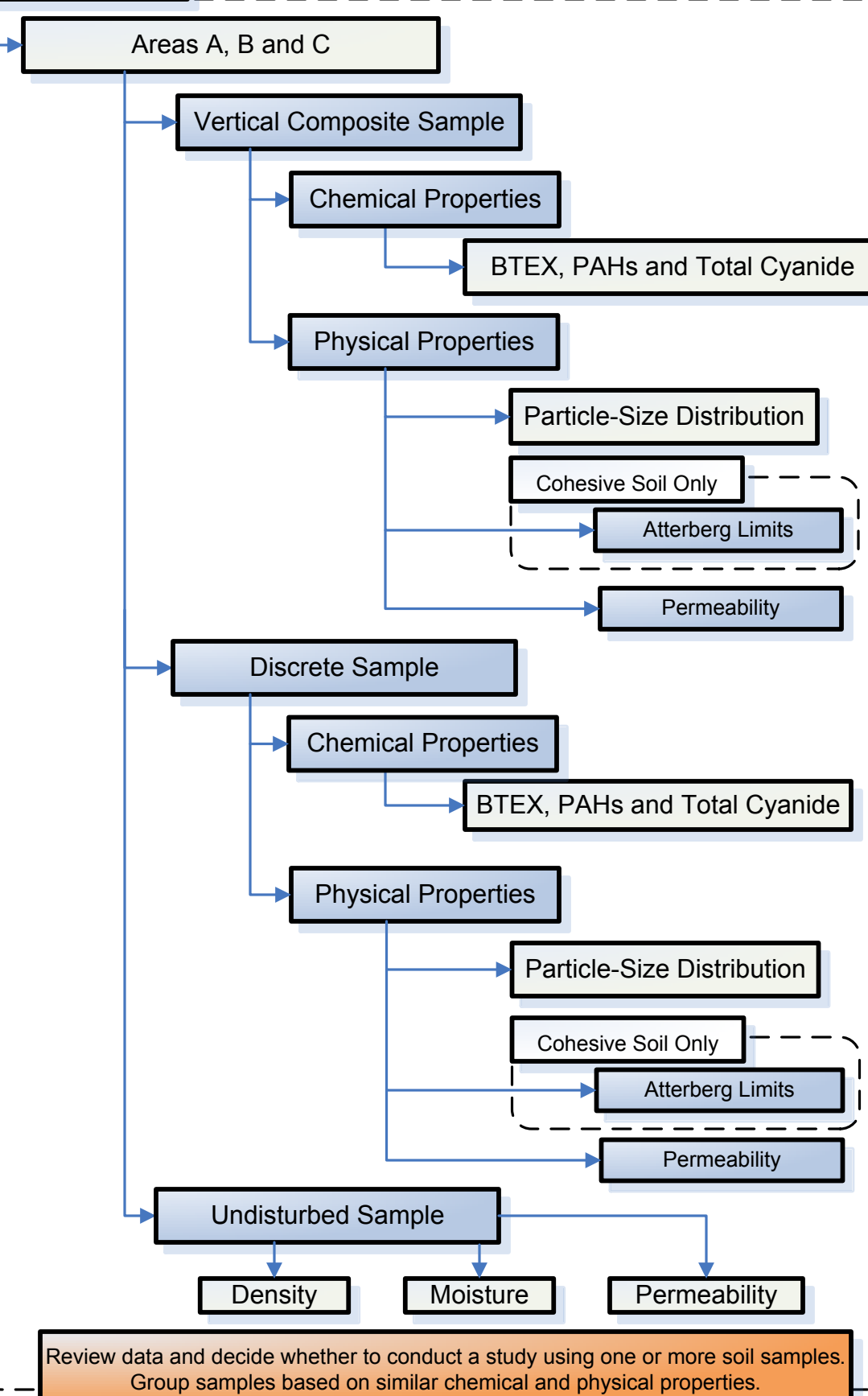
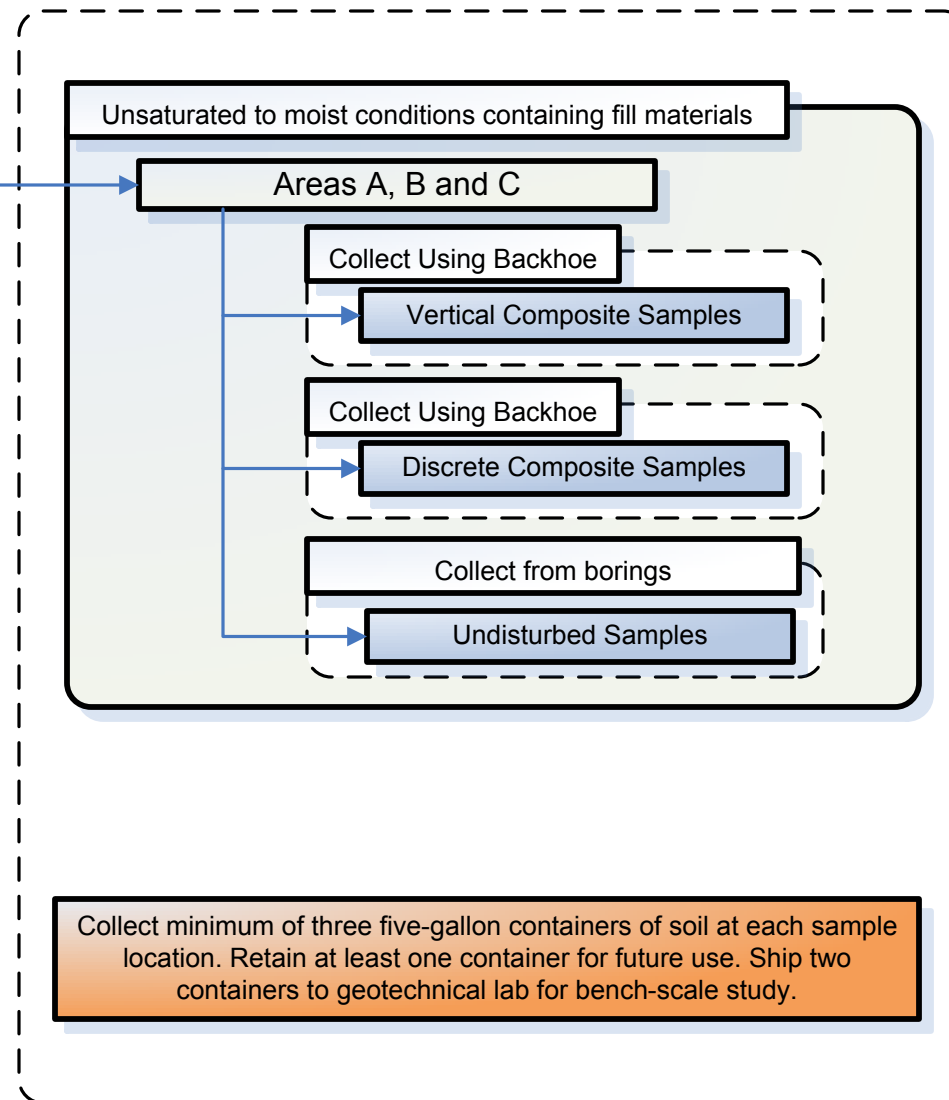
PROJECT NO. 1569 Task B	BENCH SCALE TREATABILITY STUDY PROCESS FLOW DIAGRAM	
DRAWN BY: KMD	REMOVAL ACTION WORK PLAN TWO RIVERS FORMER MGP SITE	
CHECKED BY: KRM	WISCONSIN PUBLIC SERVICE CORPORATION TWO RIVERS, WISCONSIN	
APPROVED BY: KRM	DRAWING NO: REFERENCE:	FIGURE NO. 6

Sample Collection

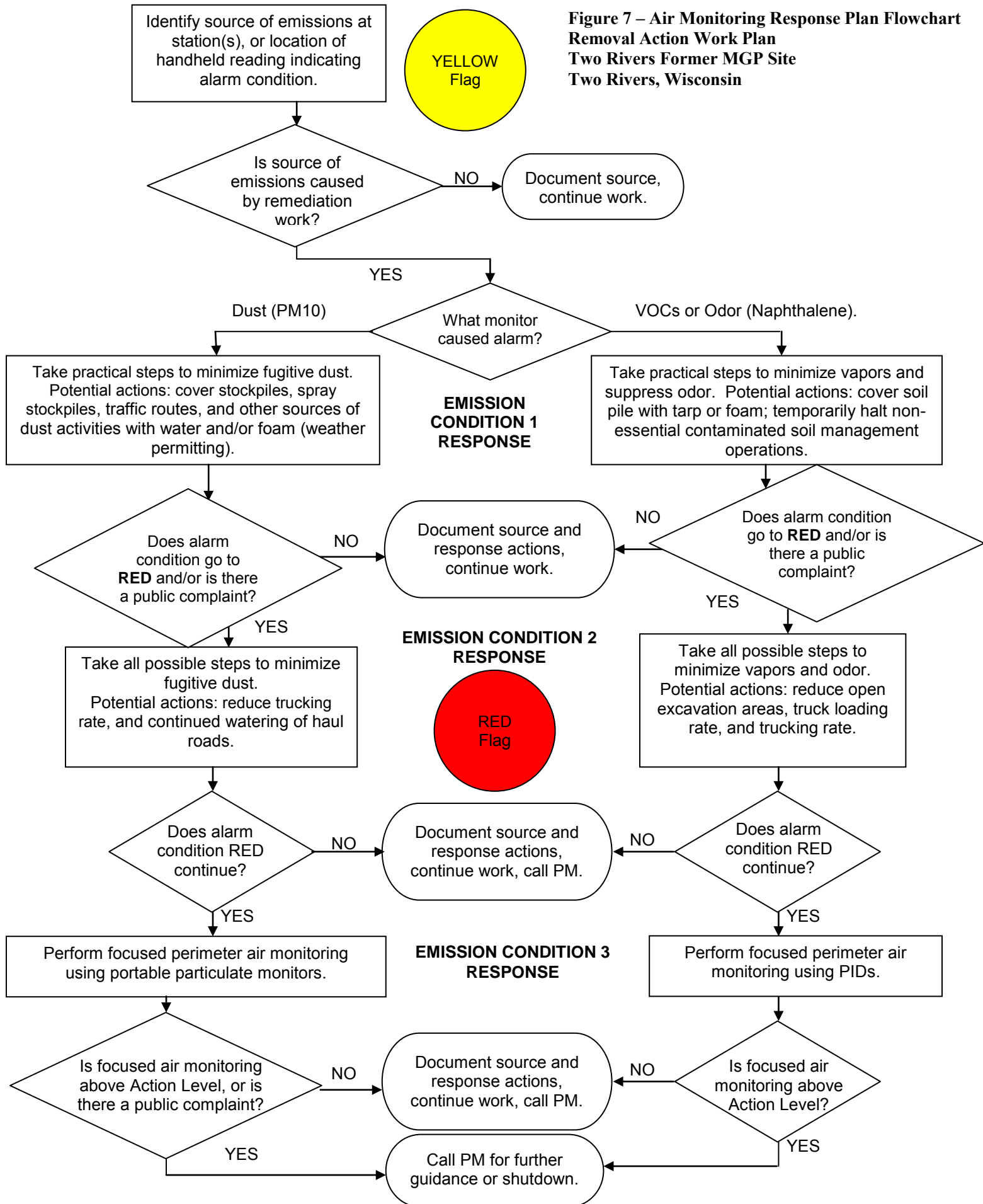
Bench-Scale Study

Soil Characterization

Bench-Scale Testing



**Figure 7 – Air Monitoring Response Plan Flowchart
Removal Action Work Plan
Two Rivers Former MGP Site
Two Rivers, Wisconsin**



TABLES

Table 1 - ISS Performance Goals and Preliminary Construction Quality Assurance Plan
Removal Action Work Plan
Former Two Rivers MGP Site
Two Rivers, WI

Work	Test Description	Test Standard ¹	Field Sampling Frequency	Estimated Total Number of CQA Samples ²	ISS Performance Goal ^{3,4}	QA Acceptance Criteria ^{4,5}
Pilot Scale ISS Evaluation	Hydraulic Conductivity	ASTM D5084	1 sample per Pilot Scale Evaluation (Pilot scale areas with a minimum of two columns at each to be performed. Additional samples may be collected from additional columns if they are needed based on significant changes in mix design or site soils.)	TBD	≤1 x 10 ⁻⁶ cm/s @ 7 days	≤1 x 10 ⁻⁶ cm/s @ 28 days
	Unconfined Compressive Strength (UCS)	ASTM D1633	1 sample per Pilot Scale Evaluation (Pilot scale areas with a minimum of two columns at each to be performed. Additional samples may be collected from additional columns if they are needed based on significant changes in mix design or site soils.)	TBD	≥50 psi @ 7 days	≥50 psi @ 28 days
Full Scale ISS Operations	Hydraulic Conductivity	ASTM D5084	1 sample every 1,000 cubic yards or once per day for standard cure @ 7 days 1 sample every 200 linear feet around the perimeter of ISS area for standard cure @ 28 days - Approximately half may be analyzed following 28 day cure, even if passing results are indicated after 7 day cure	TBD	Evaluated @ 7 days ≤1 x 10 ⁻⁶ cm/s @ 28 days	Geometric mean of hydraulic conductivity ≤ 1x10 ⁻⁶ cm/s with no single sample greater than 5x10 ⁻⁶ cm/s
	Unconfined Compressive Strength (UCS)	ASTM D1633	1 sample every 1,000 cubic yards or once per day for standard cure @ 7 days 1 sample every 200 linear feet around the perimeter of ISS area for standard cure @ 28 days - Approximately half may be analyzed following 28 day cure, even if passing results are indicated after 7 day cure	TBD	Evaluated @ 7 days ≥50 psi @ 28 days	Average UCS ≥ 50 psi with no single sample less than 40 psi

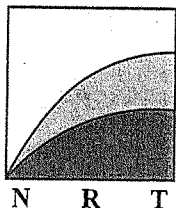
Notes:

- 1. Prior to testing, all mold specimens will be cured following ASTM 2632, Standard 7-day and 28-day cure.
- 2. Sample quantity collected shall be adequate to perform the listed ASTM standard tests plus additional spare molds.
- 3. ISS performance goals apply prior to completion of 50% of ISS columns.
- 4. ISS performance goal for permeability may be revised based on composite soil permeability data obtained during the treatability study.
- 5. QA acceptance criteria apply after 25 to 50% completion of ISS columns.



APPENDIX A

REMEDIAL ACTION OPTIONS REPORT



**Natural
Resource
Technology, Inc.**

December 31, 2003
(1569)

Ms. Annette Weissbach
WDNR-NER Remediation and Redevelopment Program
1125 North Military Avenue
P.O. Box 10448
Green Bay, WI 54307-0448

RE: Pre-Remedial Design Investigation and Remedial Action Option Report,
Wisconsin Public Service Corporation
Former Manufactured Gas Plant (MGP) Site on School Street, Two Rivers, Wisconsin
BRRTS #: 02-36-000255

Dear Ms. Weissbach:


On behalf of Wisconsin Public Service Corporation (WPSC), Natural Resource Technology, Inc. (NRT) one copy of the above referenced report is enclosed for your review and approval.


The Remedial Action Option Report has been developed in accordance with Wisconsin Department of Natural Resources Administrative Code NR 722, *Standards for Selecting Remedial Actions*. Per NR 749.04, a check for the review fee in the amount of \$750.00 is also enclosed.

Please contact Ms. Connie Lawniczak at 920.433.1140 or either of the undersigned at 262.523.9000 with any questions you may have about the status of this project.

Sincerely,

NATURAL RESOURCE TECHNOLOGY, INC.


Jennifer M. Kahler, E.I.T.
Project Engineer


Spiros L. Fafalios, P.E.
Senior Engineer

Enclosure: Pre-Remedial Design Investigation and Remedial Action Option Report
Review Fee

cc: Ms. Connie Lawniczak, WSPC

[1569 WDNR RAOR trans 031231 ltr]

12-31-03

Project 1569 Task 2.2 Review Fee

\$750.00

NATURAL RESOURCE TECHNOLOGY, INC.

23713 W. PAUL RD. - SUITE D
PEWAUKEE, WI 53072
PH. 262-523-9000ASSOCIATED BANK
MILWAUKEE, WI 53201
79-57759

13334

PAY
TO THE
ORDER
OF

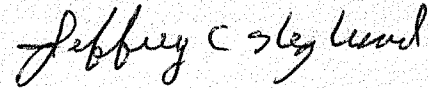
Seven Hundred Fifty and No/100 Dollars

DATE

12-31-03

AMOUNT

\$750.00

WDNR-NER Remediation & Redevlopment Program
1125 N. Military Rd.
Green Bay, WI 54307-0448

AUTHORIZED SIGNATURE

⑈013334⑈ ⑆075900575⑆ 0000 432 937⑈

NATURAL RESOURCE TECHNOLOGY, INC.

13334

**PRE-REMEDIAL DESIGN INVESTIGATION
AND
REMEDIAL ACTIONS OPTION REPORT
FORMER MANUFACTURED GAS PLANT SITE
TWO RIVERS, WISCONSIN**

Project No. 1569

Prepared For:

**Wisconsin Public Service Corporation
700 North Adams Street
Green Bay, WI 54307**

Prepared By:

**Natural Resource Technology, Inc.
23713 West Paul Road, Suite D
Pewaukee, WI 53072**

December 31, 2003

**Jennifer M. Kahler, E.I.T.
Environmental Engineer**

**Spiros L. Fafalios, P.E.
Senior Engineer (No. 33328)**

"I, Spiros L. Fafalios, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code."

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EXECUTIVE SUMMARY

Wisconsin Public Service Corporation (WPSC) retained Natural Resource Technology, Inc. (NRT) to prepare a Remedial Actions Options Report (RAOR) describing remedial alternatives for the on-land areas of the former Two Rivers Manufactured Gas Plant (MGP) site. The RAOR has been developed in accordance with Wisconsin Department of Natural Resources (WDNR) Administrative Code NR 722, *Standards for Selecting Remedial Actions*. This RAOR identifies and evaluates remedial action options to address environmental impacts to site soil and groundwater that resulted from former MGP operations.

Prior to developing this RAOR, a pre-remedial design site investigation was conducted in August 2003 to supplement previous site investigations. The investigation was conducted in accordance with NRT's *Pre-Remedial Design Site Investigation Work Plan*, which was submitted to the WDNR August 15, 2003. Soil samples collected in August 2003 from test pits in the vicinity of the former MGP structures were generally unsaturated to moist and contained large amounts of fill material (ash/cinders, wood, brick, etc.). Soil samples collected from test pits and soil borings west of the former MGP structures are generally saturated and represent the intervals exhibiting potential MGP impacts based on visual and/or olfactory observations or elevated PID measurements. Emulsified coal tar was observed in soil borings and test pits generally located within and to the west of the wetland area. Beneath a majority of the site, a clay layer is present between 4 and 7 feet bgs and extends to the bottom of the piezometer borings (25 to 30 feet bgs).

Analytical results of soil sampling indicate the following contaminant distribution trends:

- Off-site soils to the north are not impacted by benzene and naphthalene;
- Analytical results of off-site soils to the south indicate benzene and naphthalene concentrations above the generic groundwater pathway RCLs; and,
- On-site soils are generally above the standards for benzene and naphthalene at low levels across the site. Concentrations are significantly higher at select locations where coal tar was observed to occur within the soil matrix.

Groundwater sampling was conducted in July and October 2003. Deeper groundwater is not impacted to the extent of the shallow groundwater. Shallow groundwater sampling results indicate:

- Free product or emulsified coal tar was not observed in any of the wells;
- Benzene and naphthalene concentrations are generally lower in the eastern portion of the site (adjacent to former MGP structures). However, across the site both constituents are generally detected above the NR 140 ES;

- Dissociable cyanide analyzed by Method OIA-1677 indicates concentrations below NR 140 standards. As such, cyanide in groundwater is not a concern at the site;
- Groundwater samples collected from monitoring wells located on the northern adjacent property are consistently non-detect for benzene and below the standards for naphthalene; and,
- Groundwater samples collected from the monitoring well located on the adjacent property to the south indicates elevated levels of benzene with low levels of naphthalene, possibly unrelated to the former MGP.

Remedial action objectives for the site include:

- Address contaminants of concern, as identified in NR 720 and NR 140 for soil and groundwater, respectively;
- Minimize potential threats to human health, safety and welfare and the environment to the extent practicable as defined in NR 722.09;
- Meet the evaluation criteria identified in NR 722.07, including initial screening of individual technologies and evaluation of assembled alternatives based on contaminants present, media contaminated and site characteristics;
- Be considerate of the likely continued use of the site as a gas metering station; and,
- Be cost-effective compared to other options, considering cost categories listed in NR 722.07 for each assembled alternative and as allowed in NR 722.09 (1).

Contaminants of concern are associated with emulsified coal tar and other MGP process residuals. The three areas of concern identified for remedial actions include:

- **Upland Area:** approximately 32,600 square feet and approximately 5,000 cubic yards, generally unsaturated fill materials extending 4 to 5 feet bgs in the vicinity of historic MGP structures;
- **Source Area:** approximately 35,800 square feet and approximately 15,000 cubic yards, generally saturated soil containing emulsified coal tar within the soil matrix in the vicinity of the wetlands, considered to be the primary source of dissolved MGP groundwater impacts. Emulsified tar is observed from 4 to 17 feet bgs; and,
- **Downgradient Area:** approximately 18,600 square feet and approximately 2,600 cubic yards, (including saturated soil west of the Source Area and shallow groundwater), extends from the wetland to the West Twin River and contains emulsified coal tar in thinner layers than the Source Area within the soil matrix at depths ranging from 9 to 14 feet bgs.

Initial screening of remedial alternatives for each area was performed in general accordance with NR 722 consisting of long-term and short-term effectiveness, implementability, restoration time

frame, economic feasibility, and engineering and institutional controls. Remedial action options that were evaluated for the Upland Area included excavation and capping. Remedial action options that were evaluated for the Source Area included excavation, In-Situ Stabilization (ISS), and In-Situ Chemical Oxidation. Remedial action options that were evaluated for Downgradient Area/Groundwater included In-Situ Chemical Oxidation, Slurry Wall Containment (and pump and treat with or without phytoremediation enhancement), Permeable Reactive Barrier and Remediation by Natural Attenuation. Prior to assembling remedial alternatives some remedial options were screened out from further evaluation, largely based on cost.

Five alternatives were assembled from the remaining remedial options. The alternatives included:

- Alternative 1: Excavation and On-Site Thermal Desorption of Upland and Source Areas; In-Situ Chemical Oxidation Downgradient and Natural Attenuation for Groundwater Response.
- Alternative 2: Excavation and Off-site Disposal of Upland Area; In-Situ Stabilization of Source Area; and, Funnel and Gate Permeable Reactive Barrier for Groundwater/Downgradient Response.
- Alternative 3: Asphalt Capping for Upland Area; In-Situ Chemical Oxidation of Source Area; and, In-Situ Chemical Oxidation Downgradient and Natural Attenuation for Groundwater Response.
- Alternative 4A: Excavation and Off-site Disposal of Upland Area; In-Situ Chemical Oxidation for Source Area; and In-Situ Chemical Oxidation Downgradient and Natural Attenuation for Groundwater Response.
- Alternative 4B: Excavation and Landfill of Upland Area; In-Situ Chemical Oxidation for Downgradient and Slurry Wall Containment with Pump and Treat and Phytoremediation for Groundwater Response.

Based on implementability, applicability of site conditions, and economic feasibility, the preferred remedial alternative for the site is Remedial Alternative 4A, consisting of excavation in the Upland Area and in-situ chemical oxidation in the Downgradient and Source Area with RNA. Alternative 4A and 4B both include excavation and landfill of Upland Area and in-situ chemical oxidation for the Downgradient Area/Groundwater. Approximately two years after treating the Downgradient Area, if chemical oxidation is sufficiently effective, the Source Area will be treated. If treatment objectives are not met following Downgradient Area in-situ chemical oxidation, Alternative 4B will proceed with design of the slurry wall, pump and treat system and phytoremediation enhancement.

Upon WDNR approval of the selected remedy, bench and pilot scale treatability studies will be implemented. An NR 724 Design Report will be prepared, outlining details of the recommended remedy in 2004. WDNR review and approval of the Design Report, full scale downgradient treatment may occur within 12 to 18 months of RAOR approval. Remedial technologies may be reconsidered following Downgradient Area treatment, and will be described in a supplemental NR 724 Design Report or Work Plan.

1 INTRODUCTION

1.1 Overview

Wisconsin Public Service Corporation (WPSC) retained Natural Resource Technology, Inc. (NRT) to prepare a Remedial Actions Options Report (RAOR) describing remedial alternatives for the on-land areas of the former Two Rivers Manufactured Gas Plant (MGP) site. The RAOR has been developed in accordance with Wisconsin Department of Natural Resources (WDNR) Administrative Code NR 722, *Standards for Selecting Remedial Actions*. This RAOR identifies and evaluates remedial action options to address environmental impacts to site soil and groundwater that resulted from former MGP operations. Also presented in this document is additional investigation data collected to supplement previous site investigations. An investigation of the sediment in the West Twin River was previously conducted and is not included in this RAOR. Sediment will be addressed at a later date.

This RAOR is organized as follows:

- Section 1 provides an overview of site information, historical and current use, and previous investigations;
- Sections 2 and 3 provide results of the pre-design investigation performed in 2003 and an overview of site conditions, respectively;
- Section 4 outlines applicable standards, remedial action objectives, evaluation criteria and site characteristics pertinent to developing remedial action options;
- Section 5 describes initial screening steps toward identifying potential remedial options and selection of options to carry forward for the remedial alternatives analysis;
- Section 6 presents four assembled alternatives designed to meet remedial action criteria including descriptions, permitting and approvals, performance monitoring requirements, and cost;
- Section 7 presents the preferred remedial action alternative, additional design requirements and an implementation schedule; and,

Historical and current soil and groundwater investigations data are summarized in tables, figures and drawings as referenced throughout. The site layout, sample points, soil conditions, and geologic conditions are presented in the drawings (referred to as Sheets) that follow the appendices.

1.1.1 Project Contact Information

Project Contact:	Wisconsin Public Service Corporation 700 North Adams Street, P.O. Box 19002 Green Bay, WI 54307-9002 Attn.: Ms. Connie Lawniczak - 920.433.1140
Facility Address:	21st and School Streets, Two Rivers, Wisconsin
Site Location:	NW ¼, NW ¼, Sections 1 and 2, T19N, R24E City of Two Rivers, Manitowoc County (Figure 1)
Current Use of Property:	WPSC substation & gas metering house
Past Use of Property:	Manufactured Gas Plant
Environmental Consultant:	Natural Resource Technology, Inc. 23713 West Paul Road, Suite D Pewaukee, Wisconsin 53072 Mr. Spiros Fafalios, P.E./Ms. Laurie Parsons, P.E. 262.523.9000

1.1.2 Site Location and Description

The site encompasses approximately 5-acres in Section 1 and 2, T19N, R24E (Figure 1). Specific site features, sampling locations, and surface elevation contours, and adjacent properties are shown on Sheet 1. The site is bounded by:

- a former bulk oil terminal and transfer station on the north;
- a vacant warehouse building that was used by a former oil and tire distributor on the south;
- the West Twin River on the west; and,
- School Street, beyond which are residential homes on the east.

Site features include a brick building, four concrete saddles for propane storage tanks, and concrete foundations. A chain-linked fence encompasses the building and a small portion of the property to the west of the building. A wetland exists in the center of the property. Large portions of the site east of the wetland are covered in crushed stone/asphalt. The wetland and areas to the west consist of dense stands of reed canary grass, cattails, and a wooded fringe area.

The site is relatively flat with elevations ranging from approximately 581 feet mean sea level (MSL) to 584 feet MSL. Surface water drainage flows overland to the West Twin River. The majority of the site is within the 100-year flood zone as mapped by Federal Emergency Management Agency (FEMA, 1978).

1.1.3 Site History and Operations

WPSC owned and operated the Two Rivers MGP from 1925 to 1946, and coal gas was produced using the carburetted water gas method. The locations of former MGP structures, based on historic site drawings provided by WPSC, are shown on Sheet 1, and include the following:

- Boiler and meter building;
- Pipe shed;
- Three gas holders - 10,000 cubic feet (ft³), 80,000 ft³, and 90,000 ft³ capacity;
- Two oil tanks;
- Two propane tanks; and,
- Three warehouses and garages.

After 1946, the site was used for propane storage and distribution prior to the availability of natural gas in the area.

1.1.4 Current Property Use

WPSC maintains ownership of the site and currently uses the building as a secondary storage facility for miscellaneous equipment and a gas metering house. An active gas line exists along

the northern portion of the site, which crosses the West Twin River at approximately the northwest most corner of the site (Sheet 1).

1.2 Report Objectives

The objectives of this report are to:

- Present pre-remedial design investigations conducted in Summer/Fall 2003
- Summarize subsurface investigation data presented in previous reports; and,
- Present remedial action options evaluated and describe a selected response action for the site in accordance with NR 722.

The selected response action is intended to manage the environmental issues identified at the property and eliminate or control potential threats to human health, safety, and welfare and the environment to the extent practical. The remedial alternatives presented were selected based on environmental management strategies ranging from a containment and migration control approach to reduction of contaminant mass and mobility. The approaches considered included technologies with proven effectiveness as well as innovative applications that may provide similar or greater effectiveness at a similar or lower cost. The potential for natural attenuation as a final remedy for site closure is also considered.

1.3 Previous Site Investigations

1.3.1 Upland Site Investigations

Previous site investigations have been conducted by EDI Engineering and Science, Inc. (EDI), and NRT. These investigations include results documented in the following reports:

- **Phase I Investigation** performed by EDI in 1986;
- **Phase II Investigation** performed by NRT in 1994;
- **Phase II Addendum Investigation** performed by NRT in 1996; and,
- **Site Status Update/Groundwater Conditions Summary Report** by NRT in February 2003.

Sample locations are provided on Sheets 1 and the distribution of select parameters are shown on Sheet 2. Previous soil analytical results are provided on Table 1 (BTEX, cyanide, and phenols) and Table 2 (PAHs). Groundwater analytical results are provided on Table 3 (BTEX, cyanide, phenol, and metals) and Table 4 (PAHs). Groundwater monitoring well construction details and groundwater elevation measurements are summarized on Table 5. A stratigraphic summary of soil borings, test pits, and groundwater monitoring wells is provided on Table 6. Results of these investigations indicate the following:

- Site soils consist of fine silt/sands with occasional discontinuous peat and ash cinder fill layers over saturated clay. The surface of the clay layer is present between 4 to 7 feet below ground surface (bgs) and contains varying amounts of sands and silts. Sand units are present in the clay at locations across the site.
- Benzene, naphthalene, and cyanide concentrations were generally detected at elevated levels in soil adjacent to former MGP structures (east-southeast portion of the site).
- Emulsified coal tar was observed in the soil borings for groundwater monitoring well nests MW-605 and MW-608 at 11 to 14 feet bgs. Benzene and naphthalene concentrations in groundwater were elevated in these wells. Soil samples collected in unsaturated soils were non-detectable to slightly elevated in the vicinity of MW-605 and MW-608.
- Groundwater occurs between 0.5 to 3.2 feet bgs and flows southwest, towards the West Twin River, with a slight gradient. Upward vertical gradients are dominant in each well nest.
- Elevated concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX) and polynuclear aromatic hydrocarbons (PAHs) were detected in groundwater across the site.

1.3.2 Sediment Investigations

Previous sediment investigations have been conducted by NRT. These investigations include:

- Initial Sediment Investigation, July 1995; and,
- Sediment Investigation, June 1996.

A figure showing the extent of impacted sediments and the associated boring logs are included in Appendix A. This information is provided for reference only, as remedial assessment for sediment conditions is not included in this report.

Results of these investigations indicated the following:

- River sediments range from 1 to 6 feet thick consisting of intermixed black silts and natural detritus with occasional sand, clay, and gravel;
- Fine grained sediment is observed in the base of the samples, similar to clay observed approximately 5 feet bgs in upland samples, is assumed native material;
- Emulsified coal tar in the form of globules was observed intermixed with organic sediments within 125 feet of the shore and extended approximately 500 feet downstream;
- At select locations, tar in the form of emulsified coal tar to free phase coal tar occurred in sediments below a significant deposit of overlying tar-free sediments (greater than 8 feet); and,
- Elevated concentrations of PAHs is generally within 70 feet of shore.

Refer to the 1996 Sediment Investigation Report for detailed discussion of the sediment conditions.

2 PRE-REMEDIAL DESIGN SITE INVESTIGATION

Prior to developing this RAOR, a pre-remedial site investigation was conducted in August 2003. The investigation was conducted in accordance with NRT's *Pre-Remedial Site Investigation Work Plan*, which was submitted to the WDNR August 15, 2003.

On August 22, 2003, WPSC received acknowledgment of receipt of the work plan, which served as "Notice to Proceed."

The work plan was developed to meet the following objectives:

- Assess current subsurface conditions (soil and groundwater);
- Define the extent of emulsified tar and MGP residual impacts;
- Locate relic subsurface MGP structures; and;
- Identify samples for future evaluation of potential remedial technologies.

Soil boring and test pit locations for the August 2003 work were selected to compliment existing data per the rationale outlined in the *Work Plan*. Locations analytical data are shown on Figure 2. These data are also included with previous sampling results on the overall site soil quality summary, Sheet 2. Physical conditions observed and sample results are discussed below. Table 7 summarizes the 2003 sampling program including locations, depths, media, parameters, and analysis methods.

2.1 Soil Sampling

Soil samples were collected from test pit excavations and soil borings exhibiting evidence of impacts (visual, olfactory, or elevated PID measurements) for laboratory analysis of petroleum volatile organic compounds (PVOCs), PAHs, weak acid dissociable (WAD cyanide), and total sulfur and sulfide. Select locations were also sampled for RCRA metals. Samples representative of site soils were analyzed for grain size, moisture content, total organic carbon (TOC), and

British thermal units (BTU). EnChem, Inc. in Green Bay, Wisconsin performed the laboratory analysis of soil samples.

2.1.1 Test Pit Excavations

A track-mounted backhoe was used to excavate nine test pits across the site on August 25, 2003. The location of test pits TP-615 through TP-623 is shown on Figure 2. Test pit excavations ranged in depth from 7 to 14 feet bgs. The stratigraphy and observations of the test pits are summarized on Table 6. Test pit logs are included in Appendix B.

Evidence of cyanide (i.e., blue wood) was observed in test pits TP-616 and TP-623 (located west of the metering building) between 1.5 and 5 feet bgs. Emulsified coal tar was observed in test pits TP-617 (adjacent to the former propane tank saddles west of the building), TP-619 (along the northern property boundary), and TP-621 (along the western property boundary). Trace emulsified coal tar-like material was observed in TP-616, below the ash/cinder fill material.

Coal tar observed in TP-617 occurred within the peat layer 4 to 6 feet bgs. Soil sample TP-617(4-6) was collected from within the impacted peat interval and sample TP-617(9-10) was collected from within the clay interval below the peat to assess the vertical extent of impact. The tar observed in test pit TP-617 differed from other locations, as this material was more concentrated and flowable. The emulsified tar observed at other locations across the site was generally not present as a free-phase liquid, but dispersed within the soil matrix. The emulsified tar observed in TP-619 and TP-621 occurred within the sand layers that ranged from 11 to 14 feet bgs and 8.5 to 9 feet bgs, respectively. Soil samples TP-617(4-6) and TP-619(14) were also submitted for analysis of RCRA metals.

The sample summary and analytical method references are provided in Table 7. Due to a laboratory error, test pit soil samples were analyzed for total cyanide instead of WAD cyanide.

2.1.2 Soil Boring Installation

A track-mounted drill rig was used to advance a total of nine soil borings on August 26 and 27, 2003. Borings were installed and soil samples were collected using hollow stem auger drilling

techniques and split spoon methods, respectively. Soil borings SB-626, SB-627, and SB-628 were located on the site, borings SB-629, SB-630, and SB-631 were located on the adjacent southern property, and borings SB-632, SB-633, and SB-634 were located on the adjacent northern property (Sheet 1).

The location of soil borings SB-626 through SB-634 is shown on Figure 2. Soil borings ranged from 14 to 26 feet bgs. The stratigraphy and observations of the soil borings are summarized on Table 6.

Emulsified tar was observed in soil boring SB-626, located within the standing water area in the central portion of the site. Emulsified tar was observed throughout the boring from 3.5 to 16 feet bgs, within peat, sand, and silty clay intervals. In addition to the emulsified tar, blue/black wood chips were observed in the 7.75 to 8 feet bgs interval. Two soil samples were collected from SB-626. Sample SB-626(12-15) was collected from within the emulsified tar impacted sand interval while sample SB-626(18-20) was collected from the silty clay interval below the sand to assess the vertical extent of impact. Soil sample SB-626(12-15) was also submitted for RCRA metals.

Trace evidence of emulsified tar was also observed in soil boring SB-634, located along the northern property boundary on the west side of the site. Soils at this location appeared to have been stained by tar in the sand layers from 7 to 13 feet bgs.

Refer to Table 7 for a sample summary and analytical methods. Soil boring logs are included in Appendix B. Revised soil boring logs for SB-615 and SB-616 are also included in Appendix B as these borings were incorrect in previous submittals.

2.2 Groundwater Elevation Measurements

Groundwater elevations were measured in all of the site wells from the top of the casing riser using an electric water level meter accurate to 0.01 feet. Water level measurements were made prior to each sampling event in July and October 2003. The groundwater contours for the July and October 2003 sampling events are shown on Figures 3 and 4, respectively. Groundwater elevation data are summarized on Table 5.

2.3 Groundwater Sampling Events

NRT collected groundwater samples during the previous site investigations in 1994, 1995, 1996, and 2002. These data were summarized in the respective investigation reports, and the June 2002 groundwater sampling event was summarized in the Site Status Update/Groundwater Conditions Summary Report, submitted on February 14, 2003 to the WDNR. The historic sampling results are also summarized on Tables 3 and 4.

In July and October 2003, sixteen site wells/piezometers were sampled in accordance with the Pre-Remedial Design Work Plan. Groundwater monitoring well MW-605A was not sampled, as the surface casing is bent, and piezometer MW-607B was not sampled due to an obstruction in the well. Well/piezometer locations are provided on Figures 3 and 4. Water levels were measured in each well/piezometer prior to purging, and a minimum of three well volumes was purged from each prior to sample collection. Field parameters, including pH, specific conductance, oxidation/reduction potential, dissolved oxygen, and temperature, were measured prior to sampling. Purge water was disposed through the Two Rivers Wastewater Treatment Plant. Groundwater samples were collected using dedicated and disposable bailers, and analyzed for the parameters listed on Table 7. Groundwater monitoring well/piezometer sampling logs are included in Appendix C.

2.3.1 July 2003 Sampling Event

Groundwater samples were collected on July 2, 2003. Except for cyanide, groundwater samples were analyzed by EnChem Inc. (EnChem) for the parameters listed on Table 7 along with dissolved iron, total sulfide, nitrate, nitrite, and total organic content. The RCRA metals and dissolved iron samples were field filtered using dedicated and disposable 0.045 micron filters.

Groundwater samples were also collected and analyzed for WAD cyanide by Method OIA-1677 by Frontier Geosciences (Frontier) in Seattle, Washington. This cyanide method was used per discussions with WDNR personnel. The groundwater sample was collected in an amber glass jar to prevent photo-oxidation, 0.75 to 1 gram of lead carbonate was added, and the sample was agitated for approximately one minute to precipitate sulfide ions. The sample was immediately

filtered into an amber glass jar with a dedicated and disposable 0.045 micron filter, preserved with sodium hydroxide, and placed on ice for shipment.

For quality assurance/quality control purposes, blind duplicate samples QC-1 and QC-2 were collected at groundwater monitoring wells MW-610 MW-611, respectively. Each blind duplicate sample was analyzed for the same parameters as the representative sample. A trip blank accompanied the sample cooler during sample collection and transport which was analyzed for PVOCs.

2.3.2 October 2003 Sampling Event

A second groundwater sampling event was performed on October 16, 2003. In addition to monitoring wells MW-605A and MW-607B, monitoring well MW-601 was not sampled as the well had been damaged and the PVC riser was bent below the ground surface. The groundwater elevation was not measurable in wells MW-601 and MW-605A. Groundwater samples were analyzed by EnChem and Frontier for the same parameters analyzed in July 2003. In addition, the same sample collection and preservation techniques used during July were also used in October.

In October, blind duplicate samples QC-1 and QC-2 were collected from wells MW-603A and MW-603B. Each blind duplicate sample was analyzed for the same parameters as the representative sample. A trip blank accompanied the sample cooler during sample collection and transport which was analyzed for PVOCs.

3 SUMMARY OF SITE CONDITIONS

3.1 Regional Geology and Hydrology

The regional geology of the Two Rivers area consists of Paleozoic sedimentary bedrock units overlain by unconsolidated Quaternary deposits. The regional bedrock strata is a sequence of undifferentiated Silurian dolomites underlain by Ordovician dolomite, sandstone, and shale units and Cambrian sandstones (Skinner and Borman, 1973). The unconsolidated Quaternary units in the Two Rivers area are dominated by lake deposits. The remaining Quaternary deposits found in Manitowoc County include glacial till, glacial outwash, and ground and end moraine deposits.

In the Two Rivers area, the Quaternary deposits are between 50 and 100 feet thick and the Silurian dolomites are between 650 and 700 feet thick. Each of these units is a major aquifer in the vicinity of Two Rivers. The unconsolidated deposits contain the sand-and-gravel aquifer and the Silurian dolomites contain the Niagara aquifer (Skinner and Borman, 1973). In the vicinity of the site, the Silurian dolomite is likely greater than 50 feet bgs. The WDNR high capacity well database includes two well summaries which indicate the bedrock is encountered between 86 and 91 feet bgs. Due to the depth and thickness of these units, most private wells in the area were completed in these aquifers. However, due to the proximity of the City of Two Rivers to Lake Michigan, all water for municipal use comes directly from Lake Michigan and the city has no municipal water wells.

3.2 Site Geology

Sediments encountered during the site investigations include lacustrine and glacial deposits intermixed with fill material. Cross sections showing the soil lithologies are presented on Sheet 3 (Sections A-A' through D-D') and Sheet 4 (Sections E-E' through H-H'). The cross sections show the MGP site is underlain by soils primarily composed of fine and silty sands, clay units, and discontinuous peat layers. The surface soils are dominated by fine sands, and silts. Fill material consisting of ash/cinders, fine sands, silts, glass, wood, wood chips, brick, concrete, and

wire is found in the vicinity of the former MGP building locations. The fill material found likely originated on-site and the ash/cinder fill resembles a black, fine to coarse sand and silt. The ash/cinder layers are indicated on the cross sections (Sheets 3 and 4) in a fill pattern. Locations where emulsified coal tar was observed are also indicated on cross sections.

The shallow surface soils at the site are dominated by sands and silts. These sands and silts are an inconsistent mixture of ash/cinder fill and natural soils, including peat. Beneath a majority of the site, a clay layer is present between 4 and 7 feet bgs and extends to the bottom of the piezometer borings (deepest borings extended 25 to 30 ft bgs). This clay has varying amounts of sands and silts, and it appears that this clay is naturally occurring and not fill material. The clay is gray to red-gray, soft, wet, and plastic. As indicated by the boring logs and cross sections A-A' through H-H' (Sheets 3 and 4) the sand layers are discontinuous and facies changes occur over short distances. Also, there are sand layers present at depth on the west end (section E-E', Sheet 4) and southwest corner (section D-D', Sheet 3) of the site. None of the soil borings installed during the site investigations encountered bedrock. This is consistent with the regional geology of the area in which the Silurian dolomite has been encountered between 86 to 91 bgs.

3.3 Site Hydrogeology

3.3.1 Groundwater Flow

Groundwater occurs between 0.45 feet bgs (MW-603B, June 2002) and 7.17 feet bgs (MW-603B, October 2003) at the site (Table 5). Groundwater elevation data and the resulting contours for July and October 2003 are illustrated on Figures 3 and 4. The groundwater elevation measured in MW-607B was not used to contour the groundwater elevation in the July or October events due to the well obstruction. In October, groundwater elevations measured in MW-603B and MW-608A were considered unreliable and were not used to determine the contours. The upper and lower groundwater flows to the southwest, towards the West Twin River. The July 2003 elevations are generally consistent to slightly lower compared to previous groundwater elevation data while measurements collected in October 2003 are generally lower.

3.3.2 Horizontal Groundwater Gradients

The horizontal hydraulic gradient across the site is low and ranges between 0.004 to 0.009 ft/ft based on water levels collected between June 2002 and October 2003. The average horizontal gradient of shallow wells is 0.0064 ft/ft. Between July 2003 and October 2003, the groundwater elevations in the shallow wells either remained constant (MW-602) or fluctuated up to 2.55 feet (MW-604). In the piezometers, the elevations fluctuated between 0.84 feet (MW-609B) and 5.43 feet (MW-603B).

3.3.3 Vertical Groundwater Gradients

Vertical gradients were determined for all of the well nests. Following development of the wells, well nests MW-603A/B, MW-607A/B, MW-608A/B, and MW-609A/B generally exhibited moderate to strong upward vertical gradients. The upward vertical gradients at these well nests generally range on the order of 10^{-2} to 10^{-3} ft/ft (Table 5). Conversely, well nest MW-605A/B generally indicates downward vertical gradients at the site. This may be a localized influence from the sand unit in this portion of the site. The shallow well intersects the sand unit and the deeper well is screened in clay.

The overall upward gradients in most of the well nests indicate that the site is a groundwater discharge area. These conditions are expected at the site given the proximity of the West Twin River and the wetlands on the property.

3.4 Wetlands

A wetland boundary delineation was completed by STS Consultants, LTD. (STS) on behalf of WPSC in July 2003. Prior to the site visit, STS reviewed WDNR Wisconsin Wetland Inventory (WWI) maps which indicated broad-leaved deciduous scrub/shrub and persistent emergent /wet meadow wetland with palustrine soil conditions on the western half of the site. STS also reviewed the U.S. Department of Agriculture (USDA) Soil Conservation Service Soil Survey (SCS) of Calumet and Manitowoc Counties, Wisconsin, (1980) which classified site soils as Granby fine sandy loam. Granby soils are classified as hydric soils.

An on-site wetland boundary delineation was conducted on July 22, 2003 in accordance with the US Army Corps of Engineers (COE) 1987 Wetland Delineation Methodology. STS used hydric soils, vegetation, and hydrology indicators to delineate the boundary of the wetland. The boundary was marked with pin flags that were surveyed by Carow Land Surveying Company, Inc. in Appleton, Wisconsin for inclusion in the base map (Sheet 1).

STS concluded the site contains wetlands within the jurisdiction of the COE. Remediation construction work that involves filling, or any disturbance may require a Section 404 COE Permit and a Chapter NR 103 Water Quality Certification of the Section 404 Permit by WDNR. The Wetland Boundary Delineation is included in Appendix D.

3.5 Soil Analytical Results

The analytical results for soil samples collected in August 2003 are summarized on Tables 8 through 11. For screening purposes, PVOCs and RCRA metal soil concentrations were compared to the NR 720 Residual Contaminant Levels (RCLs) for a groundwater pathway while the PAHs were compared with the April 1997 WDNR Draft Soil Cleanup Levels (DSCLs) for both the groundwater pathway and direct contact. Samples attaining or exceeding these levels are bold and underlined on the tables. A distribution of observed emulsified coal tar and blue wood chips in soil borings and test pits is provided on Figure 7 and noted on Table 6. The laboratory analytical reports are included in Appendix E. Comparison to these generic RCLs is for preliminary screening only. Evaluation of site specific RCLs or performance based standards is appropriate at most MGP sites, depending on the proposed use and remedial options evaluated.

3.5.1 Unsaturated Soil Quality

Soil samples collected in August 2003 from test pits in the vicinity of the former MGP structures were generally unsaturated to moist and contained large amounts of fill material. Soil samples collected in this area were consistent with previous soil sampling results with the exception of TP-616 in which trace evidence of an emulsified coat tar-like material was encountered. The soil sample collected from TP-616 at a depth of 3 to 4 feet bgs had 130,000 micrograms per kilogram ($\mu\text{g/kg}$) benzene and 100,000 $\mu\text{g/kg}$ naphthalene (Tables 8 and 9). Previous soil sample results

indicated benzene and naphthalene concentrations ranging from non-detect to slightly elevated (Tables 1 and 2).

3.5.2 Saturated Soil Quality

Soil samples collected in August 2003 from test pits and soil borings west of the former MGP structures are saturated and represent the intervals exhibiting potential MGP impacts based on visual and/or olfactory observations or elevated PID measurements.

As described in Sections 2.1.1 and 2.1.2, emulsified coal tar was observed in SB-626 from 3.5 to 16 feet bgs. Sample SB-626(12-15) had 4,200 $\mu\text{g/kg}$ benzene and 1,000,000 $\mu\text{g/kg}$ naphthalene (Tables 8 and 9). Results for sample SB-626(16.5-20) had benzene and naphthalene concentrations that were orders of magnitude less, and this sample was collected to determine the vertical extent of impacts.

Similarly, analytical results for sample TP-617(4-6) had 2,000 $\mu\text{g/kg}$ benzene and 83,000 $\mu\text{g/kg}$ naphthalene, while the concentration in TP-617(9-10), collected from below the visually impacted interval, had benzene and naphthalene concentrations that were an order of magnitude less (Tables 8 and 9).

Analytical results indicate the following:

- Off-site soils to the north are not impacted by benzene and naphthalene;
- Analytical results of off-site soils to the south indicate benzene and naphthalene concentrations above the generic groundwater pathway RCLs, possibly unrelated to the former MGP as this property historically managed petroleum products; and,
- On-site soils are generally above the standards for benzene and naphthalene at low levels across the site. Concentrations are significantly higher at select locations where coal tar was observed to occur within the soil matrix.

Figure 2 provides test pit and soil boring locations from August 2003 with analytical results for select parameters.

3.6 Groundwater Quality

The July and October 2003 groundwater analytical results are summarized on Table 3 (BTEX and Cyanide) and Table 4 (PAHs) along with historic data, and were compared to the NR 140 Enforcement Standards (ESs) and Preventative Action Limits (PALs). The groundwater laboratory analytical reports are included in Appendix F.

3.6.1 Shallow Groundwater Quality

Shallow groundwater analytical results for select parameters are included on Figure 5. The analytical results for shallow groundwater samples indicate the following:

- Free product or emulsified coal tar was not observed in any of the wells;
- Analytical results from groundwater monitoring events conducted in July and October 2003 are consistent with historic sampling event results with the exception of cyanide, as described below;
- Dissociable cyanide was analyzed by Method OIA-1677 in July and October 2003 as the method is less subjective to interference. Analytical results indicate cyanide concentrations are well below NR 140 standards. As such, cyanide in groundwater is not a concern at the site;
- Benzene and naphthalene concentrations are generally lower in the eastern portion of the site (adjacent to former MGP structures). However, across the site both constituents are generally detected above the NR 140 ES;
- Groundwater samples collected from monitoring wells located on the northern adjacent property are consistently non-detect for benzene and well below the standards for naphthalene; and,
- Groundwater samples collected from the monitoring well located on the adjacent property to the south indicates elevated levels of benzene with low levels of naphthalene, possibly unrelated to the former MGP as the southern property historically managed petroleum products.

3.6.2 Deeper Groundwater Quality

Deeper groundwater analytical results for select parameters are included on Figure 6. The analytical results for deeper groundwater samples indicate the following:

- Free product or emulsified coal tar was not observed in any of the wells;
- Deeper groundwater is not impacted to the extent of the shallow groundwater; and,
- Benzene is the only constituent detected above the groundwater standards in groundwater monitoring events conducted in July and October 2003 in groundwater monitoring well MW-605B and MW-608B. Emulsified coal tar was present in the soil borings for each of these wells between 12 and 14 feet bgs.

4 SUMMARY OF REMEDIAL ACTION OBJECTIVES AND CRITERIA

4.1 Applicable Environmental Standards

Applicable environmental standards were evaluated with respect to previously identified constituents of concern, areas of concern and the exposure pathway assessment. Standards were also evaluated with respect to both state and local city and county permitting requirements for implementing remedial operations at the site. Applicable environmental standards identified to address these considerations and establish appropriate remedial action objectives for the site consist of the following:

- NR 102 to 105, Surface Water Quality: Surface water quality standards are established for protection of public health and enjoyment and protection of fish, shell fish and wildlife and are directly applicable to migration of MGP residuals to the West Twin River;
- NR 140, Groundwater Quality: These standards include PALs and ESs that are directly applicable to leaching of MGP residuals to groundwater;
- NR 400, Air Management: Portions of these standards are applicable to general site monitoring or technology specific requirements during site remediation;
- NR 500 and 600, Waste Management: These standards are applicable for the removal, transport and treatment or disposal of MGP impacted soil and groundwater, as non-hazardous or hazardous waste. This includes, but is not limited to identification of wastes (NR 605) and land disposal restrictions (NR 675);
- NR 700, Investigation and Remediation of Environmental Contamination: These standards are directly applicable to identifying and implementing an appropriate land based remedial alternative for the site. They identify procedures that allow for site specific flexibility pertaining to the identification, investigation and remediation of sites and facilities;
- Chapter 30 Grading Permit: Identifies permitting requirements for minimizing adverse affects when performing work along navigable waterways and are applicable to sites where greater than 10,000 square feet is disturbed;

- NR 103 and ACOE 404: These standards apply to work within jurisdictional wetlands. Applicability will depend on the technology applied;
- NR 322, Wisconsin General Permit Program: Identifies permitting standards for erosion control protection along a navigable waterway and are applicable for modifying the river bank or performing excavation; and,
- Local Ordinances: These address local City and County permitting requirements for heavy equipment operation, construction traffic, noise, operational hours and other environmental controls during performance of remedial operations.

4.2 Remedial Action Objectives

Remedial alternatives are identified below to include strategies ranging from containment and migration control to reduction of contaminant mass and mobility. Technologies were considered with proven effectiveness as well as innovative applications that provide similar results. The overall remedial action objectives of the land-based remedial action for the site include the following:

- Address contaminants of concern, as identified in NR 720 and NR 140 for soil and groundwater, respectively;
- Minimize potential threats to human health, safety and welfare and the environment to the extent practicable as defined in NR 722.09;
- Meet the evaluation criteria identified in NR 722.07, including initial screening of individual technologies and evaluation of assembled alternatives based on contaminants present, media contaminated and site characteristics;
- Be considerate of the likely continued use of the site as a gas metering station; and,
- Be cost-effective compared to other options, considering cost categories listed in NR 722.07 for each assembled alternative and as allowed in NR 722.09 (1).

Site-specific challenges for establishing appropriate remedial action objectives include complex subsurface conditions and the presence of constituents of concern above applicable generic RCLs for unsaturated soil identified in Section 3 and above ESs for shallow groundwater. However, the intent for these RCLs is not to be used as site-specific cleanup standards but as guidance in identifying constituents and areas of concern for remedial action planning.

Under NR 720.19 (2) and as provided in the WDNR's, *Interim Guidance on Soil Performance Standards*, (PUBL RR-528-97) site-specific RCLs may be replaced by soil performance standards. A key criterion is the standard must achieve a level of performance such that any contaminant level that meets an applicable environmental standard will be effectively contained or remediated with no adverse affect to groundwater, surface water, sensitive environments or direct contact exposure. Examples of applicable performance standards include:

- Post remedial groundwater monitoring to demonstrate that natural attenuation processes are effective based on stable or receding plumes;
- Modeling to demonstrate that any leachable fractions of constituents of concern do not exceed applicable standards for surface water; and,
- Use of engineered materials, pavement and/or buildings for direct contact protection.

Furthermore, given that a substantial portion of residual MGP impacts (including emulsified coal tar) are located in the saturated soil, it is appropriate to consider saturated zone impacts and groundwater comprehensively. Based on this consideration, a performance based standard consistent with NR 720.19 may be applied to meet applicable groundwater standards under NR 140 that depends on effective source controls in the saturated zone. Consequently, performance based standards to address groundwater and surface water pathways for both unsaturated and saturated zone soils are then consistent. Finally, conditional site closures under NR 726 are allowed where effective source removal or containment has been achieved and concentrations above NR 140 ESs remain but have reached a steady state or are declining as demonstrated by natural attenuation processes.

Based on the performance-based criteria outlined above, remedial action objectives for each of the exposure pathways are listed in section 4.2.1 below.

4.2.1 Exposure Pathways

The primary exposure pathways for human health and environmental receptors at the site include direct contact, groundwater, and surface water. The Upland Area (Figure 7) represents a potential exposure by direct contact with the MGP impacts present there, with ingestion and

inhalation hazard as secondary exposure pathways. Selected regions of the Upland Area and the Source Area (Figure 7) represent a potential exposure for groundwater receptors. The Downgradient Area (Figure 7) represents a potential exposure to receptors in groundwater, as well as surface water.

Surface Water

The primary exposure pathway for surface water consists of leaching of MGP residuals from the river bank to the West Twin River and secondarily from contact with MGP impacted groundwater. Based on these considerations, remedial action objectives consist of:

- Reducing the potential for direct contact exposure of separated MGP residuals in surface water; and,
- Preventing leaching of phase separated MGP residuals to surface water by groundwater flux through the river bank and wetland community.

Unsaturated Soil

Primary exposure pathways are direct contact exposure, leaching to groundwater and, erosion runoff of MGP residuals to surface water. Remedial action objectives include:

- Reducing the potential for direct contact exposure to MGP residuals; and,
- Reducing leaching and runoff of MGP residuals to groundwater and surface water.

Saturated Soil and Groundwater

The primary exposure pathway for saturated soil is leaching of MGP residuals to groundwater. A secondary pathway is the potential for direct contact exposure during excavation of source material. For groundwater, the primary exposure pathway is the West Twin River. Based on these considerations, remedial action objectives include:

- Reducing the potential for direct contact exposure to MGP residuals within areas that have the potential to be developed; and,
- Reduce off-site migration of dissolved phase MGP residuals.

As the western portion of the site is delineated as wetlands (Sheet 1), it is not considered an area that has the potential to be developed.

4.2.2 Areas and Contaminants of Concern

The approximate extents of unsaturated and saturated soil impacted with MGP residuals are indicated in Figure 7. As indicated, three areas of concern have been identified that are considered for remedial action:

- Upland Area;
- Source Area; and,
- Downgradient Area (including saturated soil west of the Source Area and shallow groundwater.)

Contaminants of Concern (COCs) typically associated with MGP residuals have been identified in the upland soil, saturated soil, and groundwater at the site. Contaminants of concern are associated with emulsified coal tar and other MGP process residuals.

In general, MGP related COCs in unsaturated fill materials are limited to the “Upland Area” as identified in Figure 7 and extend 4 to 5 feet bgs. The area is considered to be the estimated extent of contaminated unsaturated soil in the upland area. COCs in upland soil include BTEX and PAHs. Based on soil screening levels (SSLs) obtained from the U.S. EPA Supplemental Guidance for Developing Soil Screening Levels, dated December 2002 and empirical evidence of groundwater quality, concentrations of cyanide in upland soil and groundwater are not considered a primary COC but will require co-management during remedial actions. The locations and distribution of COCs have been influenced by historic MGP operational practices and fill depositional events in the upland area. Fill materials coincident with COCs include ash/cinders, bricks, glass, bricks, concrete rubble, and wood chips. Foundations of former above-grade structures are also present in the upland area.

In general, MGP related COCs in saturated soil are within the area identified as “Source Area” in Figure 7 and extend to depths ranging from 4 to 17 feet bgs. Saturated soil containing emulsified coal tar in the vicinity of the wetlands is considered to be the primary source of free product and

dissolved groundwater impacts. Based on the observed distribution of coal tar, historical deposition and/or uncontrolled releases of MGP residuals are likely to have been the original source of impacts to shallow groundwater. BTEX and PAH impacts associated with the emulsified coal tar observed in soil borings SB-606, SB-609, SB-618 and SB-626 and test pit TP-618 are indicative of COC distribution in this area as summarized on cross sections (Sheets 3 and 4) and the stratigraphy log presented on Table 6. Unconsolidated soil consisting predominantly of clay and sand in the area of the wetlands and peat north and west of the wetlands have the highest concentrations of COCs.

The “Downgradient Area” extends from the wetland to the West Twin River and is characterized by the presence of silt and clay with a thinner seam of emulsified coal tar. The mass and distribution of coal tar in this area is notably less than in the Source Area, but appears to continue to impact groundwater quality. The “Downgradient Area” is identified in Figure 7 and extend to depths ranging from 9 to 14 feet bgs. Based on the observed distribution of coal tar, migration of uncontrolled releases of MGP residuals from the Source Area is likely to have been the source of impacts in this area.

4.3 Evaluation Criteria

Response actions were identified for further evaluations that are reasonably likely to meet the remedial action objectives and comply with the requirements of NR 722.09. The response actions, or technologies, are divided into three categories consisting of shallow upland control actions, source control actions and groundwater response actions. In addition, process technology options are identified that reflect specific process alternatives as part of the initial screening discussed in Section 5. Process technology options are associated with technologies such as excavation, capping, and containment.

Initial response actions/technologies were selected to address each of the environmental media targeted for remedial action. Criteria for technology selection and evaluation included one or more of the following:

- Treatment that will reduce the toxicity, mobility or volume of MGP residuals;
- Treatment that will reduce or mitigate the need for long-term management;
- Containment of MGP residuals that does not include treatment as a principle element but is protective of human health and the environment;
- Innovative technologies that may potentially achieve a greater level of remediation without unacceptable cost penalties as compared with more conventional or demonstrated approaches; and,
- Technologies that may restore groundwater to NR 140 standards within certain time frames.

A No Action response action is often included in the evaluation process to provide a base line for comparison against other types of response actions. In a No Action scenario, no remedial action is taken and any changes in the affect of MGP residuals on environmental media is the result of natural processes such as dispersion, dilution and natural attenuation. No protection is provided for direct contact exposure other than incidental capping and/or containment by future development such as placement of fill or construction of pavement or building structures over the site. This response action was eliminated for further evaluation in the screening process based on the presence of MGP residuals directly affecting groundwater and close proximity of the West Twin River.

4.4 Site Characteristics

The following subsections provide a summary of site characteristics pertinent to identifying and evaluating response actions.

4.4.1 Existing Structures and Utilities

Plate 1 includes constructed features of the site dating from MGP site operations to the present. Existing site structures pertinent to the evaluation of remedial site options include propane tank saddles, foundations of former buildings at the site, an existing building and gas and electric utilities. In addition to the existing structures and foundations, a 6-foot chain link fence is located around the existing building on site.

The existing building is a natural gas metering house located on the far east section of the property. The building is a one-story, slab-on grade, brick structure that was originally used in MGP operations. The building was subsequently used for propane metering and compression. WPSC plans to continue to use the building as a metering house. Underground pipes possibly relating to MGP operations are present to the south of the existing building, however, no indications of MGP impacts were observed at SB-613, in the immediate vicinity of the pipes.

Major utilities transiting the site includes gas main, overhead electric and possibly former propane and oil utility lines. Existing utilities are identified on Plate 1. Former utilities that may still be in place are shown in Appendix G (Property Plat of Gas Plant Property, dated 1/23/59). A 6-inch active gas main crosses the site in an east-west orientation from the metering house, submarining under the West Twin River. Overhead electric crosses the wetlands centrally located at the site in a northwest-southeast orientation. Former propane conveyance pipes may still exist to the southwest of the concrete tank saddles. Former oil conveyance pipes (abandoned in-place) may exist immediately west of the wetlands, oriented in a north-south direction.

4.4.2 Unsaturated and Saturated Soil Response Action Constraints

Site features which may be constraints to selecting appropriate response actions for the site soils include:

- Presence of significant debris in the Upland Area;
- Presence of a wetland in the central and western portions of the site;
- Shallow groundwater table that will require drying and/or blending for Source Area and/or Downgradient Area soil if excavated for treatment or disposal;
- Impacts in the Downgradient Area overlain by 7 to 12 feet of overburden;
- Presence of peat in the vicinity of the Source Area to a depth of 5 to 7 feet bgs; and,
- Requirement for shoring in Source Area and/or Downgradient Area in response actions that include excavation.

Based on these considerations, unsaturated and saturated zone remediation technologies were identified for initial screening in Section 5.

4.4.3 Groundwater Response Action Constraints

Site features which may be constraints to selecting appropriate response actions for the groundwater include:

- Available hydraulic conductivity data and likely low recovery rates in the Downgradient Area suggest that groundwater extraction from vertical wells will not be cost-effective due to the significant number of wells that will likely be required;
- The presence of phase separated coal tar may require groundwater treatment indefinitely and will not address phase separated migration to the West Twin River; therefore containment or in-situ treatment technologies were emphasized for the groundwater response actions;
- A presumed clay aquitard is present below the shallow aquifer of the site that limits impacted groundwater migration to the lower aquifer; however, this presumption must be confirmed through additional soil borings prior to final design of a response action; and,
- Based on discussions with the City of Two Rivers, groundwater extracted for aboveground treatment and/or accumulated as part of excavation dewatering during remedial implementation may be discharged directly to sanitary sewer system in accordance with the City's special waste disposal acceptance criteria with pre-treatment is likely to include removal of phase separated product, VOCs and total suspended solids.

Based on these considerations, Source Area and Downgradient area remediation technologies were identified for initial screening in Section 5.

4.4.4 Treatability Evaluations

Treatability evaluations were conducted on representative samples of soil from the site to assess the following:

- On or off-site thermal desorption;
- Landfilling of soil at a Waste Management Recycling and Disposal facility; and,
- In-situ chemical oxidation.

Treatability analyses were performed on discrete and composite samples of unsaturated and saturated soil for thermal treatment and chemical oxidation that included the following key parameters as summarized in Table 11:

- Percent solids;
- Sulfide;
- Total sulfur;
- Total Organic Carbon; and,
- Grain size.

The results of these analyses and VOC, SVOC and cyanide analyses performed as part of the site investigations and the current regulatory climate indicate the following:

- No exceedances were identified for the reactivity characteristic on the basis of the reactive sulfide or cyanide analyses in either the saturated or unsaturated zones.
- WDNR issued a draft guidance that exempts TCLP testing for the benzene toxicity characteristic. Regardless, precluding the possibility of encountering distinct zones or former MGP structures containing phase separated MGP residuals, normal aggregation and blending of soils during excavation will not likely result in materials that will be considered a hazardous waste.
- Discussions with Waste Management for profiling material, as non-hazardous special waste will likely be accepted based on existing soil analytical data. Assuming similar materials are encountered during excavation, these data may likely be applied to establish profiles for managing future excavated materials and debris.
- Total VOC, SVOC and sulfur concentrations do not suggest a concern for using technologies such as medium temperature thermal desorption. Sulfur and BTU concentrations are near the practical limit for medium temperature thermal desorption. High moisture in saturated soil requires dewatering and/or blending.

Geotechnical engineering parameters for the selected response actions will be identified and collected prior to completion of the final design. Additional technology-dependent laboratory, bench and/or pilot scale testing may be required, based upon the response action selected in

Section 7. For technologies such as chemical oxidation or in-situ stabilization, additional treatability testing on a bench or pilot scale will be required to complete the remedial design.

5 IDENTIFICATION OF POTENTIAL REMEDIAL ACTION OPTIONS

General remedial technologies for soil and groundwater were identified that may potentially meet the selected remedial action objectives. Remedial technologies were evaluated for three categories, including Upland Area, Source Area, and Groundwater. The technologies evaluated for the groundwater area also address the Downgradient Area (Figure 7).

5.1 Initial Screening Criteria

The initial screening of remedial alternatives for each area (Upland Area, Source Area, and Groundwater) was performed in general accordance with NR 722 criteria consisting of long-term and short-term effectiveness, implementability, restoration time frame, economic feasibility, and engineering and institutional controls.

- Long-Term and Short-Term Effectiveness: Considers the degree to which the toxicity, mobility, and volume of contamination is expected to be reduced (may use other MGP sites as comparison). The degree to which the remedial action will protect public health, safety and welfare and the environment over time as well as any adverse impacts that may be posed during the construction and implementation phase of the remedial action.
- Implementability: Considers the technical feasibility of construction and implementation, the availability of the materials and contractors, the potential site constraints (on-and off-site), difficulties monitoring the effectiveness of the option, agency coordination/permits, and sensitive species. In addition, implementability refers to the feasibility of recycling, treating, placing engineering controls, and disposal.
- Restoration Time Frame: Considers the relative time frame typically needed to achieve the necessary restoration for future use. Evaluating acceptable time frames includes such factors as mobility and toxicity of the constituents of concern, future land use, proximity of downgradient receptors, performance of institutional controls and natural attenuation processes.

- Economic Feasibility: For comparative purposes the initial screening table presents relative differentials in cost magnitude (low, moderate, and high) within the options considered for each area of concern. The costs take into consideration anticipated capital and operation, maintenance, and monitoring costs for each option.
- Engineering and Institutional Controls: Considers on-site engineering controls to address hazardous substances, contaminated media and migration/exposure pathways. Institutional controls (land use and access restrictions) to supplement engineering control and remedial options are also considered.

The initial screening of remedial alternatives using the above criterion is summarized on Table 12. Remedial action options considered for each area are described in Sections 5.2 through 5.4.

Economic feasibility was evaluated using unit cost summaries that were developed for each option. These cost estimates are provided in Appendix I and include estimated design quantities and assumptions used for costing each of the options. These cost estimates are used as preliminary estimates and are subject to change based on final design and field observed conditions. Each of the detailed cost estimates include the following tasks:

- Planning, permitting, engineering (plans and specifications), documentation;
- Contractor bidding and selection;
- Contractor supplies, equipment, and materials for installation/treatment;
- Construction management and oversight;
- Air monitoring the perimeter and work zone for fugitive VOC emissions and nuisance odors;
- Operation and maintenance; and,
- Construction documentation reporting.

5.2 Upland Area

The Upland Area (Figure 7) has a surface area of approximately 32,600 square feet. In general, the vertical extent of MGP residuals (i.e., ash/cinders, blue wood chips, etc.) is approximately four feet bgs. In the area of TP-614 and TP-616, MGP residuals were observed to approximately

five feet bgs. The total volume of impacted material is approximately 5,000 cubic yards. The Upland Area soils are generally unsaturated and contain debris (wood, wood chips, bricks, glass, etc.).

Remedial action options that were evaluated for the Upland Area included excavation and capping. These options and variations are detailed in Table 12 and summarized in the following.

Option 1 Excavation: MGP residuals are excavated to their vertical extent. Shoring and dewatering may not be required as the Upland Area is generally unsaturated and sidewalls can be sloped for stability. Excavation of MGP impacted soil reduces the impacts to groundwater and direct contact.

- Option 1A Excavation with on-site thermal desorption: Once excavated, soil is screened on site to remove debris. Debris is disposed in a solid waste landfill. Blending may be required to manage BTU, sulfur, and moisture content prior to treatment. Soils are treated in an on-site thermal desorption unit by heating the soils to temperatures up to 1200°F to volatilize MGP residuals. Vapors are thermally destroyed in an oxidizer at temperatures up to 2000°F. Treated materials are used as backfill.
- Option 1B Excavation with off-site treatment: Once excavated, soil is screened on site to remove debris. Debris is disposed in a solid waste landfill. Remaining MGP affected soils are transported for off-site treatment. Fixed base off-site treatment facilities are located within 400 miles of the site. Imported backfill is required.
- Option 1C Excavation with off-site disposal: Excavated soil and debris are transported directly to a solid waste landfill. At least one landfill is within 30 miles from the site. Imported backfill is required.

Option 2 Engineered Cover: Contaminated MGP soils are capped using a surficial seal to limit direct contact and reduce leaching of MGP residuals into groundwater. Limited site grading requirements and low O&M costs.

- Option 2A Geosynthetic Cover: Geosynthetic fabrics are placed over the Upland Area to provide a barrier for direct contact and infiltration. Approximately 1.5 feet of general fill and 0.5 feet of topsoil are placed over the fabrics and vegetated.
- Option 2B Asphalt Capping: Base course is overlaid with asphalt material to a thickness of approximately one-foot. O&M costs include a re-sealing every five

years. The asphalt pad may be usable for site operations or staging of remedial actions for Source Area or Downgradient Area options.

5.3 Source Area

The Source Area (Figure 7) has a surface area of approximately 35,800 square feet which is impacted with MGP residuals, generally emulsified coal tar and trace debris. In general, the emulsified coal tar is encountered from 7 to 10 feet bgs. In the area of TP-619 and SB-609, emulsified coal tar was observed to approximately 15 feet bgs and up to 17 feet bgs in the area of SB-626. The total volume of MGP impacted material is approximately 15,000 cubic yards. The Source Area soils are generally saturated and contain trace amounts, if any, debris. The Source Area may require additional permitting requirements as it is within the wetland (Figure 7). Remedial action options selected for evaluation are summarized below.

Remedial action options that were evaluated for the Source Area included excavation, In-Situ Stabilization (ISS), and In-Situ Chemical Oxidation. These options and variations are described in the following.

Option 3 Excavation: MGP residuals are excavated to the vertical extent of visible coal tar. This option requires temporary shoring for sidewall stability and dewatering due to excavation depth up to 17 feet bgs. Construction water generated during excavation requires treatment prior to discharge. Removal of MGP impacted soil reduces potential impacts to groundwater and direct contact.

- Option 3A Excavation with on-site thermal desorption: Saturated materials require significantly more blending. Blending with treated soils, and/or lime addition may be necessary to manage moisture content prior to thermal desorption, resulting in increased treatment tonnage. The Source Area materials contain zones of emulsified coal tar that will also require blending prior to treatment. Treated soils will be used as backfill material.
- Option 3B Excavation with off-site treatment: The same treatment process and facility as described for off-site treatment of the Upland Area. However, saturated materials require blending or lime addition to meet moisture content requirements prior to transportation, resulting in increased treatment tonnage. Backfill material will be imported. Treated soil is beneficially reused in a cement kiln or as daily landfill cover.

- Option 3C Excavation with off-site disposal: The same process and facility as described for off-site disposal of the Upland Area. However, saturated materials require blending or lime addition to meet moisture content requirements prior to transport, resulting in increased disposal tonnage.

Option 4 In-Situ Stabilization: Using large diameter augers, MGP affected soils are mixed with reagents (i.e. portland cement, fly ash, lime, kiln dust, etc.) in-place to reduce mobility of MGP residuals through mechanical (solidification) and/or chemical (stabilization) means. Mixes can be designed with portland cement ratios high enough encapsulate the MGP residuals in-place. The large diameter columns of stabilized/solidified material are overlapped to create a homogeneous monolith to reduce the mobility of MGP residuals.

Option 5A In-Situ Chemical Oxidation – Source Area: Groundwater and saturated soil impacted with MGP residuals are treated via chemical oxidation by delivering an oxidant (i.e. Fenton's Reagent, potassium permanganate, etc.) to the Source Area. As the oxidant contacts the MGP residuals, they are oxidized and degrade to less toxic intermediates and end products (i.e., carbon dioxide and water). Chemical oxidation is less effective on free-phase MGP residuals and/or peat soils. However, chemical oxidation enhances natural attenuation processes and the potential for successful closure through remediation by natural attenuation (RNA).

Option 5B In-Situ Chemical Oxidation-Source Area: Same process as the above performed over the Source Area with one treatment (Figure 7).

5.4 Groundwater

The Groundwater remedial action options address site shallow groundwater and the Downgradient Area (Figure 7). The Downgradient Area has a surface area of approximately 18,600 square feet which is impacted with MGP residuals, generally emulsified coal tar with trace debris. Emulsified coal tar is generally encountered from 9 to 14 feet bgs in thinner intervals than the Source Area. The total estimated volume of MGP impacted material in the Downgradient Area is 2,600 cubic yards. Emulsified tar was observed in the test pit along the

shore of the West Twin River (TP-619) at a depth of nine feet bgs, indicating the Downgradient Area may be a migration pathway of impacted groundwater toward the West Twin River.

Remedial action options that were evaluated for groundwater options included the following.

Option 5C In-Situ Chemical Oxidation-Downgradient Area: Same process as the Source Area performed over the Downgradient Area with two treatments (Figure 7).

Option 5D In-Situ Chemical Oxidation-Downgradient Area: Same process as the above performed over the Downgradient Area with one treatment (Figure 7).

Option 6 Slurry Wall Containment: A vertical containment barrier is constructed to provide long-term containment of MGP residuals by excavating a vertical trench to the required depth supported by a cement-bentonite slurry. As trench excavation progresses, the cement-bentonite slurry is allowed to remain in the trench and solidify into a low permeability vertical barrier.

- Option 6A Slurry Wall Containment with Pump and Treat: Using a system of interceptor trenches and collection sumps, groundwater is hydraulically contained to prevent off-site migration of MGP residuals. Extracted groundwater is treated aboveground to municipal or WPDES pre-treatment standards prior to discharge.
- Option 6B Slurry Wall Containment with Pump and Treat and Phytoremediation: Same process as described in Option 6A however, hybrid poplar trees, or similar, are planted to act as natural pumps and reduce the volume and frequency of pump and treat. Annual O&M costs are potentially decreased and breakdown of MGP residuals may be enhanced as a result of phytoremediation.

Option 7 Permeable Reactive Barrier (PRB): A permeable reactive barrier will remediate and/or contain MGP residuals by passively treating groundwater as it passes through in-situ permeable treatment media. The PRB will contain chemically reactive or adsorptive media capable of handling dissolved phase MGP residuals. The media is mixed with sand as a bulking agent. PRBs have not been proven as effective for containing or remediating free-phase MGP residuals. Option 7 requires groundwater monitoring to predict breakthrough and occasional replacement of treatment media.

- Option 7A Continuous PRB: A continuous PRB will be installed on the western and the far west portion of the southern property boundaries. Groundwater is passively treated as it flows through the PRB.
- Option 7B Funnel and Gate PRB: A PRB with low permeable “funnel” sections constructed of slurry wall materials between chemically reactive or adsorptive “gate” material will be installed at the same location as Option 7A. Groundwater is passively treated as it is directed and flows through the gate sections.

Option 8 Remediation by Natural Attenuation (RNA) Monitoring: Existing and up to two additional groundwater monitoring wells will be sampled on a quarterly basis for two years for RNA parameters. After two years, the program may be reduced to annual sampling with a reduced parameter list. Annual monitoring reports will be submitted to WDNR.

Option 9 Routine Groundwater Monitoring: Routine groundwater monitoring will be included with more aggressive source removal/stabilization options. Existing and up to two additional groundwater monitoring wells will be sampled on a quarterly basis for two years for BTEX and PAHs parameters. After two years, the program may be reduced to annual sampling. Annual monitoring reports will be submitted to WDNR.

5.5 Economic Feasibility Evaluation

Economic feasibility was evaluated using unit cost summaries that were developed for each option. These cost estimates are provided in Appendix I and include estimated design quantities and assumptions used for costing each of the options. These cost estimates are used as preliminary estimates and are subject to change based on final design and field observed conditions. Each of the detailed cost estimates include the following tasks:

- Planning, permitting, engineering plans and specifications, documentation;
- Contractor bidding and selection;
- Contractor supplies, equipment, and materials for installation/treatment;
- Construction management and oversight;
- Air monitoring the perimeter and work zone for fugitive VOC emissions and nuisance odors;

- Operation, maintenance, and monitoring; and,
- Construction documentation reporting.

Table 13 summarizes the capital and annual costs associated with each option. These costs were compared as a net present worth using a cost of capital of nine percent.

The results of the initial screening indicate that all options summarized above and presented on Table 12 meet the evaluation criteria requirements as outlined in NR 722.07 (4). As each option identified and discussed in preceding sections effectively meets the evaluation criteria, it is reasonable to eliminate equivalent variations to options based on relative cost. The options eliminated from further consideration on the basis of direct or possibly indirect cost include the following:

Upland Area

- Option 1A – Excavation with On-Site Thermal Desorption
- Option 1B – Excavation with Off-Site Treatment
- Option 2A – Geosynthetic Cover

Source Area

- Option 3B – Excavation with Off-Site Treatment
- Option 3C – Excavation with Off-Site Disposal. This option was eliminated due to the potential long-term liability and WPSC's preference to avoid landfilling large volumes of material, if possible.

Groundwater

- Option 6A – Slurry Wall Containment with Pump and Treat
- Option 7A – Continuous Permeable Reactive Barrier

5.6 Results of Initial Screening

Based on meeting the evaluation criteria of NR 722.07 (4) and the economic feasibility evaluation of equivalent option variations, the following were considered for assembly into complete alternatives to address MGP residuals at the site:

Upland Area

- Option 1C – Excavation with Off-Site Disposal
- Option 2B – Asphalt Capping

Source Area

- Option 3A – Excavation with On-Site Thermal Desorption
- Option 4 – In-Situ Stabilization
- Option 5A – In-Situ Chemical Oxidation (3 Treatments)
- Option 5B – In-Situ Chemical Oxidation (1 Treatment)

Groundwater

- Option 5C – In-Situ Chemical Oxidation (2 Treatments)
- Option 5D – In-Situ Chemical Oxidation (1 Treatment)
- Option 6A – Slurry Wall Containment with Pump and Treat and Phytoremediation
- Option 7B – Funnel and Gate Permeable Reactive Barrier
- Option 8 – Remediation by Natural Attenuation
- Option 9 – Routine Groundwater Monitoring

6 REMEDIAL ALTERNATIVES EVALUATION

Possible combinations of selected options are assembled into Remedial Alternatives on Table 14. Options were combined to provide approaches that ranged from aggressive treatment (Alternatives 1 and 3) to more passive treatment and reduction of potential direct contact pathways (Alternative 4B). The following sections provided detailed analysis of assembled remedial alternatives.

6.1 Common Alternative Assumptions

Common assumptions for design and implementation of each alternative area include the following:

- WDNR design report approval will be necessary and continued coordination with WDNR during installation/treatment;
- An erosion control plan to address the requirements of Chapter 30 Grading Permit and NR 322 General Permit will be prepared;
- Submittal of a Notification to treat or Dispose of Petroleum Contaminated Soils (Form 4500-168);
- Temporary fence will be installed to limit site access during installation/treatment;
- A perimeter and work zone air monitoring program to detect fugitive VOC emissions and reduce nuisance odors will be implemented;
- Dewatering and treatment of generated construction water will require permission to discharge to the City of Two Rivers POTW; and,
- Routine groundwater monitoring and reporting for PVOCs and PAHs will be conducted with the exception of RNA which has an extended parameter list. It is assumed for cost estimating the groundwater program will be conducted for thirty years. When appropriate, a request for complete closure will be made to the WNDR and groundwater monitoring will be discontinued. Existing site wells will be repaired and up to two additional wells may be installed downgradient of MW-609A and MW-609B.

In addition, permit applications related to performing work, excavating, and placing fill in a wetland and floodplain will likely be required. Wetland restoration costs, if required, (wetland species, replacement of hydric soils and proper hydrology) are not included.

6.2 Alternative 1

Alternative 1 consists of the following technology options, as shown on Figure 8, with costs summarized on Table 14 and presented in Appendix I:

- Upland Area: Excavation and on-site thermal desorption;
- Source Area: Excavation and on-site thermal desorption; and,
- Groundwater/Downgradient: In-Situ Chemical Oxidation and Natural Attenuation.

6.2.1 Overview

Source control will consist of initially excavating Upland Area material up to approximately 5 feet bgs and Source Area up to 17 feet bgs as shown on Figure 8. As shown on Table 13, the total tonnage included for excavation is 29,900 tons. No bench or pilot scale testing is assumed to be required. Debris encountered is assumed to be 15 and 5 percent for upland and source areas, respectively. Excavated material is transported to a mobile medium temperature thermal desorption (MTTD) plant located north of the metering building (Figure 8). Excavated material will be staged on an impervious pad for screening to remove debris larger than 2-3 inches in diameter, blending and drying and thermal desorption. The majority of the Upland Area soils are anticipated to be unsaturated and will be blended with saturated Source Area soils prior to treatment for the purpose of controlling moisture and BTU content. Treated and processed material is temporarily stockpiled pending confirmation of thermal treatment. After confirmation of treatment, treated soil will be transported back to the excavation area for beneficial reuse as backfill and at the completion of the project, topsoil will be installed and the area will be seeded.

Due to the proximity of the residents to the east of the site, thermal desorption performed in the area noted in Figure 8 will require substantial fugitive emission controls. Screening, blending

and feeding of the pre-treated material are assumed to be conducted within a screening structure, in order to control fugitive emissions. Vapor phase carbon will be used to treat air within the structure. In addition, application of vapor suppressant foams is assumed to be required on a daily basis. Finally, in order to mitigate remaining fugitive nuisance odors, a perimeter misting system is included for cost comparison purposes.

Performance values for thermal treatment accepted at other WPSC MGP sites include the following COCs:

- Total cyanide: Less than 50 mg/kg;
- Benzene: Less than 0.5 mg/kg;
- Ethylbenzene, Toluene, Xylene: Less than 2.9, 1.5 and 4.1 mg/kg, respectively;
- Total Carcinogenic PAHs: Less than 10 mg/kg; and,
- Total PAHs: Less than 50 mg/kg, in addition to compound specific values for acenaphthylene (0.7 mg/kg), naphthalene (0.4 mg/kg) and, phenanthrene (1.8 mg/kg).

Treatment performance criteria listed above are the same criteria that were used at the former Oshkosh MGP site. Consistent with the remedial objectives for the site, post treatment performance criteria for BTEX and PAHs were established based on residual concentration values which are protective of the groundwater pathway. Values for protection of groundwater listed in Table 1 of *Interim Guidance on Soil Cleanup Levels for PAHs* were used as a guide to determine the minimum thermal treatment standard for those compounds. Treatment performance criteria for PAHs were further reduced to values which should be technically achievable based on the documented performance of medium temperature desorption technology at other similar sites. A technology derived criteria of 10 mg/kg total carcinogenic PAHs and 50 mg/kg total PAHs was established for PAH compounds with groundwater protection RCLs above 10 mg/kg. The performance criterion of 50 mg/kg total cyanide is based upon GRI Vol. III Risk Assessment Guide (1987) and is also conservatively low based on direct contact risk values.

Typical throughput of MTTD plants is at least 20 tons of soil per hour of operation. Plants usually are permitted to operate 24 hours per day, 7 days per week. Target average operational up-time for thermal treatment plants is approximately 85 percent. Therefore, estimated treatment duration is estimated to be 73 days. Additional key assumptions in the cost estimate include lime for drying of saturated soil/sulfur pretreatment; utility costs including water, gas and electric; and dewatering, water treatment, and related wastewater disposal fees. Frac tanks and water treatment trailer for construction dewatering storage and treatment will also be staged north of the metering building. Construction water generated during excavation will be treated in an on-site water treatment unit consisting of a carbon vessel and bag filter unit. Treated water will be stored in an on-site frac tank until water samples can be collected and analyzed to verify concentrations are below the requirements of the City POTW. Treated water will be discharged to the sanitary sewer.

In-situ chemical oxidation will be performed to address shallow groundwater and associated saturated soil in the Downgradient Area with the overall objective of reduction of contaminant mass and enhancement of conditions to promote natural attenuation processes. Oxidizing chemicals will be injected using a combination of a high velocity fluid jet to allow the injection tip to be advanced by hand, direct push, and possibly permanent injection points located on a grid system within the Downgradient Area. The number of injection points are determined during a bench scale treatability study and a pilot scale treatment. During the bench scale treatability study, oxidants are evaluated to measure the effectiveness at reducing the concentration of MGP residuals and estimate the volume of oxidant required to reduce MGP residuals to an acceptable level. For cost comparison, it is assumed two treatments will be required to adequately treat the Downgradient Area.

As a polishing technology for the groundwater, monitoring wells will be utilized to demonstrate remediation by natural attenuation (RNA). It is assumed two additional wells may be installed off-site, downgradient of MW-609A and MW-609B to determine the leading edge of the groundwater plume. Each well will be sampled on a quarterly basis for the first two years after treatment and excavation activities are completed after which, each well will be sampled on an annual basis.

6.2.2 Permitting and Approvals

Permits and approvals anticipated to be required for this specific alternative include, but may not be limited to:

- WDNR Solid Waste Processing Permit, Air Pollution Control Construction Permit and relocation notification to the WDNR to be obtained by the thermal treatment contractor for the purpose of compliance with NR400 and NR700;
- Municipal temporary zoning permit or similar permit to allow operation of the thermal treatment plant; and,
- Specific approval by WDNR for thermal treatment limits, chemical oxidation and RNA.

6.2.3 Performance Monitoring

Contaminated debris will be profiled for off-site disposal at a solid waste landfill. Characterization of non-contaminated debris will include visual inspection consistent with the debris treatment standards set forth under 40 CFR 268.45 prior to off-site disposal at a construction landfill. For the purpose of cost estimating, it is assumed all debris is disposed in a municipal solid waste landfill.

Performance of the Upland and Source Area excavations is monitored through visual observations of MGP residuals (i.e., wood chips, emulsified tar, etc.). Soil samples are collected at the base and sidewalls of the Upland Area excavation, where appropriate, to assess post-remedial conditions. Groundwater from construction dewatering will be treated prior to discharge according to the municipal discharge permit obtained.

Verification of thermal treatment effectiveness will be accomplished by collecting representative samples at 500 ton intervals. In order to maintain sufficient area for post-treatment soil stockpiles, verification samples may be rush-analyzed for PAHs and BTEX. Soil treatment verification sampling for BTEX may be eliminated or reduced in frequency after correlation of post-treatment BTEX concentrations relative to PAH levels is established.

Performance of the in-situ chemical oxidation treatment will be monitored during injection using groundwater monitoring wells that surround the treatment zone. The wells will be monitored for

DO, ORP, pH, temperature, carbon dioxide, oxygen, lower explosive limit (LEL), and screened for organic vapors using a photoionization detector (PID). WDNR may have additional requirements to protect public safety during injection.

Improvements to the groundwater quality due to in-situ chemical oxidation and natural attenuation processes will be assessed up to a thirty-year time period. The groundwater samples will be analyzed by a laboratory for BTEX, PAHs, nitrate, nitrite, TKN, manganese, sulfate, sulfide, methane, alkalinity, hardness, totals dissolved solids, and total organic carbon. Field instruments will be used to measure temperature, conductivity, turbidity, pH, oxidation-reduction potential (ORP), dissolved oxygen (DO), carbon dioxide, and ferrous iron.

6.2.4 Cost Sensitivity

The total net present worth of implementing this remedial alternative, summarized on Table 14, is \$6,306,000, which includes a thirty year monitoring period at a nine percent cost of capital. Potential capital cost savings in engineering, air monitoring, mobilization/demobilization, bench scale studies, fencing, truck scale and stockpiling area when the individual options are selected to assemble Alternative 1, are approximately \$784,000.

Estimated costs are sensitive to, but not limited to, the following:

- Construction water volumes generated during excavation of Upland Area;
- Excessively wet, BTU-rich or sulfur-rich material to be thermally treated, even after blending with on-site soils or addition of 10 percent lime;
- The results of the bench scale chemical oxidation treatability study;
- Material costs of the selected oxidant;
- The number of in-situ chemical oxidation treatments to achieve acceptable standards;
- The effectiveness of in-situ chemical oxidation to enhance natural attenuation processes; and;
- Duration of groundwater monitoring required prior to achieving closure. Monitoring for the first two years is assumed to be quarterly, with annual monitoring thereafter.

6.3 Alternative 2

Alternative 2 consists of the following technology options, as shown on Figure 9, and summarized on Table 14:

- Upland Area: Excavation with off-site disposal;
- Source Area: In-Situ Stabilization; and,
- Downgradient/Groundwater: Funnel and Gate Permeable Reactive Barrier (PRB).

6.3.1 Overview

Upland Area soils are excavated to a depth ranging between four to five feet bgs (Figure 9). Excavated soils are transported directly to a solid waste landfill (at least one is within 30 miles of the site). Certified clean backfill material is imported and compacted in 6-inch lifts. At the completion of the project, topsoil is installed and the area is seeded.

The majority of the Upland Area soils are anticipated to be unsaturated and do not require blending with lime for moisture reduction prior to transportation. In the event blending is required, a stockpile management area will be maintained north of the metering building (Figure 9). Similarly, dewatering the excavation is not anticipated. However, if necessary, a treatment system for construction water will also be staged north of the metering building. Construction water generated during excavation of the Upland Area, if any, will be treated in an on-site water treatment unit consisting of a carbon vessel and bag filter unit. Treated water will be stored in an on-site frac tank until water samples can be collected and analyzed to verify concentrations are below the requirements of the City POTW. Treated water will be discharged to the sanitary sewer.

In-situ soil stabilization/solidification (ISS) of the soils located in the Source Area will be accomplished using large diameter augers (five to 12 feet in diameter) to mechanically mix the soil with a cement based stabilizing reagent carried by the drilling fluid to depths up to 17 feet bgs (Figure 9). With regards to effectiveness, ISS has been successfully demonstrated at several other MGP sites and will be subjected to rigorous bench and field testing to further verify the mix design and appropriateness of this technology to site conditions. It is anticipated that ISS

stabilization in the saturated zone will quickly reduce on-going impacts to groundwater due to leaching of MGP residuals. A temporary work platform may be required for the heavy equipment required for implementation of this alternative.

Increase in material volumes of 20-40% in ISS treated areas will likely require management of swell. The combination of in-situ stabilization and excavation in the Upland Area may provide cost savings by the use of swell as backfill in the Upland Area instead of or in addition to imported backfill material. Source areas containing large percentages of coal tar may be resistant to stabilizing agents and require additional solidification reagents. Stabilized areas are unable to support wetland vegetation without backfilling clean unconsolidated materials at or near the final surface grade.

In addition to the stabilization/solidification process, a PRB will be constructed using a “funnel and gate” approach that will be on the west and south downgradient boundary of the site to address shallow groundwater contamination. Assumed in the cost estimate is a 340-foot long slurry wall with six 10-foot wide treatment gates spaced evenly apart. For the alternative selected, the PRB is assumed to be 20 feet deep and 3 feet thick. Bench scale testing and groundwater modeling will be required as part of the full scale design. The PRB will be keyed into the clay layer located below the shallow aquifer. Additional geotechnical data is required to determine key in depths and integrity of clay aquitard.

Construction of the PRB containment will consist of installing a cement-bentonite wall along the alignment (Figure 9). A total of 350 tons of trench spoil are assumed to require landfilling, but may be backfilled in the shallow excavation area or as clean fill at the surface of the Source Area. Bentonite based slurry may be added during excavation to maintain trench stability that will later be displaced by cement-bentonite slurry. The cement-bentonite slurry will be allowed to hydrate and harden in the trench except in the PRB treatment gate locations. A platform may need to be built to allow construction of the PRB. The treatment gates will be designed to contain reactive and/or absorptive media such as granular activated carbon, selected to treat MGP residuals and simplify media maintenance and replacement. Carbon replacement is assumed to be replaced every 10 years. The presence of emulsified tar requires consideration during design to limit direct contact with carbon.

6.3.2 Regulatory Compliance

Permitting and approval requirements are anticipated to include solid waste landfill acceptance of Upland Area soil and specific WDNR approval of ISS and PRB portions of the remedy.

6.3.3 Performance Monitoring

Groundwater monitoring is required to assess break through of the treatment media. Funnel and gate monitoring will consist of monitoring wells within each gate; downgradient of three funnel sections; on each end of the PRB and upgradient of the PRB. Monitoring wells will be observed for the presence of free product, BTEX, PAH and groundwater elevations on a quarterly basis for two years and annually thereafter. Groundwater elevations will monitor performance of the funnel portions in containing the groundwater plume. Analytical testing will monitor performance of the gate portions in treating contaminated groundwater. When breakthrough of contaminants of concern or free product is identified in monitoring points within the gates, carbon will be replaced within a reasonable period of time.

6.3.4 Economic Feasibility

The total net present worth of implementing this remedial alternative, summarized on Table 14, is approximately \$6,937,000, which includes a thirty year monitoring period at a nine percent cost of capital. Potential capital cost savings in engineering, air monitoring, mobilization/demobilization and bench scale studies when the individual options are selected to assemble Alternative 2, are approximately \$448,000.

Estimated costs are sensitive to, but not limited to, the following:

- Construction water volumes generated during excavation of Upland Area;
- Results of bench and pilot testing and treatability testing for ISS;
- The results of the bench scale PRB treatability testing;
- The depth and quality of the clay key-in layer;
- Design of the PRB including number of gates and length; and,

- Duration of groundwater monitoring required prior to achieving closure.

6.4 Alternative 3

Alternative 3 is presented on Figure 10 and is assembled from the following options:

- Upland Area: Asphalt Capping;
- Source Area: In-Situ Chemical Oxidation (3 Treatments); and,
- Groundwater: In-Situ Chemical Oxidation (2 Treatments) and Natural Attenuation.

6.4.1 Overview

The implementation of soil capping in the Upland Area (Figure 10) of the site includes adding asphalt surface in areas where shallow soils exhibit concentrations of BTEX and PAHs above direct-contact screening levels and in areas where MGP residuals in unsaturated soils have the potential to leach into groundwater. The cap design will consider adequate surface water drainage. As caps require periodic inspection and maintenance due to settlement, ponding of surface water, freeze/thaw cycles, erosion and naturally occurring invasion by vegetation, re-sealing is assumed to be conducted every five years for the duration of this alternative (assumed 30-years). The Upland Area is slightly extended in this alternative to create an asphalt pad that extends to the metering building.

The Source Area and Downgradient Area (Figure 10) will be treated using in-situ chemical oxidation. Oxidizing chemicals are injected using a combination of a high velocity fluid jet to allow the injection tip to be advanced by hand, direct push, and possibly permanent injection points located on a grid system within each area. The number of injection points are determined during a bench scale treatability study and a pilot scale treatment. During the bench scale treatability study, oxidants will be evaluated to measure the effectiveness at reducing the concentration of MGP residuals and estimate the volume of oxidant required to reduce MGP residuals to an acceptable level. For cost comparison, it is assumed three treatments will be required to adequately treat the Source Area and two treatments will be required to adequately treat the Downgradient Area. Benefits of in-situ chemical oxidation include minimal staging

area (a trailer with oxidant, compressor, hoses and a direct push boring unit) and minimal surface disturbance compared to other technologies.

As a polishing technology for the groundwater, monitoring wells will be utilized to demonstrate RNA. It is assumed two additional wells may be installed off-site, downgradient of MW-609A and MW-609B to determine the leading edge of the groundwater plume. Each well will be sampled on a quarterly basis for the first two years after treatment and capping activities are complete with annual sampling thereafter. Groundwater monitoring results will be presented in tabular and/or graphical form to illustrate trends in the data and demonstrate a receding or stable plume. Parameters that no longer exhibit elevated concentrations will be requested to be removed from the sampling program. Groundwater monitoring reports will be submitted to the WDNR on an annual basis. When appropriate, a request for complete closure will be made to the WDNR and groundwater monitoring will be discontinued.

6.4.2 Permitting and Approvals

Permit and approvals anticipated to be required for this specific alternative include, but may not be limited to:

- Approval from the WDNR for oxidant injection;
- Solid waste landfill acceptance of Upland Area soil; and,
- Approval by the WDNR for RNA.

6.4.3 Performance Monitoring

Performance of the asphalt cap will be monitored through visual inspection of the cap on an annual basis. The asphalt cap is assumed to be re-sealed every five years to maintain integrity.

Performance of the in-situ chemical oxidation treatment will be monitored during injection using groundwater monitoring wells that surround the treatment zone to monitor oxidant usage. The wells will be monitored for DO, ORP, pH, temperature, carbon dioxide, oxygen, LEL, and screened for organic vapors using a PID. WDNR may have additional requirements to protect public safety during injection.

Groundwater monitoring wells will be sampled seven, 30, and 90 days after injection to assess the effectiveness of the treatment. Groundwater samples will be analyzed for PVOCs and PAHs. The results of the groundwater samples will determine whether a second and/or third treatment application is required.

Improvements to the groundwater quality due to in-situ chemical oxidation and natural attenuation processes will be assessed over a thirty-year time period as described in Section 6.4.1. The groundwater samples will be analyzed by a laboratory for BTEX, PAHs, nitrate, nitrite, TKN, manganese, sulfate, sulfide, methane, alkalinity, hardness, totals dissolved solids, and total organic carbon. Field instruments will be used to measure temperature, conductivity, turbidity, pH, ORP, DO, carbon dioxide, and ferrous iron.

6.4.4 Cost Sensitivity

The total net present worth of implementing this remedial alternative, summarized on Table 14, is approximately \$3,833,000, which includes a thirty year monitoring period at a nine percent cost of capital. Potential capital cost savings in engineering, air monitoring, mobilization/demobilization and bench scale studies, when the individual options are selected to comprise Alternative 3, are approximately \$189,000.

Estimated costs are sensitive to, but not limited to, the following:

- The results of the bench scale treatability study;
- Material costs of the selected oxidant;
- The number of in-situ chemical oxidation treatments to achieve acceptable standards. The second and third treatments in the Source Area are approximately \$631,000 per treatment. In the Downgradient Area, the second treatment is approximately \$252,000;
- The effectiveness of in-situ chemical oxidation to enhance natural attenuation processes; and,
- Duration of RNA groundwater monitoring required prior to achieving closure. Monitoring for the first two years is assumed to be quarterly with annual monitoring thereafter for up to a total 30-year monitoring period.

6.5 Alternative 4

The basic structure of Alternative 4 is assembled from the following options:

- Upland Area: Excavation with off-site disposal; and
- Downgradient Area: In-Situ Chemical Oxidation (One Treatment).

Alternative 4A and 4B are developed based on whether or not one in-situ chemical oxidation treatment can meet established treatment goals in the downgradient area. The treatment objectives of contaminant mass reduction and enhancement of RNA will be further refined during the design phase of the project. The effectiveness of the treatment will be initially monitored 7, 30, and 90 days after application. Thereafter, groundwater samples will be collected and analyzed for RNA parameters on a quarterly basis for up to two years.

Alternative 4A

If after two years in-situ chemical oxidation sufficiently meets established treatment goals in the downgradient area, Alternative 4A will be implemented. Additional remedial options in Alternative 4A (Figure 11) include:

- Source Area: In-Situ Chemical Oxidation (one treatment)
- Groundwater: Natural Attenuation.

Alternative 4B

If in-situ chemical oxidation does not sufficiently meets the treatment goals in the downgradient area, Alternative 4B will be implemented. Additional remedial options in Alternative 4B (Figure 12) includes:

- Groundwater: Slurry Wall Containment and Pump and Treat System enhanced with phytoremediation.

6.5.1 Overview

Upland Area soils will be excavated to a depth ranging between four to five feet bgs (Figure 11 and 12). Excavated soils will be transported directly to a solid waste landfill (at least one is

within 30 miles of the site). The majority of the Upland Area soils are anticipated to be unsaturated and do not require blending for moisture prior to transportation. In the event blending is required a stockpile management area will be maintained north of the metering building. Similarly, dewatering the excavation is not anticipated. However, if necessary, a treatment system for construction water will also be staged north of the metering building. Treated water will be discharged to the sanitary sewer. Certified clean backfill material will be imported and compacted in 6-inch lifts. At the completion of the project, topsoil will be installed and the area will be seeded.

The Downgradient Area will be treated using in-situ chemical oxidation. Oxidizing chemicals may be injected using a combination of a high velocity fluid jet to allow the injection tip to be advanced by hand, direct push, and possibly permanent injection points located on a grid system within each area. The number of injection points are determined during a bench scale treatability study and a pilot scale treatment. During the bench scale treatability study, oxidants are evaluated to measure the effectiveness at reducing the concentration of MGP residuals and estimate the volume of oxidant required to reduce MGP residuals to an acceptable level. Benefits of in-situ chemical oxidation include minimal staging area (a trailer with oxidant, compressor, hoses and a direct push boring unit) and minimal surface disturbance compared to other technologies. One treatment is assumed to be applied in the Downgradient Area.

As a polishing technology for the groundwater, monitoring wells will be utilized to demonstrate RNA following downgradient chemical oxidation treatment. It is assumed two additional wells may be installed off-site, downgradient of MW-609A and MW-609B to determine the leading edge of the groundwater plume. Each well will be sampled on a quarterly basis for the first two years after treatment and excavation activities are completed. Stable or downward trending BTEX and PAH concentrations and RNA parameters will be evaluated to determine if chemical oxidation will be performed on the Source Area or if containment is required. For either option, annual groundwater monitoring is assumed thereafter.

If the groundwater data indicate in-situ chemical oxidation sufficiently meets established treatment objectives in the downgradient area, Alternative 4A will proceed with one in-situ

chemical oxidation treatment in the source area and continued groundwater monitoring to demonstrate RNA (Figure 11).

Groundwater samples will be collected 7, 30, and 90 days after Source Area treatment. After which, groundwater samples will be collected and analyzed for RNA parameters on an annual basis for up to 28 years. Groundwater monitoring results will be presented in tabular and/or graphical form to illustrate trends in the data and demonstrate a receding or stable plume. Parameters that no longer exhibit elevated concentrations will be requested to be removed from the sampling program. Groundwater monitoring reports will be submitted to the WDNR on an annual basis. When appropriate, a request for complete closure will be made to the WDNR and groundwater monitoring will be discontinued.

If the groundwater data indicate in-situ chemical oxidation does not sufficiently meet the treatment goals in the downgradient area, Alternative 4B will be implemented. In addition to downgradient chemical oxidation, this alternative includes a slurry wall containment and pump and treat system enhanced with phytoremediation to reduce potential impacts to the West Twin River (Figure 12).

Physical containment will be designed to contain emulsified coal tar and dissolved MGP residuals in the groundwater. This will include construction of a slurry wall that will be installed to a key-in depth assumed to be 20 feet bgs, three feet thick and 340 feet long along the western boundary of the site (Figure 12). Geotechnical analyses, to the specific depth required and the stability of the material near the river, are required prior to installation of a full-scale cutoff wall. A trench is excavated and a bentonite-cement or bentonite-soil-cement mix is pumped in to form a vertical impermeable barrier. Trench spoil may require disposal to a solid waste landfill or landspreading on site. The top of the barrier wall will be sealed to protect the slurry wall. Due to the excessively wet conditions in this area, a platform constructed of up to two feet of base course materials may be installed to support heavy equipment.

Hydraulic control is achieved by installation of an interceptor trench on the upgradient side of the slurry wall (Figure 12). Trenches are typically lined with a woven fabric to reduce fines infiltration and settling. The trench is assumed to be equipped with three collection sumps and four clean outs. Electric submersible pumps will convey water collected in the sumps to an on-

site aboveground water pre-treatment unit consisting of a carbon vessel and a bag filter. These equipment are assumed to be required to meet City of Two Rivers wastewater discharge permit or WPDES permit. Approximately 120 gallons per day will be collected and treated based on the shallow groundwater flow with an average gradient of 0.006 and a hydraulic conductivity value of 0.0002 cm/sec.

To supplement the traditional pump and treat hydraulic control, approximately 150 hybrid poplar trees, or similar trees will be installed to act as pumps and maintain hydraulic control. In addition, phytoremediation studies have shown hybrid poplars may be able to assist in the breakdown of BTEX and PAH constituents.

6.5.2 Permitting and Approvals

Permit and approvals anticipated to be required for Alternative 4 include, but may not be limited to:

- Approval from the WDNR for oxidant injection; and
- Solid waste landfill acceptance of Upland Area soil.

In addition, Alternative 4A may require concurrence by the WDNR for RNA.

Alternative 4B may also require:

- WDNR approval of phytoremediation enhancements;
- A City of Two Rivers wastewater permit or WPDES permit to discharge treated groundwater; and,
- Solid waste landfill acceptance or WDNR approval for landspreading of trench spoil.

6.5.3 Performance Monitoring

Overall performance monitoring for this option are listed below with variations based on Alternative 4A or 4b called out separately. Excavated MGP residuals (i.e., wood chips, emulsified tar, etc.) will be removed for disposal at a solid waste landfill. Material not characteristic of the landfill profile will be stockpiled on an impermeable membrane and covered until properly profiled for accepted by a solid waste landfill. Performance of the Upland Area

will be monitored through visual observations of MGP residuals (i.e., wood chips, emulsified tar, etc.). Soil samples will be collected at the base and sidewalls of the excavation, where appropriate, to assess post-remedial conditions.

Construction water generated during excavation of the Upland Area, if any, will be treated in an on-site water treatment unit consisting of a carbon vessel and bag filter unit. Treated water will be stored in an on-site frac tank until water samples can be collected and analyzed to verify concentrations are below the requirements of the City POTW. Treated water will be discharged to the sanitary sewer.

Performance of the in-situ chemical oxidation treatment will be monitored during injection using groundwater monitoring wells that surround the treatment zone to monitor oxidant usage. The wells will be monitored for DO, ORP, pH, temperature, carbon dioxide, oxygen, LEL, and screened for organic vapors using a PID. WDNR may have additional requirements for injection.

Groundwater monitoring wells will be sampled seven, 30, and 90 days after injection to assess the effectiveness of the treatment. Groundwater samples will be analyzed for PVOCs and PAHs. Additional groundwater samples will be collected on a quarterly basis for up to two years to assess whether RNA is occurring. The results of the groundwater samples will determine whether Alternative 4A or Alternative 4B will be implemented.

Alternative 4A

Improvements to the groundwater quality due to in-situ chemical oxidation and natural attenuation processes will be assessed over a thirty-year time period as described in Section 6.4.1. The groundwater samples will be analyzed by a laboratory for BTEX, PAHs, nitrate, nitrite, TKN, manganese, sulfate, sulfide, methane, alkalinity, hardness, totals dissolved solids, and total organic carbon. Field instruments will be used to measure temperature, conductivity, turbidity, pH, ORP, DO, carbon dioxide, and ferrous iron.

Alternative 4B

Demonstration of containment effectiveness and improvements to groundwater quality due to groundwater extraction and treatment will be assessed up to 28 years after the Downgradient

Area in-situ chemical oxidation treatment. Groundwater sampling of the on-site wells and up to two additional wells that may be located downgradient of MW-609A and MW-609B will be performed on an annual basis for analysis of BTEX and PAHs. Groundwater elevation measurements from all monitoring wells at the site will be collected to evaluate hydraulic and physical containment effectiveness. Groundwater monitoring reports will be submitted to the WDNR annually and will be evaluated for potential reduction in monitoring frequency or scope. Long-term operation and monitoring of the groundwater extraction system assumes monthly operations, maintenance, and monitoring of the treatment system and quarterly sampling of treated groundwater. Performance of the hybrid poplar trees will be assessed through monitoring the growth of the trees (height and diameter, leaf area, etc.). Additionally, trends in the volume of extracted groundwater will be evaluated to determine the effectiveness of the trees to enhance hydraulic containment.

6.5.4 Cost Sensitivity

The total net present worth of implementing these remedial alternatives, summarized on Table 14, is approximately \$2,987,000 for Alternative 4A and \$3,006,000 for Alternative 4B, which includes a thirty year monitoring period at a nine percent cost of capital. Potential capital cost savings in engineering, air monitoring, and bench scale studies, when the individual options are selected to comprise Alternative 4A, are approximately \$184,000.

Estimated costs are sensitive to, but not limited to, the following:

- Construction water volumes generated during excavation of Upland Area;
- Excessively wet material to be managed prior to transportation to solid waste landfill;
- Potential to excavate characteristically hazardous waste based on ignitability or reactivity;
- Potential to excavate materials not characteristic of the approved waste profile used in manifest documents;
- The results of the bench scale treatability study;
- Material costs of the selected oxidant;

- The effectiveness of in-situ chemical oxidation treatments to achieve acceptable standards; and,
- The effectiveness of in-situ chemical oxidation to enhance natural attenuation processes.

In addition, Alternative 4A cost sensitivity includes:

- Duration of groundwater monitoring required prior to achieving closure. Monitoring for the first two years is assumed to be quarterly with annual monitoring thereafter for up to a total 30-year monitoring period. This monitoring period may potentially be reduced several years. The annual groundwater monitoring costs to demonstrate RNA are approximately \$27,000 per year.

Finally, Alternative 4B cost sensitivities include:

- Variations in operation, maintenance and monitoring of the excavation and water treatment system;
- Groundwater extraction volumes varying significantly from that estimate herein;
- Percent loss of hybrid poplar trees in a year; and,
- Duration of groundwater monitoring required prior to achieving closure. Routine groundwater monitoring costs are approximately \$21,000 per year.

7 RECOMMENDED REMEDIAL ALTERNATIVE

7.1 Summary of Rationale

Based on implementability, applicability of site conditions, and economic feasibility, the preferred remedial alternative for the site is Remedial Alternative 4A, consisting of excavation in the Upland Area and in-situ chemical oxidation in the Downgradient and Source Area with RNA. This alternative depends on bench scale treatability and pilot scale studies to determine the most effective oxidant for in-situ chemical oxidation treatment. The Downgradient Area was selected to be treated first, as this area is a direct pathway for MGP residuals to impact the West Twin River. By treating Downgradient Area first, in-situ chemical oxidation and RNA can be evaluated prior to treatment of the Source Area. Approximately two years after treating the Downgradient Area, if chemical oxidation is appropriate, the Source Area will be treated. This alternative also provides flexibility to implement Alternative 4B (groundwater containment) if in-situ chemical oxidation does not meet treatment objectives.

Future potential use of the site has not been identified that warrants a more aggressive remedy. However, in the short term the Upland Area of the site may be developed for WPSC or other future use after the bulk of MGP debris (i.e., blue wood chips, foundations, etc.) is removed. The removal and disposal of these materials will reduce the impacts to groundwater and direct contact and largely remove former MGP structures.

A major advantage of Alternative 4A is minimal disturbance of the wetland area in the central portion of the site and the 100-year floodplain. Other alternatives evaluated do not aggressively remove MGP residuals without significantly altering the wetland area. The detailed cost estimates in Appendix H do not include wetland restoration in any of the options, however, these unit costs may vary substantially depending on the level of restoration required.

7.2 Disposition of Residuals

Excavated material from the Upland Area will be disposed in a municipal solid waste landfill. If an off-site thermal treatment unit is identified within a reasonable vicinity of the site at the time of excavation, the Upland Area may be treated off-site in lieu of disposal. Debris material that does not pass the thermal treatment unit screen will be disposed of in the solid waste landfill.

Although the Upland Area is generally unsaturated, if construction water is generated during excavation activities, the water may be treated in an on-site water treatment system prior to discharge in the City of Two Rivers POTW or under WPDES permit. The water treatment system will consist of a carbon vessel and bag filter unit. If necessary, the carbon will be reactivated or landfilled and the bag filters will be disposed in a solid waste landfill.

If Alternative 4B is implemented, treated water from the pump and treat system will also be discharged in the City of Two Rivers POTW or under WPDES permit. Treatment unit carbon will be reactivated or landfilled and bag filters will be disposed of in a solid waste landfill. In addition, the trench spoils from installation of the slurry wall may be disposed in a solid waste landfill or incorporated on site, as appropriate.

7.3 Additional Considerations/Data Needs

To implement Alternative 4A, remedial considerations and data needs which are pertinent include:

- Collect upland soil samples for analysis of diesel range organics (DRO) and gasoline range organics (GRO);
- Prepare a waste profile for Upland Area soil for acceptance at municipal sanitary landfill;
- Perform a bench scale treatability study with various oxidants to identify the most effective oxidant;
- Based on the selected oxidant and volume required, refine the cost estimates for pilot scale and full scale treatments;
- Evaluate approximately two years of RNA data after Downgradient Area treatment;

- Replace groundwater monitoring wells MW-601 (upgradient well), MW-605A (in source area), MW-607B (southwestern piezometer) to support the RNA monitoring well network;
- Potentially install two groundwater monitoring wells downgradient of MW-609A (southern property) to define the leading edge of the plume and include these wells in the RNA monitoring well network;
- Collect Shelby tubes from MW-607B and along the potential containment wall alignment for geotechnical analysis of key in-depths if Alternative 4B is implemented;
- Pump testing extraction trenches if Alternative 4B is implemented; and,
- Define vertical and horizontal extent of impact associated with TP-621.

7.4 Implementation Schedule

Upon WDNR approval of the selected remedy, bench scale treatability studies will be implemented to evaluate the most appropriate oxidants. Bench scale treatability studies will take approximately 3 months to complete. After the bench scale treatability study, a pilot scale treatment will be initiated in the Downgradient Area. Groundwater samples will be collected 7, 30, and 90 days after treatment to monitor the effectiveness of treatment and potential for RNA. The pilot scale treatment will refine the oxidant and oxidant volumes prior to full-scale treatment. An NR 724 Design Report will be prepared, outlining results of the bench and pilot scale treatability studies as well as details of the recommended remedy in 2004.

Following WDNR approval of the Design Report, full-scale treatment in the Downgradient Area will proceed which is anticipated to take approximately 30 days. Depending upon the timeliness of WDNR review and approval of the Design Report, full-scale downgradient treatment may occur within 12 to 18 months of RAOR approval.

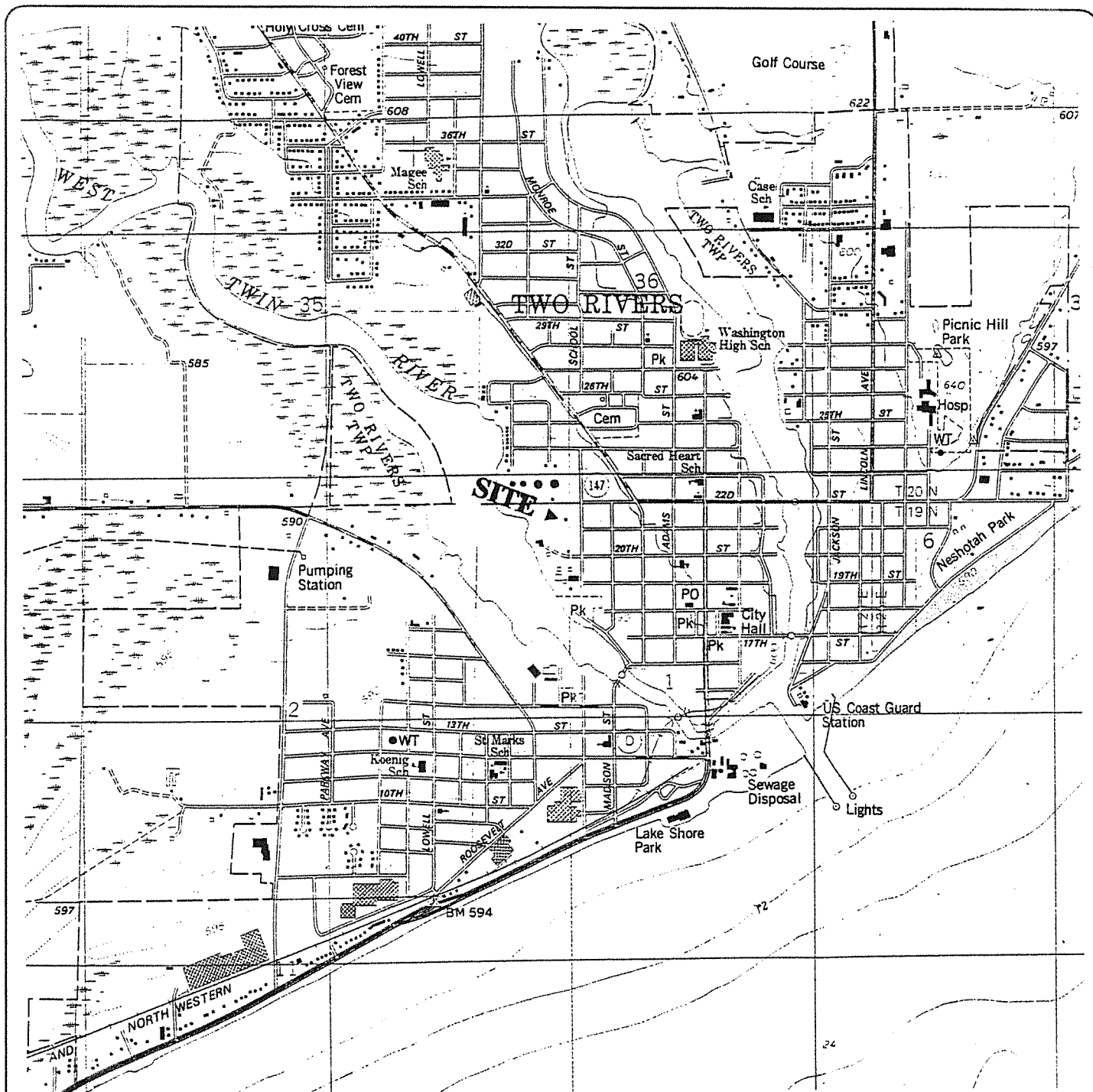
After full-scale treatment, groundwater samples will be collected after 7, 30, and 90 days and then on a quarterly basis for up to two years to evaluate the effectiveness of in-situ chemical oxidation. If the treatment goals were met by in-situ chemical oxidation, Alternative 4A will proceed with treatment of the Source Area, approximately 50 days. After Source Area treatment groundwater samples will be collected after 7, 30, and 90 days and then on an annual basis for up to 28 years to monitor RNA parameters.

If treatment objectives are not met following Downgradient Area in-situ chemical oxidation, Alternative 4B will proceed with design of the slurry wall, pump and treat system and phytoremediation enhancement. Routine groundwater monitoring will be conducted annually for up to 28 years.

Remedial options for the Upland Area and the Downgradient area can be conducted concurrently or independently of each other. It is recommended that soil excavation be implemented during cold weather climate to reduce possible odors associated with excavation of MGP residuals. If Alternative 4B is implemented, the frost layer may also provide a more stable ground surface for slurry wall construction.

Remedial technologies may be reconsidered following Downgradient Area treatment, as an alternative to slurry wall containment, pump and treat system, and phytoremediation. Variations to Alternative 4A will be described in a supplemental NR 724 Design Report or Work Plan.

FIGURES



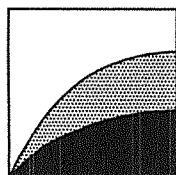
SOURCE: USGS 7.5 MINUTE QUADRANGLE,
TWO RIVERS. DATED 1978.



0 2000 4000

SCALE IN FEET

CONTOUR INTERVAL 10 FEET



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SITE LOCATION MAP

FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE
WISCONSIN PUBLIC SERVICE CORPORATION
CITY OF TWO RIVERS, WISCONSIN

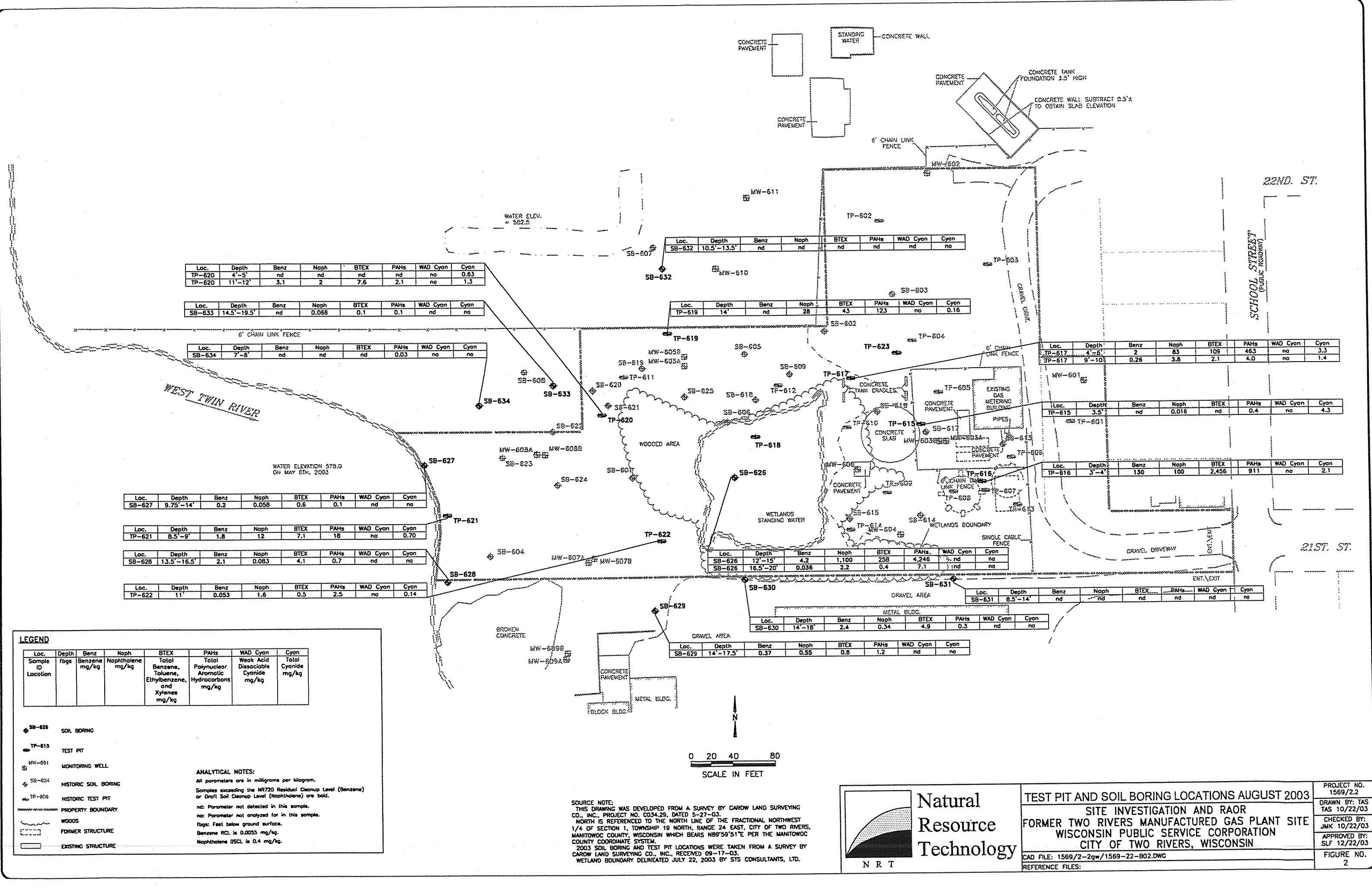
DRAWN BY: TAS

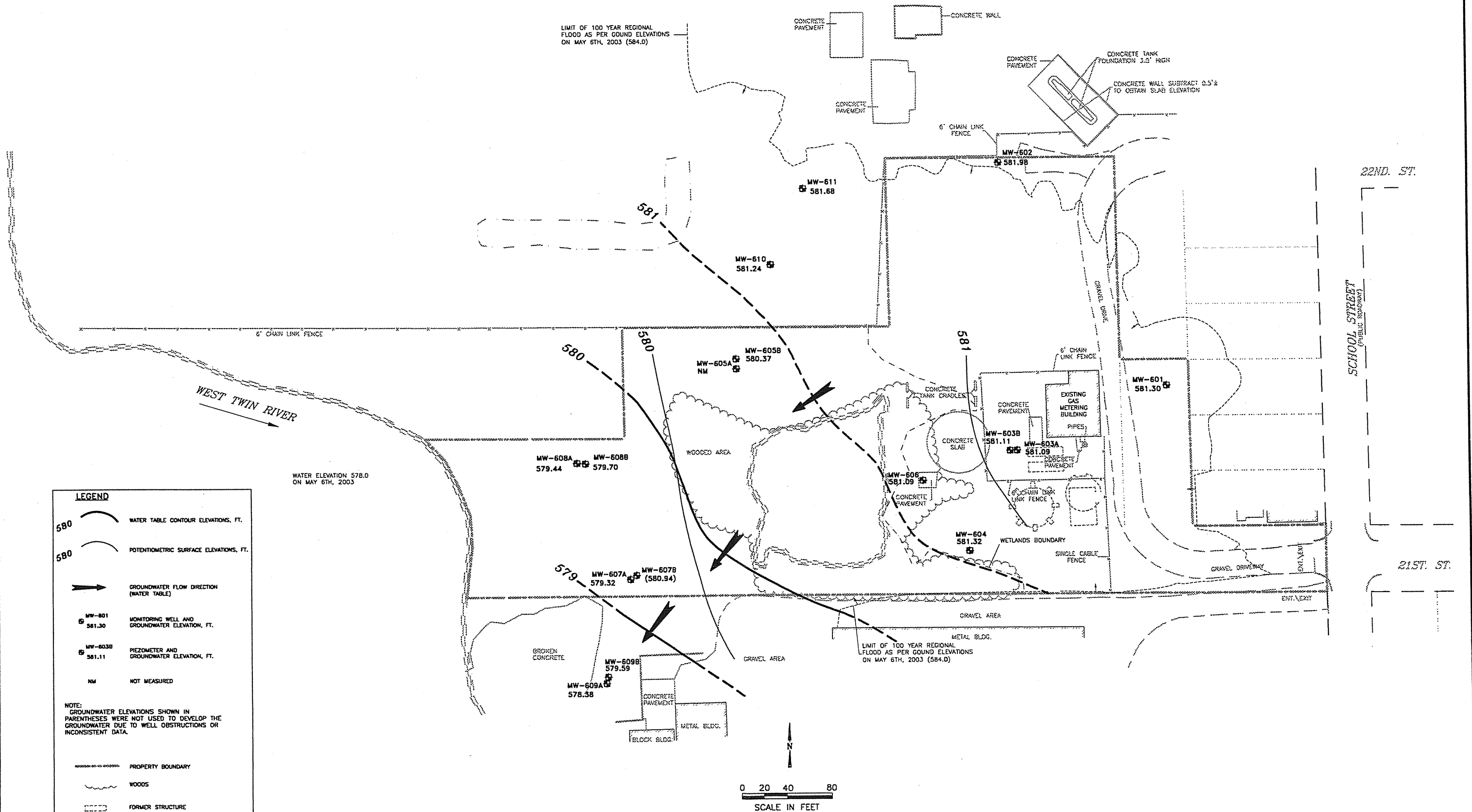
APPROVED BY: EPK DATE: 07/07/03

PROJECT NO.
1569

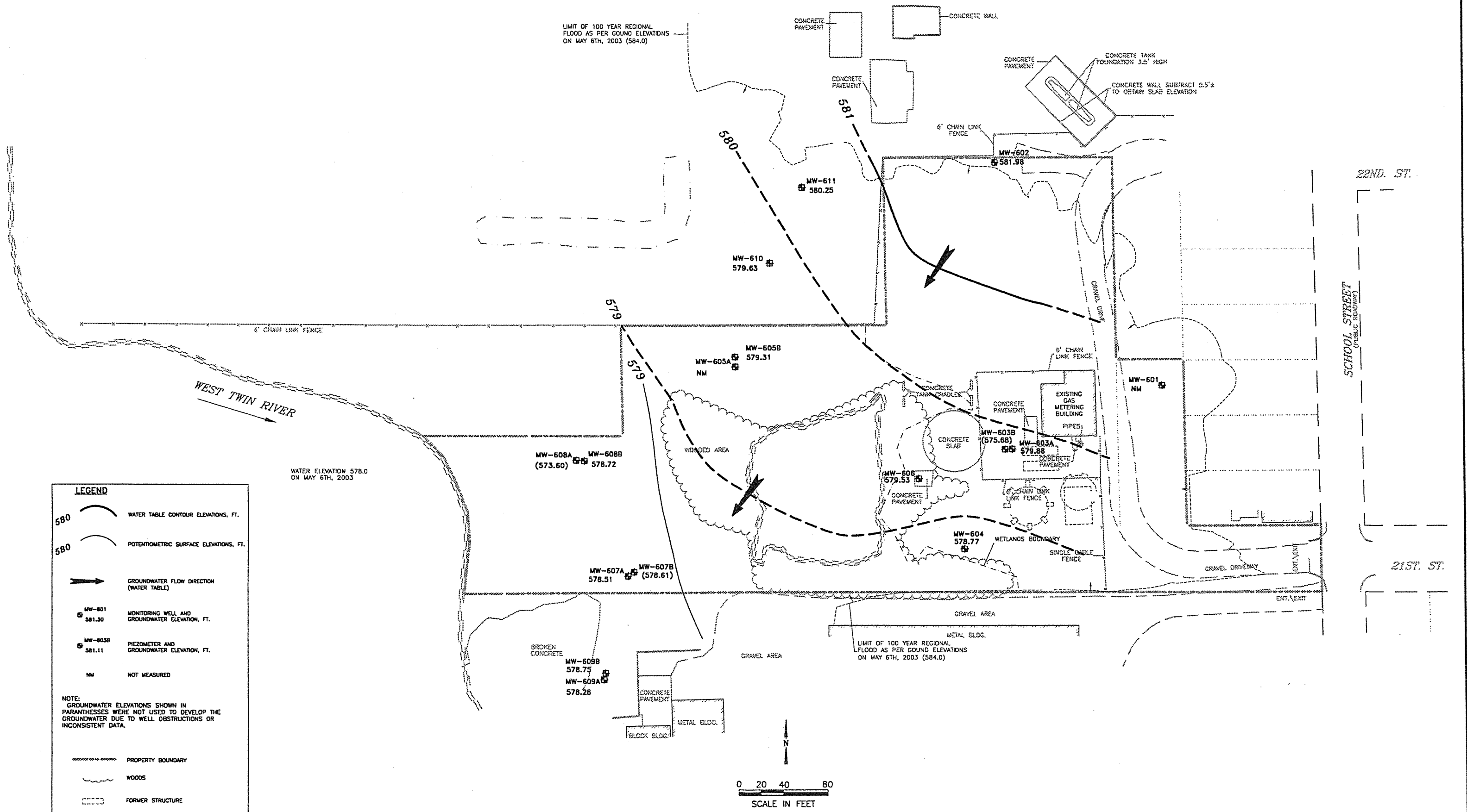
DRAWING NO.
1569-A01

FIGURE NO.
1





GROUNDWATER ELEVATION CONTOURS, JULY 2003		PROJECT NO. 1569/2.2
SITE INVESTIGATION AND RAOR		DRAWN BY: TAS TAS 10/23/03
FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE		CHECKED BY: JMK 10/23/03
WISCONSIN PUBLIC SERVICE CORPORATION		APPROVED BY: SLF 12/22/03
CITY OF TWO RIVERS, WISCONSIN		FIGURE NO. 3
CAD FILE: 1569/2-2gw/1569-22-803.DWG		
REFERENCE FILES:		



LEGEND

580 — WATER TABLE CONTOUR ELEVATIONS, FT.

580 — POTENTIOMETRIC SURFACE ELEVATIONS, FT.

→ GROUNDWATER FLOW DIRECTION (WATER TABLE)

MW-601
581.30 MONITORING WELL AND GROUNDWATER ELEVATION, FT.

MW-603B
581.11 PIEZOMETER AND GROUNDWATER ELEVATION, FT.

NM NOT MEASURED

NOTE:
GROUNDWATER ELEVATIONS SHOWN IN PARANTHESES WERE NOT USED TO DEVELOP THE GROUNDWATER DUE TO WELL OBSTRUCTIONS OR INCONSISTENT DATA.

----- PROPERTY BOUNDARY

~~~~~ WOODS

----- FORMER STRUCTURE

===== EXISTING STRUCTURE

**SOURCE NOTE:**  
THIS DRAWING WAS DEVELOPED FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., PROJECT NO. C034.29, DATED 5-27-03.  
NORTH IS REFERENCED TO THE NORTH LINE OF THE FRACTIONAL NORTHWEST 1/4 OF SECTION 1, TOWNSHIP 19 NORTH, RANGE 24 EAST, CITY OF TWO RIVERS, MANITOWOC COUNTY, WISCONSIN WHICH BEARS N89°59'51"E PER THE MANITOWOC COUNTY COORDINATE SYSTEM.  
2003 SOIL BORING AND TEST PIT LOCATIONS WERE TAKEN FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., RECEIVED 09-17-03.  
WETLAND BOUNDARY DELINEATED JULY 22, 2003 BY STS CONSULTANTS, LTD.

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|                                               |  |                                  |
|-----------------------------------------------|--|----------------------------------|
| GROUNDWATER ELEVATION CONTOURS, OCTOBER 2003  |  | PROJECT NO.<br>1569/2.2          |
| SITE INVESTIGATION AND RAOR                   |  | DRAWN BY: TAS<br>TAS 11/11/03    |
| FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE |  | CHECKED BY: JMK<br>JMK 11/11/03  |
| WISCONSIN PUBLIC SERVICE CORPORATION          |  | APPROVED BY: SLF<br>SLF 12/22/03 |
| CITY OF TWO RIVERS, WISCONSIN                 |  | FIGURE NO.<br>4                  |
| CAD FILE: 1569/2-2gw/1569-22-B04.DWG          |  |                                  |
| REFERENCE FILES:                              |  |                                  |

| MW-611     | Benz  | Naph    | BTEX | PAHs    | Dis Cyanide | Cyanide |
|------------|-------|---------|------|---------|-------------|---------|
| 9/5/1996   | nd    | nd      | nd   | nd      | na          | na      |
| 10/11/1996 | nd    | nd      | nd   | nd      | na          | na      |
| 6/24/2002  | *     | *       | *    | *       | *           | *       |
| 10/30/2002 | <0.25 | <0.024  | nd   | nd      | <0.0027     | <0.0027 |
| 7/2/2003   | <0.30 | 0.028 Q | nd   | 0.03    | 0.0104      | na      |
| 7/2/03#    | <0.30 | 0.024 Q | nd   | 0.024 Q | <0.0010     | na      |
| 10/16/2003 | <0.30 | <0.024  | nd   | nd      | 0.00072     | na      |

| MW-610     | Benz  | Naph    | BTEX | PAHs | Dis Cyanide | Cyanide  |
|------------|-------|---------|------|------|-------------|----------|
| 9/5/1996   | nd    | nd      | nd   | nd   | na          | na       |
| 10/11/1996 | nd    | nd      | nd   | nd   | na          | na       |
| 6/24/2002  | *     | *       | *    | *    | *           | *        |
| 10/30/2002 | <0.25 | 0.030 Q | nd   | 0.5  | <0.0027     | 0.0030 Q |
| 7/2/2003   | <0.30 | 0.028 Q | nd   | 0.5  | 0.0038      | na       |
| 7/2/03#    | <0.30 | 0.025 Q | nd   | 0.6  | 0.0017      | na       |
| 10/16/2003 | <0.30 | <0.024  | nd   | 0.6  | 0.00106     | na       |

| MW-605A    | Benz  | Naph  | BTEX  | PAHs  | Dis Cyanide | Cyanide |
|------------|-------|-------|-------|-------|-------------|---------|
| 12/8/1994  | 140   | 1,500 | 970   | 3,486 | 0.14        | 0.2     |
| 12/8/94#   | 130   | 1,700 | 880   | 2,308 | 0.096       | 0.18    |
| 1/10/1995  | 1,400 | 2,300 | 4,330 | 3,589 | 0.013       | 0.096   |
| 1/10/95#   | 1,300 | 1,800 | 3,530 | 2,023 | 0.0093      | 0.082   |
| 6/24/2002  | 65    | 97    | 102   | 1,559 | <0.0084     | <0.0023 |
| 7/2/2003   | **    | **    | **    | **    | **          | **      |
| 10/16/2003 | **    | **    | **    | **    | **          | **      |

| MW-602     | Benz  | Naph    | BTEX | PAHs | Dis Cyanide | Cyanide  |
|------------|-------|---------|------|------|-------------|----------|
| 12/8/1994  | nd    | nd      | nd   | nd   | nd          | nd       |
| 1/11/1995  | nd    | nd      | nd   | nd   | nd          | nd       |
| 6/24/2002  | <0.48 | <0.027  | <1.4 | nd   | <0.0084     | 0.0036 Q |
| 7/2/2003   | <0.48 | 0.027 Q | nd   | 0.03 | <0.0084     | 0.0024 Q |
| 10/16/2003 | <0.30 | 0.038 Q | nd   | 0.1  | <0.001      | na       |
|            | <0.30 | <0.024  | nd   | 0.03 | 0.00068     | na       |

| MW-601     | Benz  | Naph    | BTEX | PAHs | Dis Cyanide | Cyanide  |
|------------|-------|---------|------|------|-------------|----------|
| 12/8/1994  | nd    | nd      | nd   | nd   | nd          | nd       |
| 1/11/1995  | nd    | nd      | nd   | nd   | nd          | nd       |
| 6/24/2002  | <0.48 | <0.027  | <1.4 | nd   | <0.0084     | 0.0040 Q |
| 7/2/2003   | <0.30 | 0.038 Q | nd   | 0.2  | <0.001      | na       |
| 10/16/2003 | **    | **      | **   | **   | **          | **       |

| MW-603A    | Benz  | Naph  | BTEX  | PAHs  | Dis Cyanide | Cyanide |
|------------|-------|-------|-------|-------|-------------|---------|
| 12/8/1994  | 710   | 500   | 2,547 | 592   | 0.47        | 5.3     |
| 1/11/1995  | 380   | 230   | 1,060 | 341   | 0.64        | 7.9     |
| 1/11/95#   | 380   | 230   | 1,170 | 1,300 | 0.2         | 8.5     |
| 6/24/2002  | 1,100 | 360 F | 2,863 | 598   | 0.11        | 24      |
| 7/2/2003   | 500   | 280   | 1,166 | 453   | 0.0539      | na      |
| 10/16/2003 | 530   | 120   | 1,519 | 231   | 0.015       | na      |
| 10/16/03#  | 670   | 120 D | 2,002 | 248   | 0.0188      | na      |

| MW-606     | Benz | Naph  | BTEX  | PAHs  | Dis Cyanide | Cyanide |
|------------|------|-------|-------|-------|-------------|---------|
| 12/8/1994  | 61   | 170   | 248   | 332   | 0.62        | 1.2     |
| 1/11/1995  | 660  | 2,300 | 1,890 | 2,988 | 0.033       | 0.8     |
| 6/24/2002  | 30   | 78    | 104   | 814   | 0.087       | 1.5     |
| 7/2/2003   | 28   | 71    | 119   | 268   | 0.0171      | na      |
| 10/16/2003 | 38   | 3.3 Q | 99    | 152   | 0.0166      | na      |

| MW-604     | Benz  | Naph  | BTEX | PAHs  | Dis Cyanide | Cyanide |
|------------|-------|-------|------|-------|-------------|---------|
| 12/8/1994  | 200   | 1,300 | 697  | 1,793 | 0.22        | 0.37    |
| 1/11/1995  | 240   | 1,200 | 692  | 1,610 | 0.05        | 0.73    |
| 6/24/2002  | 91    | <14   | 243  | 411   | <0.0084     | 0.096   |
| 7/2/2003   | 140 K | 150   | 361  | 657   | 0.0048      | na      |
| 10/16/2003 | 140   | 12    | 377  | 526   | 0.00231     | na      |

| MW-609A    | Benz | Naph | BTEX | PAHs | Dis Cyanide | Cyanide |
|------------|------|------|------|------|-------------|---------|
| 9/5/1996   | 45   | 8.9  | 105  | 52   | na          | na      |
| 10/11/1996 | 31   | 4.5  | 70   | 27   | na          | na      |
| 10/11/96#  | 28   | 2.2  | 75   | 42   | 0.2         | 8.5     |
| 6/24/2002  | 72   | 2.4  | 122  | 5.1  | 0.024 Q     | 0.73    |
| 7/2/2003   | 67   | 3.3  | 140  | 3.9  | 0.0074      | na      |
| 10/16/2003 | 51   | 2.8  | 134  | 3.3  | <0.00048    | na      |

| MW-608A    | Benz  | Naph    | BTEX  | PAHs  | Dis Cyanide | Cyanide |
|------------|-------|---------|-------|-------|-------------|---------|
| 12/8/1994  | 760   | 980     | 827   | 1,725 | nd          | 0.006   |
| 1/10/1995  | 990   | 510     | 990   | 1,245 | nd          | 0.01    |
| 6/24/2002  | 420   | 0.060 Q | 491   | 23    | <0.0084     | 0.012   |
| 7/2/2003   | 2,400 | 120     | 2,766 | 619   | <0.0010     | na      |
| 10/16/2003 | 3,700 | 170 D   | 4,250 | 734   | 0.0032      | na      |

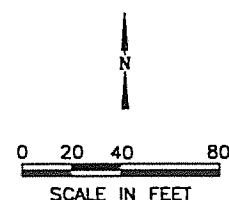
| MW-607A    | Benz  | Naph  | BTEX  | PAHs  | Dis Cyanide | Cyanide |
|------------|-------|-------|-------|-------|-------------|---------|
| 12/8/1994  | 830   | 1,300 | 2,469 | 2,080 | 0.76        | 1.1     |
| 1/10/1995  | 1,100 | 1,300 | 2,960 | 1,300 | 0.23        | 1.5     |
| 6/24/2002  | 570   | 34 F  | 1,673 | 53    | 0.042       | 0.56    |
| 7/2/2003   | 980   | 240   | 2,858 | 452   | 0.009       | na      |
| 10/16/2003 | 560   | 260 D | 1,905 | 557   | 0.00358     | na      |

| Well ID      | Benz    | Naph        | BTEX                                              | PAHs                                    | Dis Cyanide         | Cyanide       |
|--------------|---------|-------------|---------------------------------------------------|-----------------------------------------|---------------------|---------------|
| Date Sampled | Benzene | Naphthalene | Total Benzene, Toluene, Ethylbenzene, and Xylenes | Total Polynuclear Aromatic Hydrocarbons | Dissociable Cyanide | Total Cyanide |
|              | µg/L    | µg/L        | µg/L                                              | µg/L                                    | mg/L                | mg/L          |

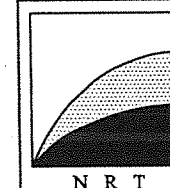
#### ANALYTICAL NOTES:

Q - Concentration between the limit of detection and limit of quantitation  
K - Detection limit may be elevated due to the presence of an unrequested analyte.  
F - Analyte value from diluted analysis  
D - Analyte value from diluted analysis  
\* - Well not sampled - located on US Oil property and access could not be obtained.  
\*\* - well not sampled-obstruction or damaged well  
# - QA/QC duplicate sample  
nd - parameter not detected  
na - parameter not analyzed  
Concentrations equaling/exceeding the NR 140 Enforcement Standard are bold/underlined  
Concentrations equaling/exceeding the NR 140 Preventive Action Limit are italicized  
Benzene Enforcement Standard = 5 micrograms per liter  
Benzene Preventive Action Limit = 0.5 micrograms per liter  
Naphthalene Enforcement Standard = 40 micrograms per liter  
Naphthalene Preventive Action Limit = 8 micrograms per liter

|         |                 |      |                      |
|---------|-----------------|------|----------------------|
| MW-601  | MONITORING WELL | µg/L | MICROGRAMS PER LITER |
| MW-608B | PIEZOMETER      | µg/L | MICROGRAMS PER LITER |
| SB-625  | SOIL BORING     | mg/L | MILLIGRAMS PER LITER |
| TP-615  | TEST PIT        |      |                      |



SOURCE NOTE:  
THIS DRAWING WAS DEVELOPED FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., PROJECT NO. C034.29, DATED 5-27-03.  
NORTH IS REFERENCED TO THE NORTH LINE OF THE FRACTIONAL NORTHWEST 1/4 OF SECTION 1, TOWNSHIP 19 NORTH, RANGE 24 EAST, CITY OF TWO RIVERS, MANITOWOC COUNTY, WISCONSIN WHICH BEARS N89°59'51"E PER THE MANITOWOC COUNTY COORDINATE SYSTEM.  
2003 SOIL BORING AND TEST PIT LOCATIONS WERE TAKEN FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., RECEIVED 09-17-03.  
WETLAND BOUNDARY DELINEATED JULY 22, 2003 BY STS CONSULTANTS, LTD.



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DISTRIBUTION OF SELECT PARAMETERS IN SHALLOW WELLS  
SITE INVESTIGATION AND RAOR  
FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE  
WISCONSIN PUBLIC SERVICE CORPORATION  
CITY OF TWO RIVERS, WISCONSIN

CAD FILE: 1569-2-2gw/1569-22-B05.DWG  
REFERENCE FILES:

PROJECT NO.  
1569/2.2  
DRAWN BY: TAS  
TAS 12/3/03  
CHECKED BY:  
JMK 12/3/03  
APPROVED BY:  
SLF 12/22/03  
FIGURE NO.  
5

| MW-605B    | Benz   | Naph  | BTEX | PAHs  | Dis Cyanide | Cyanide |
|------------|--------|-------|------|-------|-------------|---------|
| 12/8/1994  | 29     | 1,300 | 977  | 2,175 | 0.007       | 0.009   |
| 1/10/1995  | 4.1    | nd    | 94   | 0.5   | nd          | 0.011   |
| 6/24/2002  | 0.49 Q | 2.8   | 3.8  | 29    | <0.0084     | 0.012   |
| 7/2/2003   | 0.87 Q | <0.24 | 5.2  | 7.9   | <0.001      | na      |
| 10/16/2003 | 5.5    | 7.6 D | 60   | 16    | <0.00048    | na      |

| MW-603B    | Benz  | Naph    | BTEX | PAHs | Dis Cyanide | Cyanide |
|------------|-------|---------|------|------|-------------|---------|
| 12/8/1994  | 2.3   | 6.0     | 24   | 9.1  | 0.20        | 0.8     |
| 12/8/94#   | 2.6   | 6.9     | 28   | 10   | 0.33        | 0.88    |
| 1/11/1995  | nd    | nd      | nd   | 10   | 0.095       | 0.67    |
| 6/24/2002  | <0.48 | 0.21    | nd   | 10   | <0.0084     | 0.45    |
| 6/24/02 #  | <0.48 | 0.18    | nd   | 1.0  | <0.0084     | 0.57    |
| 7/2/2003   | <0.30 | 0.088   | nd   | 0.4  | 0.0039      | na      |
| 10/16/2003 | <0.30 | 0.071 Q | nd   | 0.8  | 0.0015      | na      |
| 10/16/03#  | <0.30 | 0.094   | nd   | 0.7  | 0.0020      | na      |

| MW-608B    | Benz | Naph  | BTEX | PAHs | Dis Cyanide | Cyanide  |
|------------|------|-------|------|------|-------------|----------|
| 12/8/1994  | 610  | 110   | 958  | 278  | nd          | 0.007    |
| 1/10/1995  | 96   | 310   | 226  | 445  | 0.072       | 1.1      |
| 6/19/1996  | 13   | nd    | 30   | 14   | na          | na       |
| 6/24/2002  | 2.3  | <2.2  | 2.3  | 88   | <0.0084     | 0.0035 Q |
| 7/2/2003   | 2.2  | 2.0   | 2.2  | 32   | 0.0065      | na       |
| 10/16/2003 | 1.7  | <0.96 | 1.7  | 32   | 0.0024      | na       |

| MW-607B    | Benz | Naph | BTEX | PAHs | Dis Cyanide | Cyanide |
|------------|------|------|------|------|-------------|---------|
| 12/8/1994  | 8.4  | 7.2  | 30   | 15   | 0.022       | 0.053   |
| 1/10/1995  | 17   | 11   | 40   | 12   | nd          | 0.035   |
| 6/19/1996  | 0.91 | nd   | 0.9  | nd   | na          | na      |
| 6/24/2002  | **   | **   | **   | **   | **          | **      |
| 7/2/2003   | **   | **   | **   | **   | **          | **      |
| 10/16/2003 | **   | **   | **   | **   | **          | **      |

# LEGEND

| Well ID      | Benz    | Naph        | BTEX                                              | PAHs                                    | Dis Cyanide         | Cyanide       |
|--------------|---------|-------------|---------------------------------------------------|-----------------------------------------|---------------------|---------------|
| Date Sampled | Benzene | Naphthalene | Total Benzene, Toluene, Ethylbenzene, and Xylenes | Total Polynuclear Aromatic Hydrocarbons | Dissociable Cyanide | Total Cyanide |
|              | µg/L    | µg/L        | µg/L                                              | µg/L                                    | mg/L                | mg/L          |

## ANALYTICAL NOTES:

\*\* - Well not sampled due to an obstruction

# - QA/QC Field duplicate sample

Q - Concentration between the limit of detection and limit of quantitation

na - parameter not analyzed

nd - parameter not detected

Concentrations equaling/exceeding the NR 140 Enforcement Standard are bold/underlined

Concentrations equaling/exceeding the NR 140 Preventive Action Limit are italicized

Benzene Enforcement Standard = 5 micrograms per liter

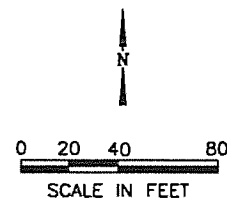
Benzene Preventive Action Limit = 0.5 micrograms per liter

Naphthalene Enforcement Standard = 40 micrograms per liter

Naphthalene Preventive Action Limit = 8 micrograms per liter

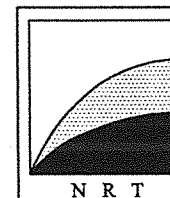
|         |                 |                    |
|---------|-----------------|--------------------|
| MW-609B | PIEZOMETER      | PROPERTY BOUNDARY  |
| MW-601  | MONITORING WELL | WOODS              |
| SB-628  | SOIL BORING     | FORMER STRUCTURE   |
| TP-612  | TEST PIT        | EXISTING STRUCTURE |

µg/L MICROGRAMS PER LITER  
mg/L MILLIGRAMS PER LITER



## SOURCE NOTE:

THIS DRAWING WAS DEVELOPED FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., PROJECT NO. CD34-29, DATED 5-27-03. NORTH IS REFERENCED TO THE NORTH LINE OF THE FRACTIONAL NORTHWEST 1/4 OF SECTION 1, TOWNSHIP 19 NORTH, RANGE 24 EAST, CITY OF TWO RIVERS, MANITOWOC COUNTY, WISCONSIN WHICH BEARS N89°59'51"E PER THE MANITOWOC COUNTY COORDINATE SYSTEM. 2003 SOIL BORING AND TEST PIT LOCATIONS WERE TAKEN FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., RECEIVED 09-17-03. WETLAND BOUNDARY DELINEATED JULY 22, 2003 BY STS CONSULTANTS, LTD.

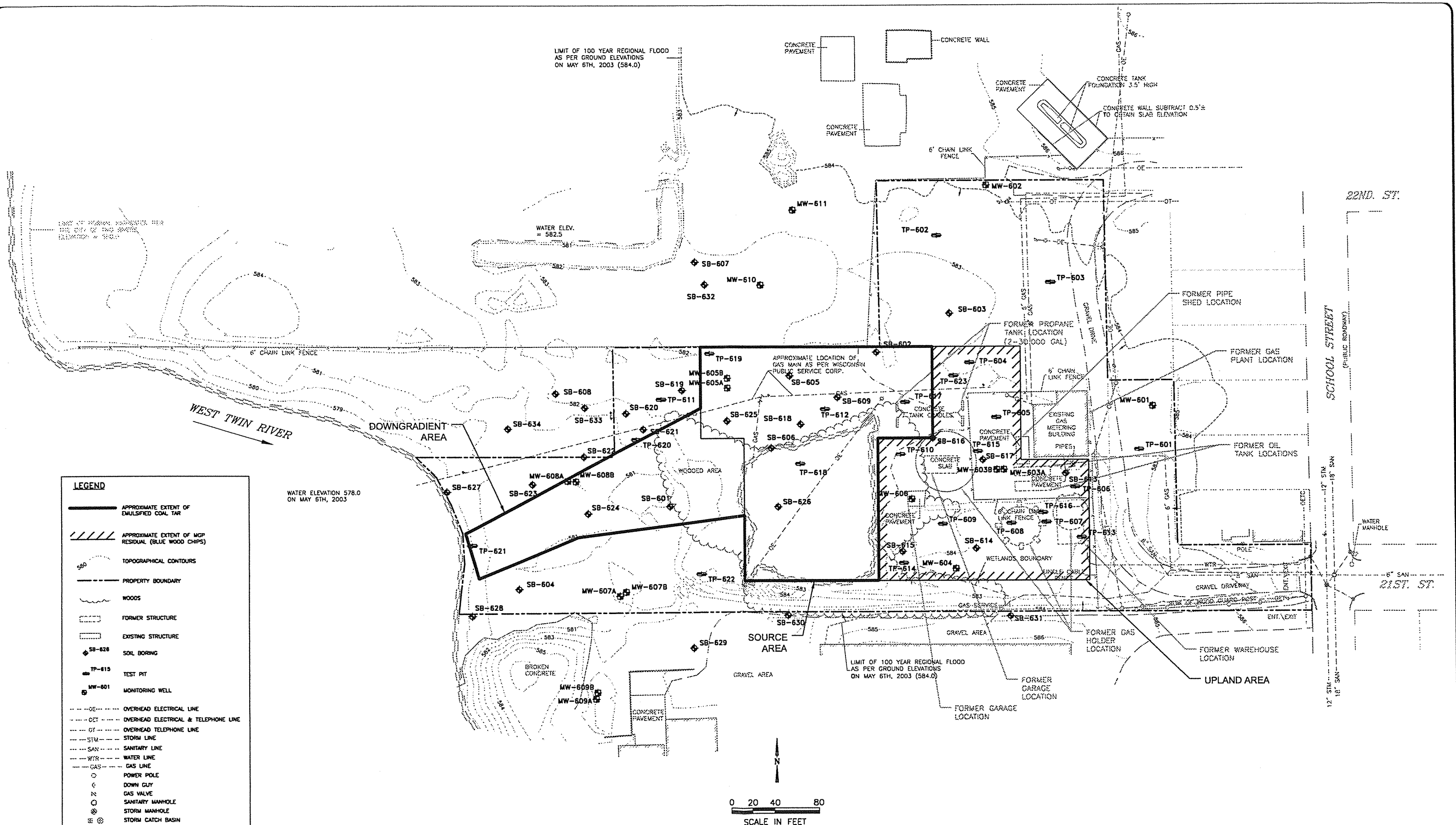


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DISTRIBUTION OF SELECT PARAMETERS IN PIEZOMETERS  
SITE INVESTIGATION AND RAOR  
FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE  
WISCONSIN PUBLIC SERVICE CORPORATION  
CITY OF TWO RIVERS, WISCONSIN

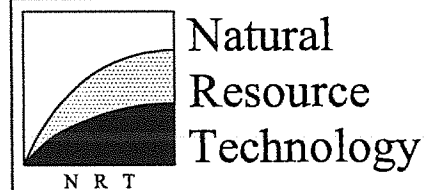
CAD FILE: 1569/2-2gw/1569-22-B06.DWG  
REFERENCE FILES:

PROJECT NO.  
1569/2.2  
DRAWN BY: TAS  
TAS 12/05/03  
CHECKED BY:  
JMK12/5/03  
APPROVED BY:  
SLF 12/22/03  
FIGURE NO.  
6



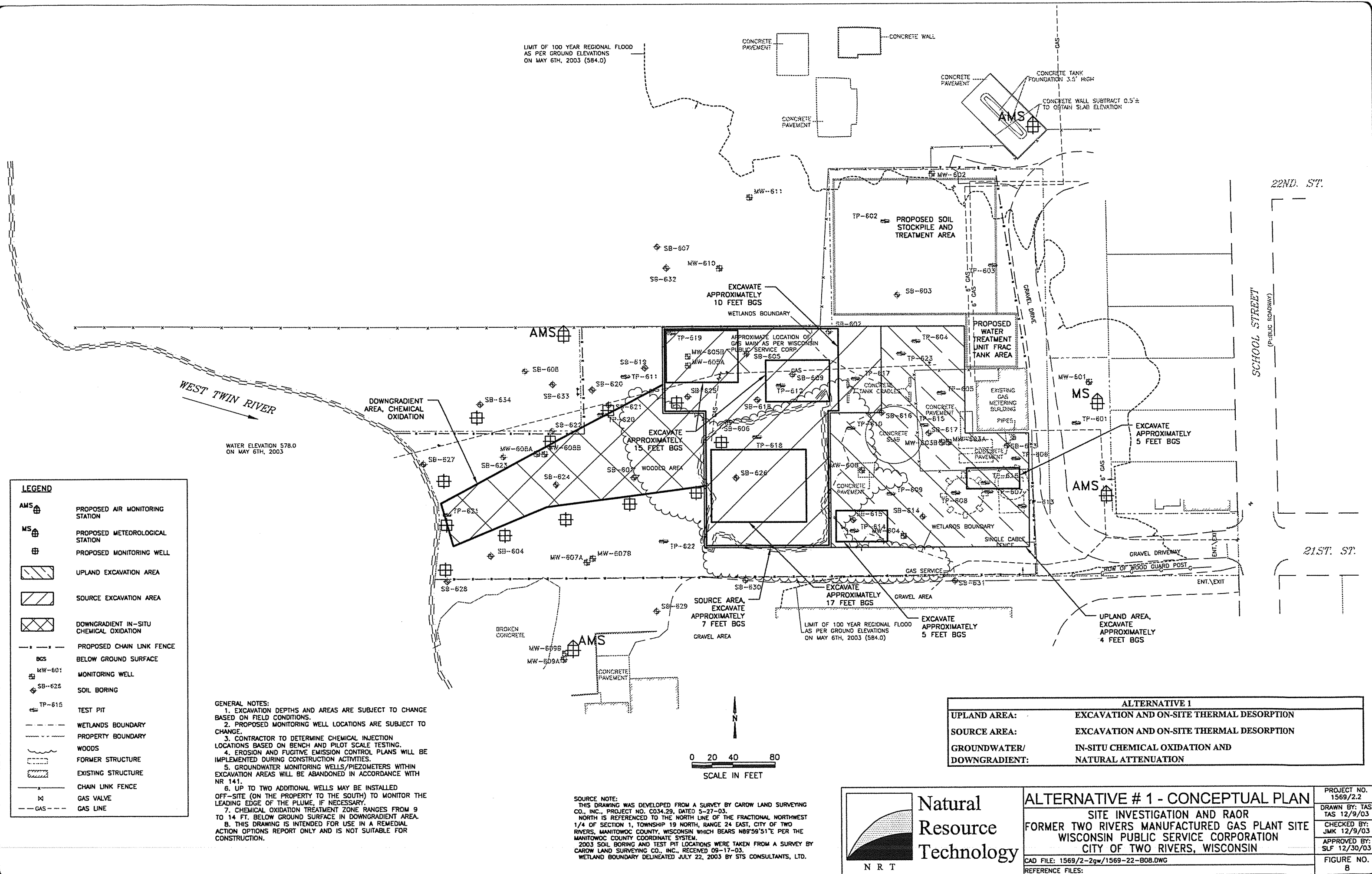
- LEGEND**
- APPROXIMATE EXTENT OF EMULSIFIED COAL TAR
  - APPROXIMATE EXTENT OF MGP RESIDUAL (BLUE WOOD CHIPS)
  - TOPOGRAPHICAL CONTOURS
  - PROPERTY BOUNDARY
  - WOODS
  - FORMER STRUCTURE
  - EXISTING STRUCTURE
  - SB-628 SOIL BORING
  - TP-619 TEST PIT
  - MW-601 MONITORING WELL
  - DE — OVERHEAD ELECTRICAL LINE
  - DET — OVERHEAD ELECTRICAL & TELEPHONE LINE
  - DT — OVERHEAD TELEPHONE LINE
  - STM — STORM LINE
  - SAN — SANITARY LINE
  - WTR — WATER LINE
  - GAS — GAS LINE
  - POWER POLE
  - ◇ DOWN GUY
  - ⋈ GAS VALVE
  - ⊗ SANITARY MANHOLE
  - ⊗ STORM MANHOLE
  - ⊗ STORM CATCH BASIN
  - ⊗ FIRE HYDRANT
  - MGP MANUFACTURED GAS PLANT

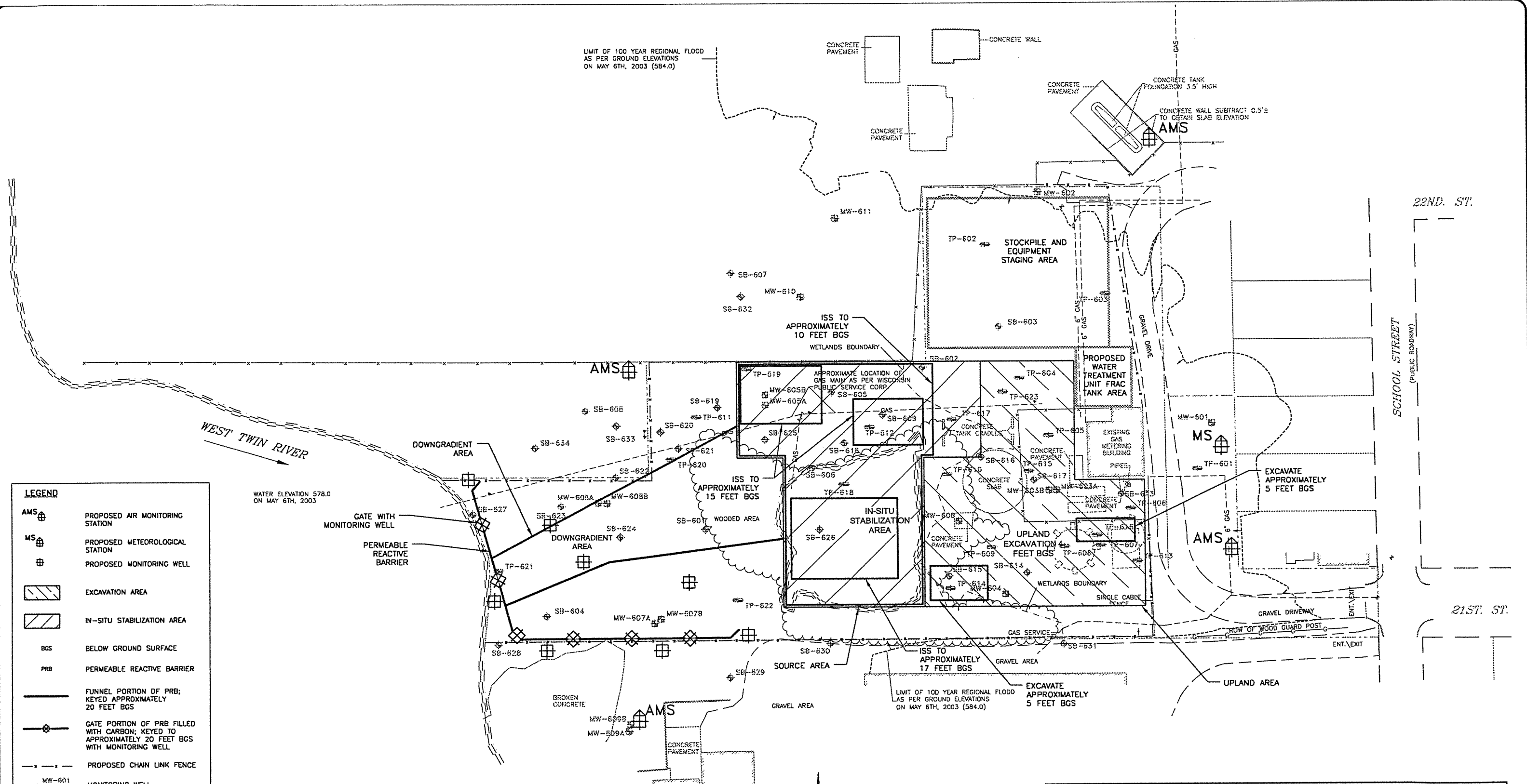
**SOURCE NOTE:**  
 THIS DRAWING WAS DEVELOPED FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., PROJECT NO. C034.29, DATED 5-27-03.  
 NORTH IS REFERENCED TO THE NORTH LINE OF THE FRACTIONAL NORTHWEST 1/4 OF SECTION 1, TOWNSHIP 19 NORTH, RANGE 24 EAST, CITY OF TWO RIVERS, MANITOWOC COUNTY, WISCONSIN WHICH BEARS N89°59'51"E PER THE MANITOWOC COUNTY COORDINATE SYSTEM.  
 2003 SOIL BORING AND TEST PIT LOCATIONS WERE TAKEN FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., RECEIVED 08-17-03.  
 WETLAND BOUNDARY DELINEATED JULY 22, 2003 BY STS CONSULTANTS, LTD.



| ESTIMATED DISTRIBUTION OF MAP RESIDUALS       |  | PROJECT NO.<br>1569/2.2       |
|-----------------------------------------------|--|-------------------------------|
| SITE INVESTIGATION AND RAOR                   |  | DRAWN BY: TAS<br>TAS 12/11/03 |
| FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE |  | CHECKED BY:<br>JMK 12/11/03   |
| WISCONSIN PUBLIC SERVICE CORPORATION          |  | APPROVED BY:<br>SLF 12/22/03  |
| CITY OF TWO RIVERS, WISCONSIN                 |  | FIGURE NO.<br>7               |
| CAD FILE: 1569/2-29w/1569-22-807.DWG          |  |                               |
| REFERENCE FILES:                              |  |                               |



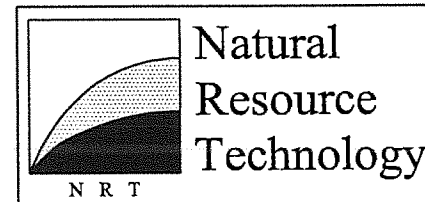
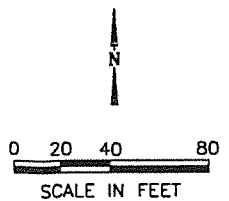




- LEGEND**
- AMS PROPOSED AIR MONITORING STATION
  - MS PROPOSED METEOROLOGICAL STATION
  - PROPOSED MONITORING WELL
  - EXCAVATION AREA
  - IN-SITU STABILIZATION AREA
  - BGS BELOW GROUND SURFACE
  - PRB PERMEABLE REACTIVE BARRIER
  - FUNNEL PORTION OF PRB; KEYED APPROXIMATELY 20 FEET BGS
  - GATE PORTION OF PRB FILLED WITH CARBON; KEYED TO APPROXIMATELY 20 FEET BGS WITH MONITORING WELL
  - PROPOSED CHAIN LINK FENCE
  - MW-601 MONITORING WELL
  - SB-626 SOIL BORING
  - TP-615 TEST PIT
  - WETLANDS BOUNDARY
  - PROPERTY BOUNDARY
  - WOODS
  - FORMER STRUCTURE
  - EXISTING STRUCTURE
  - CHAIN LINK FENCE
  - GAS VALVE
  - GAS LINE

GENERAL NOTES:  
1. EXCAVATION LIMITS AND DEPTH ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON FIELD CONDITIONS.  
2. IN-SITU STABILIZATION LIMITS ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON FIELD CONDITIONS. APPROXIMATELY 15,000 CUBIC YARDS WILL BE STABILIZED.  
3. SWELL MATERIAL FROM IN-SITU STABILIZATION MAY BE USED AS FILL MATERIAL IN THE UPLAND EXCAVATION AREA.  
4. PERMEABLE REACTIVE BARRIER LOCATION AND KEY IN DEPTH ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS.  
5. EROSION AND FUGITIVE EMISSION CONTROL PLANS WILL BE IMPLEMENTED DURING CONSTRUCTION ACTIVITIES.  
6. GROUNDWATER MONITORING WELLS/PIEZOMETERS WITHIN EXCAVATION AND STABILIZATION AREAS WILL BE ABANDONED IN ACCORDANCE WITH NR 141.  
7. THIS DRAWING IS INTENDED FOR USE IN A REMEDIAL ACTION OPTIONS REPORT ONLY AND IS NOT SUITABLE FOR CONSTRUCTION.

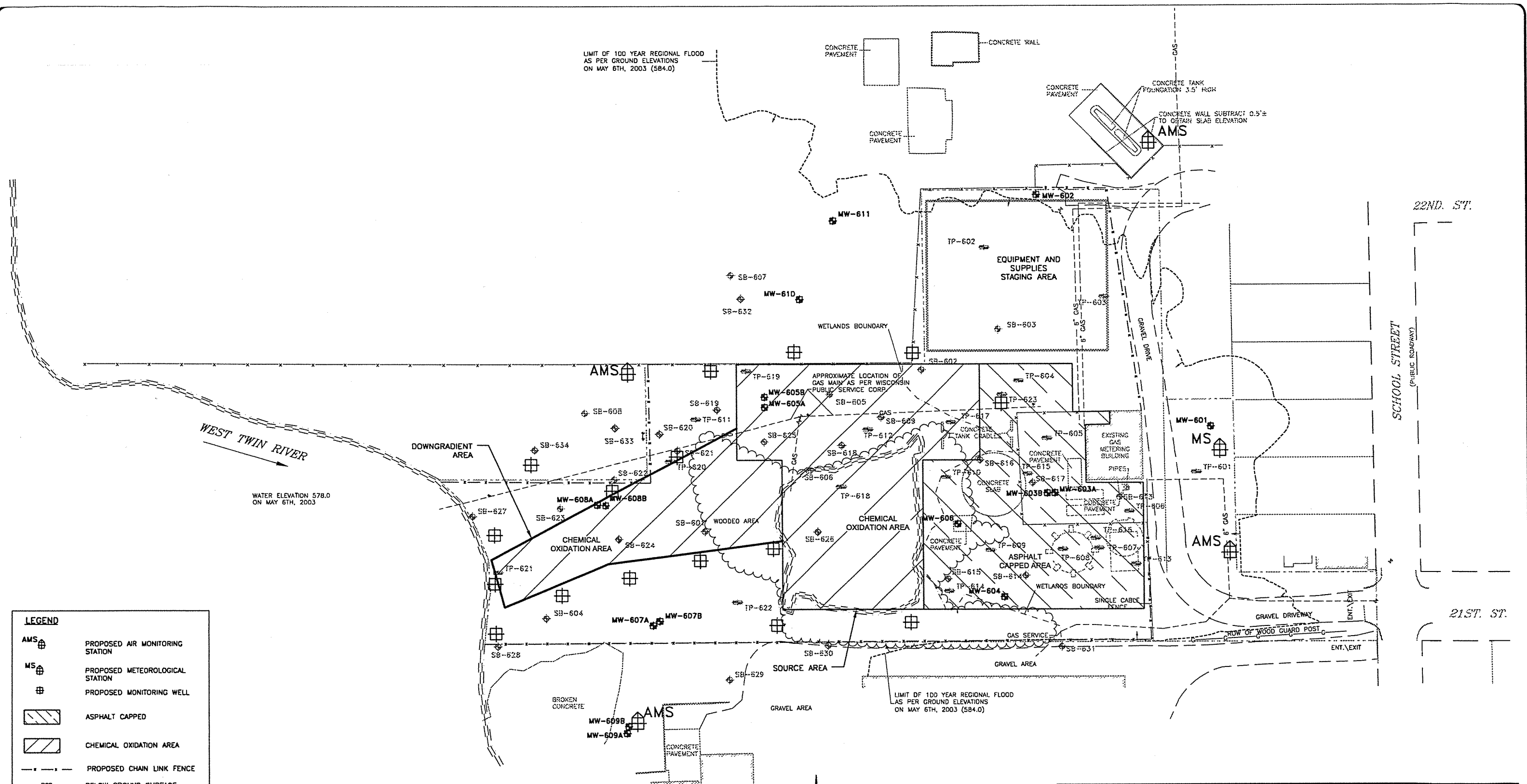
SOURCE NOTE:  
THIS DRAWING WAS DEVELOPED FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., PROJECT NO. C034.29, DATED 5-27-03.  
NORTH IS REFERENCED TO THE NORTH LINE OF THE FRACTIONAL NORTHWEST 1/4 OF SECTION 1, TOWNSHIP 19 NORTH, RANGE 24 EAST, CITY OF TWO RIVERS, MANITOWOC COUNTY, WISCONSIN WHICH BEARS N89°59'51"E PER THE MANITOWOC COUNTY COORDINATE SYSTEM.  
2003 SOIL BORING AND TEST PIT LOCATIONS WERE TAKEN FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., RECEIVED 09-17-03.  
WETLAND BOUNDARY DELINEATED JULY 22, 2003 BY STS CONSULTANTS, LTD.



| ALTERNATIVE 2              |                                            |
|----------------------------|--------------------------------------------|
| UPLAND AREA:               | EXCAVATION WITH OFF-SITE DISPOSAL          |
| SOURCE AREA:               | IN-SITU STABILIZATION (ISS)                |
| GROUNDWATER/ DOWNGRADIENT: | FUNNEL AND GATE PERMEABLE REACTIVE BARRIER |

| ALTERNATIVE # 2 - CONCEPTUAL PLAN                                                                                                                     |                                                                                                                                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| SITE INVESTIGATION AND RAOR<br>FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE<br>WISCONSIN PUBLIC SERVICE CORPORATION<br>CITY OF TWO RIVERS, WISCONSIN |                                                                                                                                            |
| CAD FILE: 1569/2-2gw/1569-22-809.DWG<br>REFERENCE FILES:                                                                                              | PROJECT NO. 1569/2.2<br>DRAWN BY: TAS<br>TAS 12/9/03<br>CHECKED BY: JMK<br>JMK 12/9/03<br>APPROVED BY: SLF<br>SLF 12/30/03<br>FIGURE NO. 9 |





**LEGEND**

AMS PROPOSED AIR MONITORING STATION

MS PROPOSED METEOROLOGICAL STATION

PROPOSED MONITORING WELL

ASPHALT CAPPED

CHEMICAL OXIDATION AREA

PROPOSED CHAIN LINK FENCE

BGS BELOW GROUND SURFACE

MW-601 MONITORING WELL

SB-625 SOIL BORING

TP-615 TEST PIT

WETLANDS BOUNDARY

PROPERTY BOUNDARY

WOODS

FORMER STRUCTURE

EXISTING STRUCTURE

CHAIN LINK FENCE

GAS VALVE

GAS LINE

GENERAL NOTES:

1. GROUNDWATER MONITORING WELL/PIEZOMETERS WITHIN CAPPING AREA SHALL BE PROTECTED AND MAINTAINED.

2. CONTRACTOR TO DETERMINE CHEMICAL INJECTION LOCATIONS, BASED ON BENCH AND PILOT SCALE TESTING.

3. EXISTING GROUNDWATER MONITORING WELLS MW-603A, MW-604, AND MW-606 AND EXISTING PIEZOMETER MW-603B SHALL BE USED TO MONITOR CHEMICAL OXIDATION TREATMENT.

4. INSTALLED GROUNDWATER MONITORING WELLS NOT USED IN NATURAL ATTENUATION SHALL BE ABANDONED IN ACCORDANCE WITH NR 141.

5. UP TO TWO ADDITIONAL WELLS MAY BE INSTALLED OFF-SITE (ON THE PROPERTY TO THE SOUTH) TO MONITOR THE LEADING EDGE OF THE PLUME, IF NECESSARY.

6. PROPOSED MONITORING WELL LOCATIONS ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON FIELD CONDITIONS.

7. CHEMICAL OXIDATION TREATMENT ZONE RANGES FROM 3 TO 17 FT. BELOW GROUND SURFACE IN SOURCE AREA.

8. CHEMICAL OXIDATION TREATMENT ZONE RANGES FROM 9 TO 14 FT. BELOW GROUND SURFACE IN DOWNGRADIENT AREA.

9. THIS DRAWING IS INTENDED FOR USE IN A REMEDIAL ACTION OPTIONS REPORT ONLY AND IS NOT SUITABLE FOR CONSTRUCTION.

SOURCE NOTE:

THIS DRAWING WAS DEVELOPED FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., PROJECT NO. C034.29, DATED 5-27-03.

NORTH IS REFERENCED TO THE NORTH LINE OF THE FRACTIONAL NORTHWEST 1/4 OF SECTION 1, TOWNSHIP 19 NORTH, RANGE 24 EAST, CITY OF TWO RIVERS, MANITOWOC COUNTY, WISCONSIN WHICH BEARS N89°59'51"E PER THE MANITOWOC COUNTY COORDINATE SYSTEM.

2003 SOIL BORING AND TEST PIT LOCATIONS WERE TAKEN FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., RECEIVED 09-17-03.

WETLAND BOUNDARY DELINEATED JULY 22, 2003 BY STS CONSULTANTS, LTD.

| ALTERNATIVE 3              |                                                                   |
|----------------------------|-------------------------------------------------------------------|
| UPLAND AREA:               | ASPHALT CAPPING                                                   |
| SOURCE AREA:               | IN-SITU CHEMICAL OXIDATION (3 TREATMENTS)                         |
| GROUNDWATER/ DOWNGRADIENT: | IN-SITU CHEMICAL OXIDATION (2 TREATMENTS) AND NATURAL ATTENUATION |

Natural Resource Technology

N R T

**ALTERNATIVE # 3 - CONCEPTUAL PLAN**

SITE INVESTIGATION AND RAOR

FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE

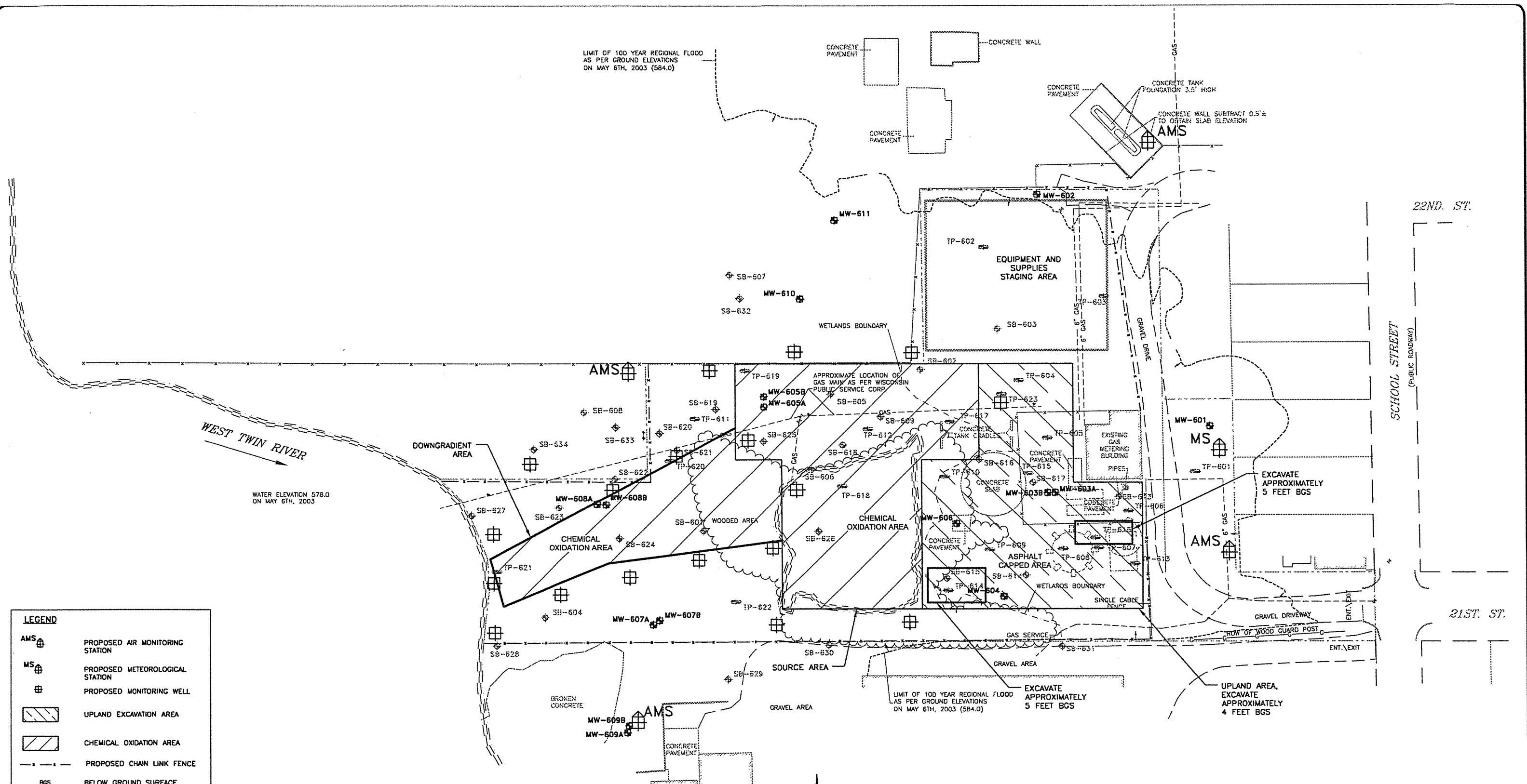
WISCONSIN PUBLIC SERVICE CORPORATION

CITY OF TWO RIVERS, WISCONSIN

CAD FILE: 1569/2-2gw/1569-22-B10.DWG

REFERENCE FILES:

|                           |               |
|---------------------------|---------------|
| PROJECT NO. 1569/2.2      | FIGURE NO. 10 |
| DRAWN BY: TAS 12/15/03    |               |
| CHECKED BY: JMK 12/29/03  |               |
| APPROVED BY: SLF 12/29/03 |               |



**LEGEND**

AMS PROPOSED AIR MONITORING STATION

MS PROPOSED METEOROLOGICAL STATION

PROPOSED MONITORING WELL

UPLAND EXCAVATION AREA

CHEMICAL OXIDATION AREA

PROPOSED CHAIN LINK FENCE

BGS BELOW GROUND SURFACE

MW-601 MONITORING WELL

SB-625 SOIL BORING

TP-615 TEST PIT

WETLANDS BOUNDARY

PROPERTY BOUNDARY

WOODS

FORMER STRUCTURE

EXISTING STRUCTURE

CHAIN LINK FENCE

GAS VALVE

GAS LINE

**GENERAL NOTES:**

1. EXCAVATION DEPTHS AND AREAS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS.
2. CONTRACTOR TO DETERMINE CHEMICAL INJECTION LOCATIONS, BASED ON BENCH AND PILOT SCALE TESTING.
3. EXISTING GROUNDWATER MONITORING WELLS MW-603A, MW-604, AND MW-606 AND EXISTING PIEZOMETER MW-603B SHALL BE USED TO MONITOR CHEMICAL OXIDATION TREATMENT.
4. INSTALLED GROUNDWATER MONITORING WELLS NOT USED IN NATURAL ATTENUATION SHALL BE ABANDONED IN ACCORDANCE WITH NR 141.
5. UP TO TWO ADDITIONAL WELLS MAY BE INSTALLED OFF-SITE (ON THE PROPERTY TO THE SOUTH) TO MONITOR THE LEADING EDGE OF THE PLUME, IF NECESSARY.
6. PROPOSED MONITORING WELL LOCATIONS ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON FIELD CONDITIONS.
7. CHEMICAL OXIDATION TREATMENT ZONE RANGES FROM 3 TO 17 FT. BELOW GROUND SURFACE IN SOURCE AREA.
8. CHEMICAL OXIDATION TREATMENT ZONE RANGES FROM 9 TO 14 FT. BELOW GROUND SURFACE IN DOWNGRADIENT AREA.
9. THIS DRAWING IS INTENDED FOR USE IN A REMEDIAL ACTION OPTIONS REPORT ONLY AND IS NOT SUITABLE FOR CONSTRUCTION.

**SOURCE NOTE:**

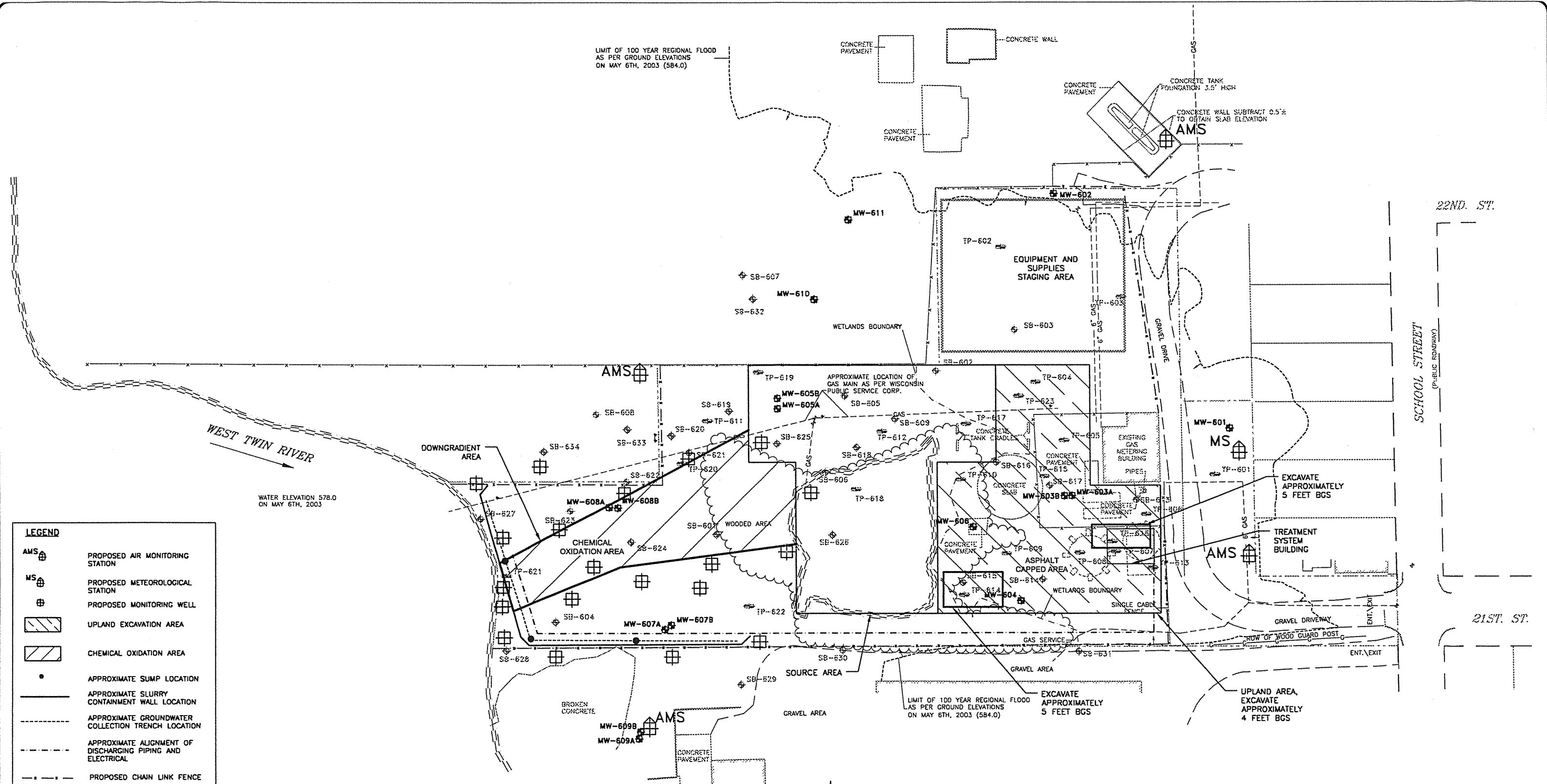
THIS DRAWING WAS DEVELOPED FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., PROJECT NO. C034.29, DATED 5-27-03. NORTH IS REFERENCED TO THE NORTH LINE OF THE FRACTIONAL NORTHWEST 1/4 OF SECTION 1, TOWNSHIP 19 NORTH, RANGE 24 EAST, CITY OF TWO RIVERS, MANITOWOC COUNTY, WISCONSIN WHICH BEARS N89°59'51"E PER THE MANITOWOC COUNTY COORDINATE SYSTEM. 2003 SOIL BORING AND TEST PIT LOCATIONS WERE TAKEN FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., RECEIVED 09-17-03. WETLAND BOUNDARY DELINEATED JULY 22, 2003 BY STS CONSULTANTS, LTD.

N R T

| ALTERNATIVE 4A             |                                                                  |
|----------------------------|------------------------------------------------------------------|
| UPLAND AREA:               | EXCAVATION WITH OFF-SITE DISPOSAL                                |
| SOURCE AREA:               | IN-SITU CHEMICAL OXIDATION (1 TREATMENT)                         |
| GROUNDWATER/ DOWNGRADIENT: | IN-SITU CHEMICAL OXIDATION (1 TREATMENT) AND NATURAL ATTENUATION |

| ALTERNATIVE # 4A - CONCEPTUAL PLAN                                                                                                                    |                                                                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| SITE INVESTIGATION AND RAOR<br>FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE<br>WISCONSIN PUBLIC SERVICE CORPORATION<br>CITY OF TWO RIVERS, WISCONSIN |                                                                                                                                               |
| CAD FILE: 1569/2-2gw/1569-22-B11.DWG<br>REFERENCE FILES:                                                                                              | PROJECT NO. 1569/2.2<br>DRAWN BY: TAS<br>TAS 12/15/03<br>CHECKED BY: JMK<br>JMK 12/29/03<br>APPROVED BY: SLF<br>SLF 12/29/03<br>FIGURE NO. 11 |



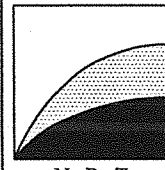
- LEGEND**
- AMS PROPOSED AIR MONITORING STATION
  - MS PROPOSED METEOROLOGICAL STATION
  - PROPOSED MONITORING WELL
  - UPLAND EXCAVATION AREA
  - CHEMICAL OXIDATION AREA
  - APPROXIMATE SUMP LOCATION
  - APPROXIMATE SLURRY CONTAINMENT WALL LOCATION
  - APPROXIMATE GROUNDWATER COLLECTION TRENCH LOCATION
  - APPROXIMATE ALIGNMENT OF DISCHARGING PIPING AND ELECTRICAL
  - PROPOSED CHAIN LINK FENCE
  - BGS BELOW GROUND SURFACE
  - MW-601 MONITORING WELL
  - SB-625 SOIL BORING
  - TP-615 TEST PIT
  - WETLANDS BOUNDARY
  - PROPERTY BOUNDARY
  - WOODS
  - FORMER STRUCTURE
  - EXISTING STRUCTURE
  - CHAIN LINK FENCE
  - GAS VALVE
  - GAS LINE

**GENERAL NOTES:**

1. EXCAVATION DEPTHS AND AREAS ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS.
2. CONTRACTOR TO DETERMINE CHEMICAL INJECTION LOCATIONS, BASED ON BENCH AND PILOT SCALE TESTING.
3. SLURRY WALL LOCATION AND KEY IN DEPTH ARE SUBJECT TO CHANGE BASED ON FIELD CONDITIONS.
4. INSTALLED GROUNDWATER MONITORING WELLS NOT USED IN NATURAL ATTENUATION SHALL BE ABANDONED IN ACCORDANCE WITH NR 141.
5. HYBRID POPLAR TREES WOULD BE INSTALLED ON THE WESTERN PORTION OF THE SITE (APPROXIMATELY 150 TREES).
6. UP TO TWO ADDITIONAL WELLS MAY BE INSTALLED OFF-SITE (ON THE PROPERTY TO THE SOUTH) TO MONITOR THE LEADING EDGE OF THE PLUME, IF NECESSARY.
7. PROPOSED MONITORING WELL LOCATIONS ARE APPROXIMATE AND SUBJECT TO CHANGE BASED ON FIELD CONDITIONS.
8. CHEMICAL OXIDATION TREATMENT ZONE RANGES FROM 9 TO 14 FT. BELOW GROUND SURFACE IN DOWNGRADIENT AREA.
9. THIS DRAWING IS INTENDED FOR USE IN A REMEDIAL ACTION OPTIONS REPORT ONLY AND IS NOT SUITABLE FOR CONSTRUCTION.

**SOURCE NOTE:**

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| ALTERNATIVE 4B     |                                                                  |
|--------------------|------------------------------------------------------------------|
| UPLAND AREA:       | EXCAVATION WITH OFF-SITE DISPOSAL                                |
| DOWNGRADIENT AREA: | IN-SITU CHEMICAL OXIDATION (1 TREATMENT)                         |
| GROUNDWATER:       | SLURRY WALL CONTAINMENT WITH PUMP AND TREAT AND PHYTOREMEDIATION |

**ALTERNATIVE # 4B - CONCEPTUAL PLAN**

SITE INVESTIGATION AND RAOR  
FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE  
WISCONSIN PUBLIC SERVICE CORPORATION  
CITY OF TWO RIVERS, WISCONSIN

CAD FILE: 1569/2-2gw/1569-22-B12.DWG  
REFERENCE FILES:

PROJECT NO.  
1569/2.2

DRAWN BY: TAS  
TAS 12/15/03

CHECKED BY:  
JMK 12/29/03

APPROVED BY:  
SLF 12/29/03

FIGURE NO.  
12

## **TABLES**

**Table 1 Soil Analytical Results - BTEX, Cyanides, & Phenol**  
**Remedial Action Options Report**  
*Wisconsin Public Service Corporation*  
*Former Two Rivers Manufactured Gas Plant Site*

|                                         |             | BTEX (mg/kg) |         |              |                 |            | Phenol/Cyanide (mg/kg) |                       |        |
|-----------------------------------------|-------------|--------------|---------|--------------|-----------------|------------|------------------------|-----------------------|--------|
| Sample Location (Depth)                 | Sample Date | Benzene      | Toluene | Ethylbenzene | Xylenes (total) | Total BTEX | Cyanide (total)        | Cyanide (dissociable) | Phenol |
| INTERIM AND PRELIMINARY GUIDANCE LEVELS |             |              |         |              |                 |            |                        |                       |        |
| NR720 Groundwater Pathway RCL           |             | 0.0055       | 1.5     | 2.9          | 4.1             | ns         | ns                     | ns                    | ns     |
| MW-601 (0'-2')                          | 11/08/94    | nd           | nd      | 0.46         | 0.4             | 0.86       | na                     | na                    | nd     |
| MW-602 (0'-2')                          | 11/08/94    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | nd     |
| MW-603 (0'-2')                          | 11/08/94    | 3.1          | 2.3     | 110          | 48              | 163.4      | 210                    | 31                    | 0.35   |
| MW-604 (2'-5')                          | 11/09/94    | nd           | nd      | nd           | nd              | 0          | 1.5                    | 0.41                  | 0.93   |
| MW-605 (2'-4')                          | 11/10/94    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | nd     |
| MW-606 (2'-4')                          | 11/10/94    | 0.29         | 0.45    | 1.7          | 2.3             | 4.74       | na                     | na                    | 0.41   |
| MW-607 (0'-2')                          | 11/11/94    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | 0.16   |
| MW-608 (0'-2')                          | 11/28/94    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | 0.16   |
| MW-609A (0'-2')                         | 09/04/96    | 0.33         | nd      | 0.49         | 2.2             | 3.02       | na                     | na                    | na     |
| MW-610 (2'-4')                          | 09/03/96    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | na     |
| MW-611 (2'-4')                          | 09/03/96    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | na     |
| SB-601 (0'-2')                          | 11/11/94    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | 0.34   |
| SB-602 (4'-6')                          | 11/10/94    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | 0.17   |
| SB-604 (0'-2')                          | 11/29/94    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | 0.18   |
| SB-606 (0'-2')                          | 11/29/94    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | 0.17   |
| SB-607 (0'-2')                          | 09/04/96    | 0.028        | 0.044   | nd           | nd              | 0.072      | na                     | na                    | na     |
| SB-608 (0'-2')                          | 09/04/96    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | na     |
| SB-619 (2'-4')                          | 03/27/96    | nd           | nd      | 0.0075       | 0.029           | 0.0365     | na                     | na                    | na     |
| SB-621 (2'-4')                          | 03/27/96    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | na     |
| SB-622 (2'-4')                          | 03/27/96    | 0.33         | nd      | 0.013        | nd              | 0.343      | na                     | na                    | na     |
| SB-624 (12'-14')                        | 03/27/96    | 1.7          | 0.66    | 3.9          | 2.2             | 8.46       | na                     | na                    | na     |
| SB-625 (6'-8')                          | 03/27/96    | 0.52         | 1.1     | 5.5          | 5.5             | 12.62      | na                     | na                    | na     |
| SS-601 (0'-1')                          | 11/10/94    | na           | na      | na           | na              | na         | na                     | na                    | nd     |
| SS-602 (0'-1')                          | 11/10/94    | na           | na      | na           | na              | na         | na                     | na                    | 0.23   |
| SS-603 (0'-1')                          | 11/11/94    | na           | na      | na           | na              | na         | na                     | na                    | 0.24   |
| TP-604 (0'-1.5')                        | 11/08/94    | nd           | 0.11    | nd           | 0.16            | 0.27       | 1.1                    | 0.48                  | nd     |
| TP-605 (1'-2')                          | 11/08/94    | nd           | nd      | nd           | nd              | 0          | 45                     | 31                    | 0.22   |
| TP-606 (2'-3')                          | 11/08/94    | 0.74         | 0.75    | 54           | 27              | 82.49      | 0.98                   | 0.22                  | 0.27   |
| TP-607 (0'-1')                          | 11/08/94    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | nd     |
| TP-608 (2'-3')                          | 11/08/94    | 2            | nd      | 21           | 33              | 56         | 1.8                    | 0.33                  | 0.33   |
| TP-610 (0'-1')                          | 11/08/94    | nd           | nd      | nd           | nd              | 0          | 3.9                    | 0.41                  | nd     |
| TP-612 (2'-3')                          | 11/08/94    | 1.3          | 1.7     | 18           | 18              | 39         | 0.69                   | nd                    | 0.69   |
| TP-614 (2.5'-3.5')                      | 11/08/94    | 4            | 3       | 8.5          | 15              | 30.5       | 3.5                    | 0.26                  | 2.5    |
| Methanol Blank                          | 09/06/96    | nd           | nd      | nd           | nd              | 0          | na                     | na                    | na     |

Notes:

1. Sample locations provided on Sheet 2.
2. na: Parameter not analyzed for in this sample.
3. NR720 RCL is the WDNR Residual Contaminant Level for the protection of groundwater quality.  
Samples equaling or exceeding the RCL are bold/underlined.
4. ns: There is no NR720 P.S.N.S. has been established for this parameter.
5. nd: Parameter not detected in this sample.
6. No samples were analyzed for amenable cyanides.

Table 2 Previous Soil Analytical Results - PAHs  
Remedial Action Options Report  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location (Depth)                 | Sample Date | PAHs (mg/kg) |              |                |                    |                      |                      |                    |                |          |              |          |                        |                     |                     |             |              |        |            |
|-----------------------------------------|-------------|--------------|--------------|----------------|--------------------|----------------------|----------------------|--------------------|----------------|----------|--------------|----------|------------------------|---------------------|---------------------|-------------|--------------|--------|------------|
|                                         |             | Anthracene   | Acenaphthene | Acenaphthylene | Benzo(a)anthracene | Benzo(b)fluoranthene | Benzo(k)fluoranthene | Benzo(ghi)perylene | Benzo(a)pyrene | Chrysene | Fluoranthene | Fluorene | Indeno(1,2,3-cd)pyrene | 1-Methylnaphthalene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene | Total PAHs |
| INTERIM AND PRELIMINARY GUIDANCE LEVELS |             |              |              |                |                    |                      |                      |                    |                |          |              |          |                        |                     |                     |             |              |        |            |
| Groundwater Pathway RCL                 |             | 3,000        | 38           | 0.7            | 17                 | 360                  | 870                  | 6,800              | 48             | 37       | 500          | 100      | 680                    | 23                  | 20                  | 0.4         | 1.8          | 8,700  | ns         |
| MW-601 (0'-2')                          | 11/08/94    | 0.07         | nd           | nd             | 0.25               | 0.25                 | 0.31                 | 0.71               | 0.62           | 0.36     | 0.75         | nd       | 0.33                   | na                  | na                  | 0.84        | 0.35         | 0.42   | 5.26       |
| MW-602 (0'-2')                          | 11/08/94    | nd           | nd           | nd             | nd                 | nd                   | nd                   | nd                 | nd             | nd       | nd           | nd       | nd                     | na                  | na                  | nd          | nd           | nd     | 0          |
| MW-603 (0'-2')                          | 11/08/94    | 11           | nd           | nd             | 29                 | 5.4                  | 12                   | 20                 | 15             | 16       | 129          | 23       | 7                      | na                  | na                  | 125         | 71           | 153    | 616.4      |
| MW-604 (2'-5')                          | 11/09/94    | 1.1          | nd           | nd             | 4.7                | 0.85                 | 1.6                  | 3.6                | 4.5            | 2.8      | 16           | 13       | 1.5                    | na                  | na                  | 19          | 30           | 2.8    | 101.45     |
| MW-605 (2'-4')                          | 11/10/94    | 0.072        | nd           | nd             | 0.8                | 0.14                 | 0.075                | 0.4                | 0.44           | 0.33     | 1.5          | nd       | 0.035                  | na                  | na                  | 0.44        | 0.31         | 0.67   | 5.212      |
| MW-606 (2'-4')                          | 11/10/94    | 1.2          | nd           | nd             | 14                 | 2.2                  | 1.2                  | 7.5                | 5.3            | 3.7      | 20           | 7.7      | 2                      | na                  | na                  | 41          | 23           | 29     | 157.8      |
| MW-607 (0'-2')                          | 11/11/94    | 0.049        | nd           | nd             | 0.38               | 0.037                | 0.2                  | 0.35               | 0.31           | 0.24     | 0.52         | nd       | 0.1                    | na                  | na                  | 0.3         | 0.21         | 0.6    | 3.296      |
| MW-608 (0'-2')                          | 11/28/94    | nd           | nd           | nd             | 0.16               | 0.023                | 0.037                | 0.12               | 0.081          | 0.047    | 0.079        | nd       | 0.043                  | na                  | na                  | 0.064       | 0.059        | nd     | 0.713      |
| MW-609A (0'-2')                         | 09/04/96    | nd           | nd           | nd             | nd                 | nd                   | nd                   | nd                 | nd             | nd       | nd           | nd       | nd                     | 2.3                 | 1.8                 | nd          | 0.33         | nd     | 4.43       |
| MW-610 (2'-4')                          | 09/03/96    | 0.09         | nd           | nd             | 0.61               | 0.25                 | 0.41                 | 0.88               | 1.1            | 0.14     | 0.55         | nd       | 0.57                   | 0.83                | 0.8                 | nd          | 0.27         | 0.68   | 7.18       |
| MW-611 (2'-4')                          | 09/03/96    | 0.011        | nd           | 0.36           | 0.074              | 0.013                | 0.028                | 0.053              | 0.043          | 0.048    | 0.073        | 0.15     | 0.048                  | 0.24                | 0.027               | 0.84        | 0.043        | 0.094  | 2.145      |
| SB-601 (0'-2')                          | 11/11/94    | 0.12         | nd           | nd             | 1                  | 0.11                 | 0.68                 | 1.2                | 1              | 0.7      | 2.2          | nd       | 0.14                   | na                  | na                  | 0.9         | 0.69         | 0.63   | 9.37       |
| SB-602 (4'-6')                          | 11/10/94    | nd           | nd           | nd             | nd                 | nd                   | nd                   | nd                 | nd             | nd       | nd           | nd       | nd                     | na                  | na                  | nd          | nd           | nd     | 0          |
| SB-604 (0'-2')                          | 11/29/94    | 0.016        | nd           | nd             | 0.23               | 0.073                | 0.0082               | 0.22               | 0.13           | 0.06     | 0.11         | nd       | 0.082                  | na                  | na                  | 0.11        | 0.086        | 0.018  | 1.1432     |
| SB-606 (0'-2')                          | 11/29/94    | 0.1          | nd           | nd             | 0.095              | 0.41                 | 0.48                 | 1.4                | 1.4            | 0.45     | 1.1          | nd       | 0.66                   | na                  | na                  | 1           | 0.26         | 0.32   | 7.675      |
| SB-607 (0'-2')                          | 09/04/96    | nd           | nd           | nd             | 0.32               | 0.12                 | 0.19                 | 0.36               | 0.38           | 0.093    | 0.37         | nd       | 0.23                   | nd                  | nd                  | nd          | nd           | 0.53   | 2.593      |
| SB-608 (0'-2')                          | 09/04/96    | nd           | nd           | nd             | nd                 | nd                   | nd                   | nd                 | nd             | nd       | nd           | nd       | nd                     | nd                  | nd                  | nd          | nd           | nd     | 0          |
| SB-624 (12'-14')                        | 03/27/96    | 14           | 38           | 95             | 14                 | 2.1                  | 1.6                  | 5.1                | 6.8            | 5        | 22           | 43       | 3.2                    | 49                  | 58                  | 113         | 54           | 17     | 540.8      |
| SB-625 (6'-8')                          | 03/27/96    | 0.68         | 0.59         | 7.3            | 1.1                | 0.2                  | 0.12                 | 0.46               | 0.55           | 0.5      | 4.5          | 1.6      | 0.25                   | 2.3                 | 3.5                 | 1.4         | 3            | 0.69   | 28.74      |
| SS-601 (0'-1')                          | 11/10/94    | 0.011        | nd           | nd             | 0.064              | 0.044                | 0.048                | 0.13               | 0.071          | 0.054    | 0.12         | nd       | 0.079                  | na                  | na                  | 0.051       | 0.043        | 0.07   | 0.785      |
| SS-602 (0'-1')                          | 11/10/94    | 0.55         | nd           | nd             | 1.9                | 0.079                | 0.71                 | 1.8                | 1.6            | 1.2      | 3.4          | 0.22     | 11.2                   | na                  | na                  | 1.7         | 3.8          | 2.9    | 31.059     |
| SS-603 (0'-1')                          | 11/11/94    | 0.02         | nd           | nd             | 0.047              | 0.017                | 0.023                | 0.3                | 0.25           | 0.08     | 0.23         | nd       | 0.12                   | na                  | na                  | nd          | 0.016        | 0.0096 | 1.1126     |
| TP-604 (0'-1.5')                        | 11/08/94    | 0.22         | nd           | nd             | 0.16               | 0.49                 | 0.21                 | 1.4                | 0.92           | 0.62     | 1.7          | 0.043    | 0.44                   | na                  | na                  | 0.91        | 0.76         | 0.81   | 8.683      |
| TP-605 (1'-2')                          | 11/08/94    | 1            | nd           | nd             | 8.7                | 1.9                  | 0.71                 | 5.6                | 3.6            | 1.5      | 7.2          | 0.86     | 1.4                    | na                  | na                  | 4.9         | 2.7          | 1.4    | 41.47      |
| TP-606 (2'-3')                          | 11/08/94    | 2.9          | nd           | nd             | 9.3                | 3                    | 4.1                  | 8.8                | 11             | 5.9      | 22           | 8.8      | 3.5                    | na                  | na                  | 36          | 26           | 16     | 157.3      |
| TP-607 (0'-1')                          | 11/08/94    | 0.081        | nd           | nd             | nd                 | 0.15                 | 2.1                  | 1.9                | 0.52           | 0.032    | 0.66         | nd       | 0.054                  | na                  | na                  | 0.39        | 0.24         | 0.33   | 6.457      |
| TP-608 (2'-3')                          | 11/08/94    | 0.24         | nd           | nd             | 0.065              | 0.13                 | 0.14                 | 1.3                | 0.22           | 0.22     | 1.1          | 0.23     | 0.12                   | na                  | na                  | 8.8         | 0.9          | 0.26   | 13.725     |
| TP-610 (0'-1')                          | 11/08/94    | 0.037        | nd           | nd             | 0.034              | 0.032                | 0.22                 | 0.16               | 0.16           | 0.2      | 0.44         | nd       | 0.11                   | na                  | na                  | 0.2         | 0.11         | 0.14   | 1.843      |
| TP-612 (2'-3')                          | 11/08/94    | 16           | nd           | nd             | 42                 | 12                   | 13                   | 35                 | 42             | 18       | 68           | 131      | 14                     | na                  | na                  | 386         | 94           | 23     | 894        |
| TP-614 (2.5'-3.5')                      | 11/08/94    | 3.7          | nd           | nd             | 10                 | 1.2                  | 4.5                  | 9.4                | 6.1            | 4.7      | 34           | 3.3      | 1.8                    | na                  | na                  | 29          | 31           | 23     | 161.7      |
| Composite SB-609                        | 09/03/96    | 4.1          | nd           | 40             | 3.5                | 1.3                  | 0.88                 | 1.6                | 1.9            | 1.3      | 14           | 12       | 0.9                    | 26                  | 20                  | 40          | 15           | 3.5    | 185.98     |

- Notes: 1. Sample locations provided on Sheet 2.  
2. na: Parameter not analyzed for in this sample.  
3. nd: Parameter not detected in this sample.  
4. A parameter is listed if detected in at least one sample.  
5. RCL is Residual Contaminat Level. Concentrations exceeding the RCL are bold/underlined.

Table 3 Groundwater Analytical Results - BTEX, Cyanide, Phenol, & Metals  
Remedial Action Options Report  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location<br><br>Sample Date               |                                             | BTEX (µg/L)                                 |         |              |                 |            | VOCs (µg/L)            |                        |                         |             |                  |                 |                    | Phenol/Cyanide (mg/L) |                       |                 |                    | Metals (mg/L) |         |          |          |         |           |           |           |         |         |        |  | Nitrogen mg/L | Sulfide, mg/L |
|--------------------------------------------------|---------------------------------------------|---------------------------------------------|---------|--------------|-----------------|------------|------------------------|------------------------|-------------------------|-------------|------------------|-----------------|--------------------|-----------------------|-----------------------|-----------------|--------------------|---------------|---------|----------|----------|---------|-----------|-----------|-----------|---------|---------|--------|--|---------------|---------------|
|                                                  |                                             | Benzene                                     | Toluene | Ethylbenzene | Xylenes (total) | Total BTEX | 1,2,4-Trimethylbenzene | 1,3,5-Trimethylbenzene | Methyl-tert-butyl-ether | Naphthalene | Isopropylbenzene | n-Propylbenzene | p-Isopropyltoluene | Phenols               | Cyanide (dissociable) | Cyanide (total) | Cyanide (amenable) | Arsenic       | Barium  | Cadmium  | Chromium | Iron    | Lead      | Mercury   | Selenium  | Silver  |         |        |  |               |               |
| Wisconsin Groundwater Quality Standards (NR 140) |                                             |                                             |         |              |                 |            |                        |                        |                         |             |                  |                 |                    |                       |                       |                 |                    |               |         |          |          |         |           |           |           |         |         |        |  |               |               |
| Preventive Action Limit                          |                                             | 0.5                                         | 200     | 140          | 1,000           | ns         | 96*                    | 96 *                   | 12                      | 8           | ns               | ns              | ns                 | 1.2                   | 0.04                  | ns              | ns                 | 0.005         | 0.4     | 0.0005   | 0.01     | ns      | 0.0015    | 0.0002    | 0.01      | 0.01    | 10      | ns     |  |               |               |
| Enforcement Standard                             |                                             | 5                                           | 1,000   | 700          | 10,000          | ns         | 480 *                  | 480 *                  | 60                      | 40          | ns               | ns              | ns                 | 6                     | 0.2                   | ns              | ns                 | 0.05          | 2       | 0.005    | 0.1      | ns      | 0.015     | 0.002     | 0.05      | 0.05    | 2       | ns     |  |               |               |
| MW-601                                           | 12/8/1994                                   | nd                                          | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | nd                    | nd              | nr                 | 0.0043        | 0.19    | nd       | nd       | --      | nd        | nd        | nd        | nd      | --      | --     |  |               |               |
|                                                  | 1/11/1995                                   | nd                                          | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | nd                    | 0.2             | 0.2                | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 6/24/2002                                   | <0.48                                       | <0.47   | <0.43        | <1.4            | <1.4       | 0.58 Q                 | <0.52                  | --                      | 0.67 Q      | <0.43            | <0.64           | <0.57              | --                    | <0.0084               | 0.0040 Q        | 0.0033 Q           | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 7/2/2003                                    | <0.30                                       | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | <0.001                | --              | --                 | <0.0081       | 0.18    | <0.00053 | <0.00093 | 7.2     | <0.0013   | <0.000030 | <0.0048   | <0.0011 | <0.047  | 1.9 Q  |  |               |               |
|                                                  | 10/16/2003                                  | Unable to sample due to bent riser section. |         |              |                 |            |                        |                        |                         |             |                  |                 |                    |                       |                       |                 |                    |               |         |          |          |         |           |           |           |         |         |        |  |               |               |
| MW-602                                           | 12/8/1994                                   | nd                                          | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | nd                    | nd              | nr                 | nd            | 0.15    | nd       | nd       | --      | nd        | nd        | nd        | nd      | --      | --     |  |               |               |
|                                                  | 1/11/1995                                   | nd                                          | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | nd                    | nd              | nd                 | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 6/24/2002                                   | <0.48                                       | <0.47   | <0.43        | <1.4            | <1.4       | <0.51                  | <0.52                  | --                      | <0.59       | <0.43            | <0.64           | <0.57              | --                    | <0.0084               | 0.0036 Q        | 0.0036 Q           | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | duplicate (QA/QC-1) 6/24/2002               | <0.48                                       | <0.47   | <0.43        | <1.4            | nd         | <0.51                  | <0.52                  | --                      | <0.59       | <0.43            | <0.64           | <0.57              | --                    | <0.0084               | 0.0024 Q        | 0.57 A             | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 7/2/2003                                    | <0.30                                       | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | <0.001                | --              | --                 | <0.0081       | 0.13    | <0.00053 | <0.00093 | 0.17    | <0.0013   | <0.000030 | <0.0048   | <0.0011 | 0.16    | 2.0 Q  |  |               |               |
|                                                  | 10/16/2003                                  | <0.30                                       | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.00068               | --              | --                 | <0.0058       | 0.12    | <0.00041 | <0.0011  | 0.035 Q | <0.0012   | <0.000030 | <0.0036   | <0.0038 | 0.13 Q  | <0.97  |  |               |               |
| MW-603A                                          | 12/8/1994                                   | 710                                         | 37      | 980          | 820             | 2,547      | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.47                  | 5.3             | nr                 | nd            | 0.25    | nd       | 0.0042   | --      | nd        | nd        | nd        | nd      | --      | --     |  |               |               |
|                                                  | 1/11/1995                                   | 340                                         | < 100   | 320          | 400             | 1,060      | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.64                  | 7.9             | 7.9                | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | duplicate (MW-6D) 1/11/1995                 | 380                                         | nd      | 380          | 410             | 1,170      | --                     | --                     | --                      | --          | --               | --              | --                 | 0.022                 | 0.2                   | 8.5             | 4.9                | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 6/24/2002                                   | 1,100                                       | 33      | 900          | 830             | 2,863      | 350                    | 140                    | --                      | 520         | 54               | 34              | <5.7               | --                    | 0.11                  | 24              | 810                | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 7/2/2003                                    | 500                                         | 16      | 330          | 320             | 1,166      | 140                    | 36                     | <1.2                    | --          | --               | --              | --                 | --                    | 0.0539                | --              | --                 | <0.0081       | 0.19    | <0.00053 | <0.00093 | 44      | <0.0013   | <0.000030 | <0.0048   | <0.0011 | 0.063 Q | 1.2 Q  |  |               |               |
|                                                  | 10/16/2003                                  | 530                                         | 19      | 390          | 580             | 1,519      | 130                    | 70                     | <1.4                    | --          | --               | --              | --                 | --                    | 0.015                 | --              | --                 | <0.02         | 0.2     | <0.0013  | <0.0023  | 40      | <0.0032   | <0.000030 | <0.012    | <0.0028 | <0.047  | 5.8    |  |               |               |
| duplicate (QC-1) 10/16/2003                      | 670                                         | 22                                          | 640     | 670          | 2,002           | 160        | 85                     | <2.9                   | --                      | --          | --               | --              | --                 | 0.0188                | --                    | --              | <0.02              | 0.19          | <0.0013 | <0.0023  | 35       | <0.0032 | <0.000030 | <0.012    | <0.0028   | 0.073 Q | 2.0 Q   |        |  |               |               |
| MW-603B                                          | 12/8/1994                                   | 2.3                                         | nd      | 11           | 11              | 24         | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.2                   | 0.8             | nr                 | nd            | 0.064   | nd       | nd       | --      | nd        | nd        | nd        | nd      | --      | --     |  |               |               |
|                                                  | duplicate (MW-A) 12/8/1994                  | 2.6                                         | nd      | 14           | 11              | 28         | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.33                  | 0.88            | nr                 | nd            | 0.071   | nd       | nd       | --      | nd        | nd        | nd        | nd      | --      | --     |  |               |               |
|                                                  | 1/11/1995                                   | nd                                          | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.095                 | 0.67            | 0.67               | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 6/24/2002                                   | <0.48                                       | <0.47   | <0.43        | <1.4            | <1.4       | <0.51                  | <0.52                  | --                      | <0.59       | <0.43            | <0.64           | <0.57              | --                    | <0.0084               | 0.45            | 0.43 A             | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | duplicate (QA/QC-2) 6/24/2002               | <0.48                                       | <0.47   | <0.43        | <1.4            | nd         | <0.51                  | <0.52                  | --                      | <0.59       | <0.43            | <0.64           | <0.57              | --                    | <0.0084               | 0.57            | 0.074 A            | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 7/2/2003                                    | <0.30                                       | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.0039                | --              | --                 | <0.0058       | 0.039   | <0.00041 | <0.0011  | 0.13    | <0.0012   | <0.000030 | 0.00081 Q | <0.0038 | 0.050 Q | <0.97  |  |               |               |
| duplicate (QC-2) 10/16/2003                      | 10/16/2003                                  | <0.30                                       | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.00154               | --              | --                 | <0.0058       | 0.044   | <0.00041 | <0.0011  | 0.071   | <0.0012   | <0.000030 | <0.0036   | <0.0038 | 0.061 Q | <0.97  |  |               |               |
|                                                  | 10/16/2003                                  | <0.30                                       | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.00197               | --              | --                 | <0.0058       | 0.045   | <0.00041 | <0.0011  | 0.067   | <0.0012   | <0.000030 | <0.0036   | <0.0038 | 0.065 Q | <0.097 |  |               |               |
|                                                  |                                             |                                             |         |              |                 |            |                        |                        |                         |             |                  |                 |                    |                       |                       |                 |                    |               |         |          |          |         |           |           |           |         |         |        |  |               |               |
| MW-604                                           | 12/8/1994                                   | 200                                         | 47      | 180          | 270             | 697        | --                     | --                     | --                      | --          | --               | --              | --                 | 0.021                 | 0.22                  | 0.37            | nr                 | nd            | 0.21    | nd       | nd       | --      | nd        | nd        | nd        | nd      | --      | --     |  |               |               |
|                                                  | 1/11/1995                                   | 240                                         | 42      | 150          | 260             | 692        | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.05                  | 0.73            | 0.65               | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 6/24/2002                                   | 91                                          | 14      | 52           | 86              | 243        | 22                     | 6.4                    | --                      | 320         | 4.2              | 0.71 Q          | 0.60 Q             | --                    | <0.0084               | 0.096           | 0.084 A            | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 7/2/2003                                    | 140 K                                       | 12 K    | 79 K         | 130 K           | 361        | 46 K                   | 15 K                   | <2.3 K                  | --          | --               | --              | --                 | --                    | 0.0048                | --              | --                 | <0.0081       | 0.15    | <0.00053 | <0.00093 | 7.6     | <0.0013   | <0.000030 | <0.0048   | <0.0011 | 0.047 Q | <0.97  |  |               |               |
|                                                  | 10/16/2003                                  | 140                                         | 12      | 95           | 130             | 377        | 41                     | 11                     | <0.58                   | --          | --               | --              | --                 | --                    | 0.00231               | --              | --                 | <0.0081       | 0.13    | <0.00053 | 0.0013 Q | 11      | <0.0013   | <0.000030 | <0.0048   | <0.0011 | 0.063 Q | 6.8    |  |               |               |
| MW-605A                                          | 12/8/1994                                   | 140                                         | 180     | 340          | 310             | 970        | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.14                  | 0.2             | nr                 | nd            | 0.35    | nd       | nd       | --      | nd        | nd        | nd        | nd      | --      | --     |  |               |               |
|                                                  | duplicate (MW-B) 12/8/1994                  | 130                                         | 160     | 310          | 280             | 880        | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.096                 | 0.18            | nr                 | nd            | 0.37    | nd       | nd       | --      | nd        | nd        | nd        | nd      | --      | --     |  |               |               |
|                                                  | 1/10/1995                                   | 1,400                                       | 1,400   | 790          | 740             | 4,330      | --                     | --                     | --                      | --          | --               | --              | --                 | 0.085                 | 0.013                 | 0.096           | 0.096              | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | duplicate (MW-6C) 1/10/1995                 | 1,300                                       | 1,200   | 530          | 500             | 3,530      | --                     | --                     | --                      | --          | --               | --              | --                 | 0.05                  | 0.0093                | 0.082           | 0.082              | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 6/24/2002                                   | 65                                          | 3.3     | 17           | 16.4            | 102        | 9.2                    | 3.2                    | --                      | --          | --               | --              | --                 | --                    | <0.0084               | <0.0023         | <0.0023            | --            | --      | --       | --       | --      | --        | --        | --        | --      | --      | --     |  |               |               |
|                                                  | 7/2/2003                                    | Unable to sample due to bent riser section. |         |              |                 |            |                        |                        |                         |             |                  |                 |                    |                       |                       |                 |                    |               |         |          |          |         |           |           |           |         |         |        |  |               |               |
| 10/16/2003                                       | Unable to sample due to bent riser section. |                                             |         |              |                 |            |                        |                        |                         |             |                  |                 |                    |                       |                       |                 |                    |               |         |          |          |         |           |           |           |         |         |        |  |               |               |



Table 3 Groundwater Analytical Results - BTEX, Cyanide, Phenol, & Metals  
Remedial Action Options Report  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location                                  | Sample Date | BTEX (µg/L)                                   |         |              |                 |            | VOCs (µg/L)            |                        |                         |             |                  |                 |                    | Phenol/Cyanide (mg/L) |                       |                 |                    | Metals (mg/L) |        |          |          |        |          |           |          |         |         |       | Nitrogen mg/L | Sulfide, mg/L |
|--------------------------------------------------|-------------|-----------------------------------------------|---------|--------------|-----------------|------------|------------------------|------------------------|-------------------------|-------------|------------------|-----------------|--------------------|-----------------------|-----------------------|-----------------|--------------------|---------------|--------|----------|----------|--------|----------|-----------|----------|---------|---------|-------|---------------|---------------|
|                                                  |             | Benzene                                       | Toluene | Ethylbenzene | Xylenes (total) | Total BTEX | 1,2,4-Trimethylbenzene | 1,3,5-Trimethylbenzene | Methyl-tert-butyl-ether | Naphthalene | Isopropylbenzene | n-Propylbenzene | p-Isopropyltoluene | Phenols               | Cyanide (dissociable) | Cyanide (total) | Cyanide (amenable) | Arsenic       | Barium | Cadmium  | Chromium | Iron   | Lead     | Mercury   | Selenium | Silver  |         |       |               |               |
| Wisconsin Groundwater Quality Standards (NR 140) |             |                                               |         |              |                 |            |                        |                        |                         |             |                  |                 |                    |                       |                       |                 |                    |               |        |          |          |        |          |           |          |         |         |       |               |               |
| Preventive Action Limit                          |             | 0.5                                           | 200     | 140          | 1,000           | ns         | 96*                    | 96 *                   | 12                      | 8           | ns               | ns              | ns                 | 1.2                   | 0.04                  | ns              | ns                 | 0.005         | 0.4    | 0.0005   | 0.01     | ns     | 0.0015   | 0.0002    | 0.01     | 0.01    | 10      | ns    |               |               |
| Enforcement Standard                             |             | 5                                             | 1,000   | 700          | 10,000          | ns         | 480 *                  | 480 *                  | 60                      | 40          | ns               | ns              | ns                 | 6                     | 0.2                   | ns              | ns                 | 0.05          | 2      | 0.005    | 0.1      | ns     | 0.015    | 0.002     | 0.05     | 0.05    | 2       | ns    |               |               |
| MW-605B                                          | 12/8/1994   | 29                                            | 88      | 320          | 540             | 977        | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.007                 | 0.009           | nr                 | nd            | 0.076  | nd       | nd       | --     | nd       | nd        | nd       | nd      | --      | --    |               |               |
|                                                  | 1/10/1995   | 4.1                                           | 8.9     | 1.5          | 79              | 94         | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | nd                    | 0.011           | 0.011              | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 6/24/2002   | 0.49 Q                                        | <0.68   | 1.7 Q        | 1.6 Q           | 3.8        | 3.6                    | <0.94                  | --                      | --          | --               | --              | --                 | --                    | <0.0084               | 0.012           | 0.012 A            | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 7/2/2003    | 0.87 Q                                        | 0.60 Q  | 1.7 Q        | 2.0 Q           | 5.2        | 4.0                    | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | <0.001                | --              | --                 | <0.0081       | 0.063  | <0.00053 | <0.00093 | 0.28   | <0.0013  | <0.000030 | <0.0048  | <0.0011 | <0.047  | 1.4 Q |               |               |
|                                                  | 10/16/2003  | 5.5                                           | 16      | 20           | 18.9            | 60         | 7.1                    | 0.77 Q                 | <0.58                   | --          | --               | --              | --                 | --                    | <0.00048              | --              | --                 | <0.0058       | 0.062  | <0.00041 | <0.0011  | 55 Q   | <0.0012  | <0.000030 | <0.0036  | <0.0038 | 0.059 Q | <0.97 |               |               |
| MW-606                                           | 12/8/1994   | 61                                            | 19      | 88           | 80              | 248        | --                     | --                     | --                      | --          | --               | --              | --                 | 0.032                 | 0.62                  | 1.2             | nr                 | nd            | 0.18   | nd       | nd       | --     | 0.0031   | nd        | nd       | nd      | --      | --    |               |               |
|                                                  | 1/11/1995   | 660                                           | 300     | 340          | 590             | 1,890      | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.033                 | 0.8             | 0.57               | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 6/24/2002   | 30                                            | 7.3     | 38           | 29              | 104        | 9.8                    | 3.6                    | --                      | --          | --               | --              | --                 | --                    | 0.081                 | 1.5             | 1.5 A              | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 7/2/2003    | 28                                            | 9.3     | 43           | 39              | 119        | 14                     | 4.3                    | <0.58                   | --          | --               | --              | --                 | --                    | 0.0171                | --              | --                 | <0.0081       | 0.19   | <0.00053 | <0.00093 | 11     | <0.0013  | <0.000030 | <0.0048  | <0.0011 | 0.056 Q | 2.9 Q |               |               |
|                                                  | 10/16/2003  | 38                                            | 3.9     | 37           | 20.5            | 99         | 3.3                    | 0.86 Q                 | <0.58                   | --          | --               | --              | --                 | --                    | 0.0186                | --              | --                 | <0.0058       | 0.38   | <0.00041 | <0.0011  | 16     | <0.0012  | <0.000030 | <0.0036  | <0.0038 | 0.070 Q | 5.4   |               |               |
| MW-607A                                          | 12/8/1994   | 830                                           | 19      | 1,300        | 320             | 2,469      | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.76                  | 1.1             | nr                 | nd            | 0.17   | nd       | nd       | --     | nd       | nd        | nd       | nd      | --      | --    |               |               |
|                                                  | 1/10/1995   | 1,100                                         | < 100   | 1,400        | 460             | 2,960      | --                     | --                     | --                      | --          | --               | --              | --                 | 0.041                 | 0.23                  | 1.5             | 1.1                | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 6/24/2002   | 570                                           | 19      | 910          | 174             | 1,673      | 110                    | 6.9 Q                  | --                      | 380         | 36               | 8.4 Q           | <2.8               | --                    | 0.042                 | 0.56            | 0.089 A            | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 7/2/2003    | 980                                           | 28      | 1,500        | 350             | 2,858      | 160                    | 12 Q                   | <5.8                    | --          | --               | --              | --                 | --                    | 0.0090                | --              | --                 | <0.0081       | 0.26   | <0.00053 | <0.00093 | 8.1    | <0.0013  | <0.000030 | <0.0048  | <0.0011 | <0.047  | <0.97 |               |               |
|                                                  | 10/16/2003  | 560                                           | 18      | 1,100        | 227             | 1,905      | 140                    | 7.4                    | <1.4                    | --          | --               | --              | --                 | --                    | 0.00358               | --              | --                 | <0.0081       | 0.2    | <0.00053 | 0.0036   | 14     | 0.0023   | <0.000030 | <0.0048  | <0.0011 | <0.047  | <0.97 |               |               |
| MW-607B                                          | 12/8/1994   | 8.4                                           | 1.2     | 2            | 18              | 30         | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | 0.022                 | 0.053           | nr                 | nd            | 0.058  | 0.0014   | nd       | --     | nd       | nd        | nd       | nd      | --      | --    |               |               |
|                                                  | 1/10/1995   | 17                                            | 3.8     | 11           | 7.8             | 40         | --                     | --                     | --                      | --          | --               | --              | --                 | nd                    | nd                    | 0.035           | 0.035              | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 6/19/1996   | 0.91                                          | nd      | nd           | nd              | 0.9        | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 6/24/2002   | Unable to sample due to bailer stuck in well. |         |              |                 |            |                        |                        |                         |             |                  |                 |                    |                       |                       |                 |                    |               |        |          |          |        |          |           |          |         |         |       |               |               |
|                                                  | 7/2/2003    | Unable to sample due to bailer stuck in well. |         |              |                 |            |                        |                        |                         |             |                  |                 |                    |                       |                       |                 |                    |               |        |          |          |        |          |           |          |         |         |       |               |               |
| MW-608A                                          | 12/8/1994   | 760                                           | 9.4     | 34           | 24              | 827        | --                     | --                     | --                      | --          | --               | --              | --                 | 0.03                  | nd                    | 0.006           | nr                 | nd            | 0.23   | nd       | nd       | --     | nd       | nd        | nd       | nd      | --      | --    |               |               |
|                                                  | 1/10/1995   | 990                                           | < 100   | < 100        | < 300           | 990        | --                     | --                     | --                      | --          | --               | --              | --                 | 0.024                 | nd                    | 0.01            | 0.01               | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 6/24/2002   | 420                                           | 2.9 Q   | 22           | 49              | 491        | 15                     | 3.5 Q                  | --                      | --          | --               | --              | --                 | --                    | <0.0084               | 0.012           | <0.0023            | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 7/2/2003    | 2,400                                         | 7.6 Q   | 180          | 178             | 2,766      | 19 Q                   | <5.2                   | <5.8                    | --          | --               | --              | --                 | --                    | <0.0010               | --              | --                 | <0.0058       | 0.079  | <0.00041 | <0.0011  | 5      | <0.0012  | <0.000030 | 0.0028   | <0.0038 | 0.051 Q | <0.97 |               |               |
|                                                  | 10/16/2003  | 3,700                                         | <14     | 290          | 260             | 4,250      | 31 Q                   | <13                    | <14                     | --          | --               | --              | --                 | --                    | 0.0032                | --              | --                 | <0.0081       | 0.091  | <0.00053 | 0.003 Q  | 8.5    | <0.0013  | <0.000030 | <0.0048  | <0.0011 | 0.060 Q | <0.97 |               |               |
| MW-608B                                          | 12/8/1994   | 610                                           | 18      | 180          | 150             | 958        | --                     | --                     | --                      | --          | --               | --              | --                 | 0.025                 | nd                    | 0.007           | nr                 | nd            | 0.068  | nd       | nd       | --     | nd       | nd        | nd       | nd      | --      | --    |               |               |
|                                                  | 1/10/1995   | 96                                            | 7.7     | 36           | 86              | 226        | --                     | --                     | --                      | --          | --               | --              | --                 | 0.036                 | 0.072                 | 1.1             | 1.1                | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      |       |               |               |
|                                                  | 6/19/1996   | 13                                            | nd      | 9.6          | 7.2             | 30         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      |       |               |               |
|                                                  | 6/24/2002   | 2.3                                           | <0.68   | <0.82        | <1.7            | 2.3        | <0.92                  | <0.94                  | --                      | --          | --               | --              | --                 | --                    | <0.0084               | 0.0035 Q        | <0.0023            | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 7/2/2003    | 2.2                                           | <0.58   | <0.60        | <1.2            | 2.2        | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.0065                | --              | --                 | <0.0058       | 0.066  | <0.00041 | <0.0011  | <0.018 | <0.0012  | <0.000030 | 0.001 Q  | <0.0038 | <0.047  | 1.6 Q |               |               |
| MW-609A                                          | 12/8/1994   | 1.7                                           | <0.58   | <0.60        | <1.2            | 1.7        | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.0024                | --              | --                 | <0.0081       | 0.089  | <0.00053 | 0.0042   | 2.4    | 0.0013 Q | <0.000030 | <0.0048  | <0.0011 | 0.065 Q | <0.97 |               |               |
|                                                  | 9/5/1996    | 45                                            | 3.7     | 4.4          | 52              | 105        | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 10/11/1996  | 31                                            | 2.3     | 5.9          | 31              | 70         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 10/11/1996  | 28                                            | 2.2     | 8.4          | 36              | 75         | --                     | --                     | --                      | --          | --               | --              | --                 | 0.022                 | 0.2                   | 8.5             | 4.9                | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 6/24/2002   | 72                                            | 2.5     | 24           | 23.6            | 122        | 2.1 Q                  | <0.94                  | --                      | --          | --               | --              | --                 | --                    | 0.024 Q               | 0.73            | 0.045 A            | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
| MW-609 B                                         | 7/2/2003    | 67                                            | 2.7     | 31           | 38.9            | 140        | 2.3                    | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.0074                | --              | --                 | <0.0081       | 0.15   | <0.00053 | 0.0025 Q | 12     | 0.0076   | <0.000030 | <0.0048  | <0.0011 | <0.047  | 1.5 Q |               |               |
|                                                  | 10/16/2003  | 51                                            | 2.3     | 45           | 36.1            | 134        | 2.2 Q                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | <0.00048              | --              | --                 | <0.0058       | 0.15   | <0.00041 | <0.0011  | 11     | <0.0012  | <0.000030 | <0.0036  | <0.0038 | 0.061 Q | <0.97 |               |               |
|                                                  | 9/5/1996    | 56                                            | 3.7     | 3.7          | 3.7             | 67         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 10/11/1996  | 9.6                                           | nd      | nd           | nd              | 9.6        | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
|                                                  | 6/24/2002   | 1.9                                           | <0.68   | <0.82        | <1.7            | 1.9        | <0.92                  | <0.94                  | --                      | --          | --               | --              | --                 | --                    | <0.0084               | 0.0068 Q        | 0.73 A             | --            | --     | --       | --       | --     | --       | --        | --       | --      | --      | --    |               |               |
| MW-609 B                                         | 7/2/2003    | 0.37 Q                                        | <0.58   | <0.60        | <1.2            | 0.4        | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | <0.0010               | --              | --                 | <0.0081       | 0.066  | <0.00053 | 0.0015 Q | 0.51   | <0.0013  | <0.000030 | <0.0048  | <0.0011 | <0.047  | 3.2   |               |               |
|                                                  | 10/16/2003  | <0.30                                         | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.00382               | --              | --                 | <0.0081       | 0.058  | <0.00053 | 0.0012 Q | 0.52   | <0.0013  | <0.000030 | <0.0048  | <0.0011 | 0.067 Q | <0.97 |               |               |



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| Sample Location                                  | Sample Date | BTEX (µg/L)                                                                     |         |              |                 |            | VOCs (µg/L)            |                        |                         |             |                  |                 |                    | Phenol/Cyanide (mg/L) |                       |                 |                    | Metals (mg/L) |        |          |           |      |         |           |          |         |               |               |  |
|--------------------------------------------------|-------------|---------------------------------------------------------------------------------|---------|--------------|-----------------|------------|------------------------|------------------------|-------------------------|-------------|------------------|-----------------|--------------------|-----------------------|-----------------------|-----------------|--------------------|---------------|--------|----------|-----------|------|---------|-----------|----------|---------|---------------|---------------|--|
|                                                  |             | Benzene                                                                         | Toluene | Ethylbenzene | Xylenes (total) | Total BTEX | 1,2,4-Trimethylbenzene | 1,3,5-Trimethylbenzene | Methyl-tert-butyl-ether | Naphthalene | Isopropylbenzene | n-Propylbenzene | p-Isopropyltoluene | Phenols               | Cyanide (dissociable) | Cyanide (total) | Cyanide (amenable) | Arsenic       | Barium | Cadmium  | Chromium  | Iron | Lead    | Mercury   | Selenium | Silver  | Nitrogen mg/L | Sulfide, mg/L |  |
| Wisconsin Groundwater Quality Standards (NR 140) |             |                                                                                 |         |              |                 |            |                        |                        |                         |             |                  |                 |                    |                       |                       |                 |                    |               |        |          |           |      |         |           |          |         |               |               |  |
| Preventive Action Limit                          |             | 0.5                                                                             | 200     | 140          | 1,000           | ns         | 96*                    | 96 *                   | 12                      | 8           | ns               | ns              | ns                 | 1.2                   | 0.04                  | ns              | ns                 | 0.005         | 0.4    | 0.0005   | 0.01      | ns   | 0.0015  | 0.0002    | 0.01     | 0.01    | 10            | ns            |  |
| Enforcement Standard                             |             | 5                                                                               | 1,000   | 700          | 10,000          | ns         | 480 *                  | 480 *                  | 60                      | 40          | ns               | ns              | ns                 | 6                     | 0.2                   | ns              | ns                 | 0.05          | 2      | 0.005    | 0.1       | ns   | 0.015   | 0.002     | 0.05     | 0.05    | 2             | ns            |  |
| MW-610                                           | 9/5/1996    | nd                                                                              | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 10/11/1996  | nd                                                                              | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 6/24/2002   | Well not sampled - Located on US Oil property and access could not be obtained. |         |              |                 |            |                        |                        |                         |             |                  |                 |                    |                       |                       |                 |                    |               |        |          |           |      |         |           |          |         |               |               |  |
|                                                  | 10/30/2002  | <0.25                                                                           | <0.84   | <0.53        | <1.9            | nd         | <0.69                  | <0.64                  | --                      | --          | --               | --              | --                 | --                    | <0.0027               | 0.0030 Q        | 0.0030 Q           | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 7/2/2003    | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.0038                | --              | --                 | <0.0081       | 0.1    | <0.00053 | 0.0028    | 3.3  | <0.0013 | <0.000030 | <0.0048  | <0.0011 | <0.047        | 1.2 Q         |  |
|                                                  | 7/2/2003    | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.0017                | --              | --                 | <0.0081       | 0.1    | <0.00053 | 0.00095 Q | 4.5  | <0.0013 | <0.000030 | <0.0048  | <0.0011 | <0.047        | <0.97 Q       |  |
|                                                  | 10/16/2003  | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.00106               | --              | --                 | <0.0081       | 0.13   | <0.00053 | 0.0010 Q  | 32   | <0.0013 | <0.000030 | <0.0048  | <0.0011 | 0.069 Q       | 2.2 Q         |  |
| MW-611                                           | 9/5/1996    | nd                                                                              | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 10/11/1996  | nd                                                                              | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 6/24/2002   | Well not sampled - Located on US Oil property and access could not be obtained. |         |              |                 |            |                        |                        |                         |             |                  |                 |                    |                       |                       |                 |                    |               |        |          |           |      |         |           |          |         |               |               |  |
|                                                  | 10/30/2002  | <0.25                                                                           | <0.84   | <0.53        | <1.9            | nd         | <0.69                  | <0.64                  | --                      | --          | --               | --              | --                 | --                    | <0.0027               | <0.0027         | <0.0027            | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 7/2/2003    | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.0104                | --              | --                 | <0.0081       | 0.074  | <0.00053 | <0.00093  | 1.2  | <0.0013 | <0.000030 | 0.0016 Q | <0.0011 | 0.090 Q       | 2.6 Q         |  |
|                                                  | 7/2/2003    | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | <0.0010               | --              | --                 | <0.0058       | 0.072  | <0.00041 | <0.0011   | 1.3  | <0.0012 | <0.000030 | 0.0019 Q | <0.0038 | <0.047        | 1.0 Q         |  |
|                                                  | 10/16/2003  | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | 0.00072               | --              | --                 | <0.0081       | 0.083  | <0.00053 | <0.00093  | 1.1  | <0.0013 | <0.000030 | <0.0048  | <0.0011 | 0.056 Q       | 1.8 Q         |  |
| Trip Blank                                       | 12/8/1994   | nd                                                                              | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | nr                 | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 1/11/1995   | nd                                                                              | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | nr                 | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 6/19/1996   | nd                                                                              | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 9/5/1996    | nd                                                                              | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 10/11/1996  | nd                                                                              | nd      | nd           | nd              | nd         | --                     | --                     | --                      | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 7/2/2003    | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |
|                                                  | 10/16/2003  | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | --          | --               | --              | --                 | --                    | --                    | --              | --                 | --            | --     | --       | --        | --   | --      | --        | --       | --      | --            | --            |  |

(O-JTB/C-EPK/PAH 8/02, 12/02, 2/03)(U-JMK/PAR 10/03)(U-PAR/HMS 11/03)

Notes:

- VOCs** : Volatile Organic Compounds.

**Cyanide**: Dissociable cyanide analyzed by Method OIA-1677 in July and October 2003.

1) Concentrations equaling/exceeding the enforcement standard (ES) are shown in bold.

2) Concentrations equaling/exceeding the preventive action limit (PAL) are italicized.

**µg/L** : Micrograms per liter

**mg/L** : Milligrams per liter

-- : Analysis was not performed

**<0.30** : Analyte not detected above method detection limit shown for parameter.
- ns** : NR140 ES or PAL standards have not been established.

*duplicate (MW-B)* : Field duplicate sample with field identity shown in parentheses

**Q**: Analyte detected between the limit of detection (LOD) and limit of quantitation (LOQ).

**K**: Detection limit may be elevated due to the presence of an unrequested analyte

**A**: Analyte present in method blank at 0.0029 mg/L.

**\***: Quality standards for Trimethylbenzenes combined.

Table 4 Groundwater Analytical Results - PAHs  
Remedial Action Options Report  
Wisconsin Public Service Corporation  
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| Sample Location                                  | Sample Date | PAHs (µg/L)                                 |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |         |            |
|--------------------------------------------------|-------------|---------------------------------------------|----------------|------------|----------------|-------------------|----------------------|----------------------|--------------------|----------|------------------------|--------------|----------|--------------------------|---------------------|---------------------|-------------|--------------|---------|------------|
|                                                  |             | Acenaphthene                                | Acenaphthylene | Anthracene | Benzo(a)pyrene | Benz(a)anthracene | Benzo(b)fluoranthene | Benzo(k)fluoranthene | Benzo(ghi)perylene | Chrysene | Dibenzo(a,h)anthracene | Fluoranthene | Fluorene | Indeno (1,2,3-cd) pyrene | 1-Methylnaphthalene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene  | Total PAHs |
| Wisconsin Groundwater Quality Standards (NR 140) |             |                                             |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |         |            |
| Preventive Action Limit                          |             | ns                                          | 0.5            | 600        | 0.02           | ns                | 0.02                 | ns                   | ns                 | 0.02     | ns                     | 80           | 80       | ns                       | ns                  | ns                  | 8           | ns           | 50      | ns         |
| Enforcement Standard                             |             | ns                                          | 5              | 3,000      | 0.2            | ns                | 0.2                  | ns                   | ns                 | 0.2      | ns                     | 400          | 400      | ns                       | ns                  | ns                  | 40          | ns           | 250     | ns         |
| MW-601                                           | 12/8/1994   | nd                                          | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | nd      | nd         |
|                                                  | 1/11/1995   | nd                                          | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | nd      | nd         |
|                                                  | 6/24/2002   | <0.018                                      | <0.023         | <0.020     | 0.014 Q        | <0.019            | <0.014               | <0.013               | <0.015             | <0.018   | <0.017                 | <0.028       | <0.021   | <0.014                   | <0.027              | <0.028              | <0.027      | <0.019       | <0.020  | nd         |
|                                                  | 7/2/2003    | <0.018                                      | <0.019         | <0.020     | 0.015 Q        | 0.016 Q           | <0.013               | <0.019               | 0.020 Q            | 0.022 Q  | <0.016                 | 0.021 Q      | <0.017   | <0.021                   | <0.018              | 0.021 Q             | 0.038 Q     | 0.020 Q      | 0.032 Q | 0.2        |
|                                                  | 10/16/2003  | Unable to sample due to bent riser section. |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |         |            |
| MW-602<br><br>duplicate (QA/QC-1)                | 12/8/1994   | nd                                          | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | nd      | nd         |
|                                                  | 1/11/1995   | nd                                          | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | nd      | nd         |
|                                                  | 6/24/2002   | <0.018                                      | <0.023         | <0.020     | <0.012         | <0.019            | <0.014               | <0.013               | <0.015             | <0.018   | <0.017                 | <0.028       | <0.021   | <0.014                   | <0.027              | <0.028              | <0.027      | <0.019       | <0.020  | nd         |
|                                                  | 6/24/2002   | <0.018                                      | <0.023         | <0.020     | <0.012         | <0.019            | <0.014               | <0.013               | <0.015             | <0.018   | <0.017                 | <0.028       | <0.021   | <0.014                   | <0.027              | <0.028              | 0.027 Q     | <0.019       | <0.020  | 0.03       |
|                                                  | 7/2/2003    | <0.018                                      | <0.019         | <0.020     | <0.014         | <0.012            | <0.013               | <0.019               | <0.016             | <0.014   | <0.016                 | <0.013       | <0.017   | <0.021                   | <0.018              | 0.019 Q             | 0.038 Q     | <0.016       | <0.017  | 0.1        |
|                                                  | 10/16/2003  | <0.018                                      | <0.019         | <0.020     | <0.014         | <0.012            | <0.013               | <0.019               | <0.016             | <0.014   | <0.016                 | <0.013       | <0.017   | <0.021                   | 0.025 Q             | <0.017              | <0.024      | <0.016       | <0.017  | 0.03       |
| MW-603A<br><br>duplicate (MW-6D)                 | 12/8/1994   | nd                                          | nd             | 5          | 0.32           | 1.2               | 0.15                 | nd                   | nd                 | 2.2      | nd                     | 7.6          | 42       | nd                       | --                  | --                  | 500         | 31           | 2.2     | 592        |
|                                                  | 1/11/1995   | 70                                          | nd             | 2.5        | 0.24           | 1.3               | 0.03                 | nd                   | 0.56               | 0.39     | nd                     | 7.3          | 10       | 0.14                     | --                  | --                  | 230         | 15           | 4       | 341        |
|                                                  | 1/11/1995   | 44                                          | nd             | 1.7        | 0.2            | 0.57              | nd                   | nd                   | nd                 | 0.13     | nd                     | 4.1          | 6.8      | nd                       | --                  | --                  | 230         | 11           | 1.8     | 300        |
|                                                  | 6/24/2002   | 39 Q,D                                      | 5.2            | 4.1        | <0.72          | <1.1              | <0.84                | <0.78                | <0.90              | <1.1     | <1.0                   | <1.7         | 18       | <0.84                    | 130 D               | 24                  | 360 D       | 18           | <1.2    | 598        |
|                                                  | 7/2/2003    | 36 Q                                        | <19            | <20        | <14            | <12               | <13                  | <19                  | <16                | <14      | <16                    | <13          | <17      | <21                      | 100                 | 19 Q                | 280         | 18 Q         | <17     | 453        |
|                                                  | 10/16/2003  | 25                                          | <4.8           | <5.0       | <3.5           | <3.0              | <3.2                 | <4.8                 | <4.0               | <3.5     | <4.0                   | <3.2         | 12 Q     | <5.2                     | 56                  | 6.8 Q               | 120         | 11 Q         | <4.2    | 231        |
|                                                  | 10/16/2003  | 28                                          | 3.8 Q          | 3.1 Q      | <1.4           | <1.2              | <1.3                 | <1.9                 | <1.6               | <1.4     | <1.6                   | 1.8 Q        | 14       | <2.1                     | 58 D                | 7.0                 | 120 D       | 9.8          | 2.7 Q   | 248        |
| MW-603B<br><br>duplicate (MW-A)                  | 12/8/1994   | nd                                          | nd             | 0.91       | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | 0.63         | 0.91     | nd                       | --                  | --                  | 6           | 0.62         | nd      | 9.1        |
|                                                  | 12/8/1994   | nd                                          | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | 0.63         | 0.89     | nd                       | --                  | --                  | 6.9         | 1.8          | nd      | 10         |
|                                                  | 1/11/1995   | nd                                          | nd             | nd         | nd             | 0.12              | nd                   | nd                   | nd                 | 0.11     | nd                     | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | 0.53    | 1          |
|                                                  | 6/24/2002   | 0.029 Q                                     | <0.023         | <0.020     | 0.019 Q        | 0.054 Q           | 0.020 Q              | 0.013 Q              | 0.015 Q            | 0.045 Q  | <0.017                 | 0.072 Q      | 0.033 Q  | <0.014                   | 0.069 Q             | 0.032 Q             | 0.21        | 0.08         | 0.13    | 1          |
|                                                  | 6/24/2002   | 0.025 Q                                     | 0.050 Q        | 0.028 Q    | 0.031 Q        | 0.085             | 0.033 Q              | 0.022 Q              | 0.023 Q            | 0.072    | <0.017                 | 0.10         | 0.038 Q  | 0.016 Q                  | 0.063 Q             | 0.074 Q             | 0.18        | 0.1          | 0.17    | 1          |
|                                                  | 7/2/2003    | 0.018 Q                                     | <0.019         | <0.020     | <0.014         | 0.025 Q           | 0.016 Q              | <0.019               | <0.016             | 0.027 Q  | <0.016                 | 0.036 Q      | <0.017   | <0.021                   | 0.041 Q             | <0.017              | 0.088       | 0.043 Q      | 0.066   | 0.4        |
|                                                  | 10/16/2003  | 0.026 Q                                     | 0.037 Q        | 0.024 Q    | 0.041 Q        | 0.069             | 0.040 Q              | 0.038 Q              | 0.041 Q            | 0.081    | <0.016                 | 0.075        | 0.034 Q  | 0.028 Q                  | 0.024 Q             | <0.017              | 0.071 Q     | 0.078        | 0.13    | 0.8        |
|                                                  | 10/16/2003  | 0.039 Q                                     | 0.025 Q        | <0.020     | 0.025 Q        | 0.039 Q           | 0.023 Q              | 0.022 Q              | 0.026 Q            | 0.048    | <0.016                 | 0.050        | 0.027 Q  | 0.022 Q                  | 0.059 Q             | <0.017              | 0.094       | 0.064        | 0.088   | 0.7        |

Table 4 Groundwater Analytical Results - PAHs  
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Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location                                                    | Sample Date | PAHs (µg/L)                                 |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |         |            |
|--------------------------------------------------------------------|-------------|---------------------------------------------|----------------|------------|----------------|-------------------|----------------------|----------------------|--------------------|----------|------------------------|--------------|----------|--------------------------|---------------------|---------------------|-------------|--------------|---------|------------|
|                                                                    |             | Acenaphthene                                | Acenaphthylene | Anthracene | Benzo(a)pyrene | Benz(a)anthracene | Benzo(b)fluoranthene | Benzo(k)fluoranthene | Benzo(ghi)perylene | Chrysene | Dibenzo(a,h)anthracene | Fluoranthene | Fluorene | Indeno (1,2,3-cd) pyrene | 1-Methylnaphthalene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene  | Total PAHs |
| Wisconsin Groundwater Quality Standards (NR 140)                   |             |                                             |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |         |            |
| Preventive Action Limit                                            |             | ns                                          | 0.5            | 600        | 0.02           | ns                | 0.02                 | ns                   | ns                 | 0.02     | ns                     | 80           | 80       | ns                       | ns                  | ns                  | 8           | ns           | 50      | ns         |
| Enforcement Standard                                               |             | ns                                          | 5              | 3,000      | 0.2            | ns                | 0.2                  | ns                   | ns                 | 0.2      | ns                     | 400          | 400      | ns                       | ns                  | ns                  | 40          | ns           | 250     | ns         |
| MW-604                                                             | 12/8/1994   | 76                                          | nd             | 22         | 10             | 13                | 2.6                  | 4.6                  | 9                  | 7.3      | nd                     | 52           | 120      | 4.6                      | --                  | --                  | 1,300       | 160          | 12      | 1,793      |
|                                                                    | 1/11/1995   | 71                                          | nd             | nd         | 9.3            | 12                | 1.2                  | 3.3                  | 8.6                | 7.4      | 1.1                    | 58           | 78       | 3.7                      | --                  | --                  | 1,200       | 120          | 36      | 1,610      |
|                                                                    | 6/24/2002   | 58                                          | <12            | 41         | 6.9 Q          | 11 Q              | <7.0                 | <6.5                 | <7.5               | 11 Q     | <8.5                   | 38 Q         | 37       | <7.0                     | 22 Q                | <14                 | <14         | 130          | 56      | 411        |
|                                                                    | 7/2/2003    | 89                                          | <9.5           | 15 Q       | <7.0           | <6.0              | <6.5                 | <9.5                 | <8.0               | 7.6 Q    | <8.0                   | 15 Q         | 44       | <10                      | 220                 | 15 Q                | 150         | 75           | 26 Q    | 657        |
|                                                                    | 10/16/2003  | 79 D                                        | 11             | 23         | 9.4            | 10                | 3.7 Q                | 4.8 Q                | 5.1 Q              | 9.4      | <1.6                   | 21           | 44 D     | 3.4 Q                    | 180 D               | 11                  | 12          | 69 D         | 30      | 526        |
| MW-605A<br><i>duplicate (MW-B)</i><br><br><i>duplicate (MW-6C)</i> | 12/8/1994   | 37                                          | nd             | 57         | 92             | 96                | 21                   | 27                   | 74                 | 46       | nd                     | 460          | 460      | 34                       | --                  | --                  | 1,500       | 540          | 42      | 3,486      |
|                                                                    | 12/8/1994   | nd                                          | nd             | 25         | 21             | 27                | 4.7                  | 6.2                  | 17                 | 10       | nd                     | 120          | 160      | 8.2                      | --                  | --                  | 1,700       | 200          | 8.5     | 2,308      |
|                                                                    | 1/10/1995   | nd                                          | nd             | 15         | 43             | 54                | 12                   | 12                   | 38                 | 34       | 4.6                    | 320          | 200      | 16                       | --                  | --                  | 2,300       | 240          | 300     | 3,589      |
|                                                                    | 1/10/1995   | 59                                          | nd             | 5.6        | 1.6            | 2.6               | 0.48                 | 0.51                 | 1.5                | 1.6      | nd                     | 19           | 69       | 0.63                     | --                  | --                  | 1,800       | 52           | 9.3     | 2,023      |
|                                                                    | 6/24/2002   | 45 Q                                        | 93             | 77         | 46             | 66                | 36 Q                 | 33 Q                 | 29 Q               | 64       | <17                    | 130          | 110      | 23 Q                     | 270                 | <28                 | 97          | 280          | 160     | 1,559      |
|                                                                    | 7/2/2003    | Unable to sample due to bent riser section. |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |         |            |
|                                                                    | 10/16/2003  | Unable to sample due to bent riser section. |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |         |            |
| MW-605B                                                            | 12/8/1994   | 640                                         | nd             | 12         | 0.44           | 2.3               | nd                   | 4.8                  | nd                 | nd       | nd                     | 12           | 130      | nd                       | --                  | --                  | 1,300       | 73           | nd      | 2,175      |
|                                                                    | 1/10/1995   | nd                                          | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | 0.12     | nd                     | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | 0.34    | 0.5        |
|                                                                    | 6/24/2002   | 4.5                                         | 1.2 Q          | 2.4        | 0.65 Q         | 1.1 Q             | 0.30 Q               | 0.30 Q               | <0.30              | 0.83 Q   | <0.34                  | 2.8          | 0.45 Q   | <0.28                    | 2.5                 | 0.68 Q              | 2.8         | 5.3          | 3.5     | 29         |
|                                                                    | 7/2/2003    | 3.9                                         | 0.59 Q         | 0.26 Q     | <0.14          | 0.18 Q            | <0.13                | <0.19                | <0.16              | 0.19 Q   | <0.16                  | 0.66         | 0.25 Q   | <0.21                    | 0.61                | <0.17               | <0.24       | 0.24 Q       | 1.0     | 7.9        |
|                                                                    | 10/16/2003  | 3.0 D                                       | <0.76 D        | 0.49       | 0.063          | 0.12              | 0.030 Q              | 0.034 Q              | 0.037 Q            | 0.11     | <0.016                 | 0.42         | 0.47     | 0.024 Q                  | 2.3 Q,D             | 0.75 Q,D            | 7.6 D       | 0.82 Q,D     | <0.68 D | 16         |
| MW-606                                                             | 12/8/1994   | nd                                          | nd             | 7.7        | 2.1            | 7.7               | 0.48                 | 2.1                  | 4.7                | 2.5      | nd                     | 18           | 40       | 0.85                     | --                  | --                  | 170         | 65           | 11      | 332        |
|                                                                    | 1/11/1995   | 110                                         | nd             | 15         | 18             | 28                | 5.3                  | 7.8                  | 19                 | 15       | 1.9                    | 120          | 92       | 8.2                      | --                  | --                  | 2,300       | 170          | 78      | 2,988      |
|                                                                    | 6/24/2002   | 46                                          | <9.2           | 8.3 Q      | <4.8           | <7.6              | <5.6                 | <5.2                 | <6.0               | <7.2     | <6.8                   | <11          | 19 Q     | <5.6                     | 120                 | 16 Q                | 78          | 27           | <8.0    | 314        |
|                                                                    | 7/2/2003    | 13 Q                                        | 9.0 Q          | 5.8 Q      | <3.5           | <3.0              | <3.2                 | <4.8                 | <4.0               | <3.5     | <4.0                   | 6.3 Q        | 27       | <5.2                     | 96                  | <4.2                | 71          | 30           | 9.4 Q   | 268        |
|                                                                    | 10/16/2003  | 13                                          | 10             | 5.2 Q      | <1.4           | 2.0 Q             | <1.3                 | <1.9                 | <1.6               | 2.1 Q    | <1.6                   | 5.0          | 20       | <2.1                     | 62 D                | <1.7                | 3.3 Q       | 22           | 7.3     | 152        |
| MW-607A                                                            | 12/8/1994   | 780                                         | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | --                  | --                  | 1,300       | nd           | nd      | 2,080      |
|                                                                    | 1/10/1995   | nd                                          | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | --                  | --                  | 1,300       | nd           | nd      | 1,300      |
|                                                                    | 6/24/2002   | 5.9 D                                       | <1.8           | <0.020     | <0.012         | <0.019            | <0.014               | <0.013               | <0.015             | <0.018   | <0.017                 | <0.028       | 0.024 Q  | <0.014                   | 13 D                | 0.046 Q             | 34 D        | <0.019       | <0.020  | 53         |
|                                                                    | 7/2/2003    | 62                                          | <15            | <16        | <11            | <9.6              | <10                  | <15                  | <13                | <11      | <13                    | <10          | <14      | <17                      | 150                 | <14                 | 240         | <13          | <14     | 452        |
|                                                                    | 10/16/2003  | 87 D                                        | <15 D          | 0.026 Q    | <0.014         | <0.012            | <0.013               | <0.019               | <0.016             | <0.014   | <0.016                 | <0.013       | 0.20     | <0.021                   | 210 D               | 0.14                | 260 D       | <0.016       | <0.017  | 557        |

Table 4 Groundwater Analytical Results - PAHs  
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| Sample Location                                  | Sample Date | PAHs (µg/L)                                   |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |        |            |
|--------------------------------------------------|-------------|-----------------------------------------------|----------------|------------|----------------|-------------------|----------------------|----------------------|--------------------|----------|------------------------|--------------|----------|--------------------------|---------------------|---------------------|-------------|--------------|--------|------------|
|                                                  |             | Acenaphthene                                  | Acenaphthylene | Anthracene | Benzo(a)pyrene | Benz(a)anthracene | Benzo(b)fluoranthene | Benzo(k)fluoranthene | Benzo(ghi)perylene | Chrysene | Dibenzo(a,h)anthracene | Fluoranthene | Fluorene | Indeno (1,2,3-cd) pyrene | 1-Methylnaphthalene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene | Total PAHs |
| Wisconsin Groundwater Quality Standards (NR 140) |             |                                               |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |        |            |
| Preventive Action Limit                          |             | ns                                            | 0.5            | 600        | 0.02           | ns                | 0.02                 | ns                   | ns                 | 0.02     | ns                     | 80           | 80       | ns                       | ns                  | ns                  | 8           | ns           | 50     | ns         |
| Enforcement Standard                             |             | ns                                            | 5              | 3,000      | 0.2            | ns                | 0.2                  | ns                   | ns                 | 0.2      | ns                     | 400          | 400      | ns                       | ns                  | ns                  | 40          | ns           | 250    | ns         |
| MW-607B                                          | 12/8/1994   | nd                                            | nd             | 0.6        | 0.72           | 0.97              | 0.19                 | nd                   | 0.086              | 0.42     | nd                     | 2.6          | 0.7      | 0.36                     | --                  | --                  | 7.2         | 0.8          | 0.26   | 15         |
|                                                  | 1/10/1995   | nd                                            | nd             | nd         | nd             | 0.16              | nd                   | nd                   | nd                 | nd       | nd                     | 0.44         | nd       | nd                       | --                  | --                  | 11          | nd           | 0.78   | 12         |
|                                                  | 6/19/1996   | nd                                            | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | nd     | nd         |
|                                                  | 6/24/2002   | Unable to sample due to bailer stuck in well. |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |        |            |
|                                                  | 7/2/2003    | Unable to sample due to bailer stuck in well. |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |        |            |
|                                                  | 10/16/2003  | Unable to sample due to bailer stuck in well. |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |        |            |
| MW-608A                                          | 12/8/1994   | 400                                           | nd             | 15         | 2.1            | 2.4               | 0.26                 | 0.81                 | 1.7                | 1.3      | nd                     | 14           | 150      | 0.81                     | --                  | --                  | 980         | 140          | 17     | 1,725      |
|                                                  | 1/10/1995   | 130                                           | 210            | 11         | 9.7            | 12                | 1.8                  | 3.2                  | 8.1                | 7.1      | 1.2                    | 66           | 110      | 3.6                      | --                  | --                  | 510         | 120          | 41     | 1,245      |
|                                                  | 6/24/2002   | 6.6 Q,D                                       | 1.0 Q,D        | 0.64 Q,D   | 1.6 D          | 1.5 Q,D           | 0.63 Q,D             | 0.82 Q,D             | 0.79 Q,D           | 1.3 Q,D  | 0.27                   | 1.9 Q,D      | 0.37     | 0.61 Q,D                 | 1.1 Q,D             | 0.092               | 0.060 Q     | 1.2 Q,D      | 2.8 D  | 23         |
|                                                  | 7/2/2003    | 120                                           | <9.5           | 15 Q       | <7.0           | <6.0              | <6.5                 | <9.5                 | <8.0               | <7.0     | <8.0                   | 14 Q         | 53       | <10                      | 120                 | 76                  | 120         | 79           | 22 Q   | 619        |
|                                                  | 10/16/2003  | 110 D                                         | 22 Q,D         | 7 Q,D      | 8.4            | 7.0               | 3.3                  | 4.2                  | 3.8                | 9.2      | 0.87 Q                 | 18 D         | 51 D     | 3.0                      | 130 D               | 78 D                | 170 D       | 76 D         | 32 D   | 734        |
| MW-608B                                          | 12/8/1994   | nd                                            | nd             | 12         | 7.7            | 8.3               | 1.2                  | 2.6                  | 6.6                | 4.4      | nd                     | 27           | 17       | 3.1                      | --                  | --                  | 110         | 65           | 13     | 278        |
|                                                  | 1/10/1995   | 12                                            | nd             | 4.9        | 2.8            | 4.3               | 0.86                 | 1.1                  | 3.1                | 2.9      | 0.56                   | 24           | 21       | 1.5                      | --                  | --                  | 310         | 41           | 15     | 445        |
|                                                  | 6/19/1996   | nd                                            | nd             | 1.8        | 0.6            | 0.98              | 0.21                 | 0.38                 | 0.52               | 0.34     | nd                     | 3.2          | 0.47     | 0.26                     | --                  | --                  | nd          | 3.4          | 2.2    | 14         |
|                                                  | 6/24/2002   | 13                                            | <1.8           | 9.5        | 1.4 Q          | 1.5 Q             | 1.7 Q                | <1.0                 | <1.2               | 2.4 Q    | <1.4                   | 7.8          | 6.3      | <1.1                     | 4.6 Q               | <2.2                | <2.2        | 27           | 13     | 88         |
|                                                  | 7/2/2003    | 6.0                                           | <0.48          | 1.6 Q      | 0.61 Q         | 0.69 Q            | 0.37 Q               | <0.48                | <0.40              | 0.79 Q   | <0.40                  | 2.1          | 2.6      | <0.52                    | 3.5                 | 0.49 Q              | 2.0         | 7.5          | 3.4    | 32         |
|                                                  | 10/16/2003  | 5.3                                           | <0.76          | 2.2 Q      | 0.92 Q         | 1.6               | <0.52                | <0.76                | <0.64              | 1.7 Q    | <0.64                  | 4.5          | 2.2 Q    | <0.84                    | 2.1 Q               | <0.68               | <0.96       | 4.2          | 7.6    | 32         |
| MW-609A<br><br>duplicate (MW-Z)                  | 9/5/1996    | nd                                            | nd             | 1.4        | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | 1.9      | nd                       | 5.6                 | 30                  | 8.9         | 4.5          | nd     | 52         |
|                                                  | 10/11/1996  | nd                                            | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | 4.3      | nd                       | nd                  | 18                  | 4.5         | nd           | nd     | 27         |
|                                                  | 10/11/1996  | nd                                            | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | 4.7      | nd                       | nd                  | 33                  | 2.2         | 2.1          | nd     | 42         |
|                                                  | 6/24/2002   | 0.24 Q                                        | <0.23          | <0.20      | <0.12          | <0.19             | <0.14                | <0.13                | <0.15              | <0.18    | <0.17                  | <0.28        | 0.27 Q   | <0.14                    | 2.2                 | <0.28               | 2.4         | <0.19        | <0.20  | 5.1        |
|                                                  | 7/2/2003    | <0.18                                         | <0.19          | <0.20      | <0.14          | <0.12             | <0.13                | <0.19                | <0.16              | <0.14    | <0.16                  | <0.13        | <0.17    | <0.21                    | 0.55 Q              | <0.17               | 3.3         | <0.16        | <0.17  | 3.9        |
|                                                  | 10/16/2003  | <0.18                                         | <0.19          | <0.20      | <0.14          | <0.12             | <0.13                | <0.19                | <0.16              | <0.14    | <0.16                  | <0.13        | <0.17    | <0.21                    | 0.50 Q              | <0.17               | 2.8         | <0.16        | <0.17  | 3.3        |
| MW-609 B                                         | 9/5/1996    | nd                                            | nd             | 0.79       | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | 8.9          | nd       | nd                       | nd                  | nd                  | nd          | 2.6          | 0.4    | 13         |
|                                                  | 10/11/1996  | nd                                            | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | nd                  | nd                  | nd          | nd           | nd     | nd         |
|                                                  | 6/24/2002   | <0.018                                        | <0.023         | <0.020     | 0.051          | <0.019            | <0.014               | <0.013               | <0.015             | <0.018   | <0.017                 | <0.028       | <0.021   | <0.014                   | <0.027              | <0.028              | 0.044 Q     | 0.028 Q      | <0.020 | 0.1        |
|                                                  | 7/2/2003    | <0.018                                        | <0.019         | <0.020     | <0.014         | <0.012            | <0.013               | <0.019               | <0.016             | <0.014   | <0.016                 | <0.013       | <0.017   | <0.021                   | <0.018              | <0.017              | 0.029 Q     | <0.016       | <0.017 | 0.03       |
|                                                  | 10/16/2003  | 0.085                                         | <0.019         | <0.020     | 0.016 Q        | <0.012            | <0.013               | <0.019               | <0.016             | <0.014   | <0.016                 | <0.013       | 0.027 Q  | <0.021                   | 0.30                | 0.10                | 0.50        | 0.021 Q      | <0.017 | 1.0        |

Table 4 Groundwater Analytical Results - PAHs  
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| Sample Location                                       | Sample Date | PAHs (µg/L)                                                                     |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |         |            |
|-------------------------------------------------------|-------------|---------------------------------------------------------------------------------|----------------|------------|----------------|-------------------|----------------------|----------------------|--------------------|----------|------------------------|--------------|----------|--------------------------|---------------------|---------------------|-------------|--------------|---------|------------|
|                                                       |             | Acenaphthene                                                                    | Acenaphthylene | Anthracene | Benzo(a)pyrene | Benz(a)anthracene | Benzo(b)fluoranthene | Benzo(k)fluoranthene | Benzo(ghi)perylene | Chrysene | Dibenzo(a,h)anthracene | Fluoranthene | Fluorene | Indeno (1,2,3-cd) pyrene | 1-Methylnaphthalene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene  | Total PAHs |
| Wisconsin Groundwater Quality Standards (NR 140)      |             |                                                                                 |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |         |            |
| Preventive Action Limit                               |             | ns                                                                              | 0.5            | 600        | 0.02           | ns                | 0.02                 | ns                   | ns                 | 0.02     | ns                     | 80           | 80       | ns                       | ns                  | ns                  | 8           | ns           | 50      | ns         |
| Enforcement Standard                                  |             | ns                                                                              | 5              | 3,000      | 0.2            | ns                | 0.2                  | ns                   | ns                 | 0.2      | ns                     | 400          | 400      | ns                       | ns                  | ns                  | 40          | ns           | 250     | ns         |
| MW-610<br><br><br><br><br><br><i>duplicate (QC-1)</i> | 9/5/1996    | nd                                                                              | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | nd                  | nd                  | nd          | nd           | nd      | nd         |
|                                                       | 10/11/1996  | nd                                                                              | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | nd                  | nd                  | nd          | nd           | nd      | nd         |
|                                                       | 6/24/2002   | Well not sampled - located on US Oil property and access could not be obtained. |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |         |            |
|                                                       | 10/30/2002  | <0.018                                                                          | 0.074          | <0.020     | 0.13           | 0.048             | 0.065                | 0.049 Q              | 0.090              | 0.061    | 0.024 Q                | 0.033 Q      | <0.017   | 0.062 Q                  | 0.021 Q             | <0.017              | 0.030 Q     | 0.023 Q      | 0.053 Q | 0.5        |
|                                                       | 7/2/2003    | <0.018                                                                          | 0.051 Q        | 0.021 Q    | 0.085          | 0.026 Q           | 0.036 Q              | 0.036 Q              | 0.052 Q            | 0.030 Q  | <0.016                 | 0.018 Q      | <0.017   | 0.036 Q                  | <0.018              | <0.017              | 0.028 Q     | 0.020 Q      | 0.037 Q | 0.5        |
|                                                       | 7/2/2003    | <0.018                                                                          | 0.058 Q        | 0.022 Q    | 0.10           | 0.034 Q           | 0.043                | 0.041 Q              | 0.063              | 0.036 Q  | <0.016                 | 0.023 Q      | <0.017   | 0.043 Q                  | <0.018              | <0.017              | 0.025 Q     | 0.023 Q      | 0.044 Q | 0.6        |
|                                                       | 10/16/2003  | <0.018                                                                          | 0.062 Q        | <0.020     | 0.11           | 0.034 Q           | 0.054                | 0.053 Q              | 0.073              | 0.054    | 0.021 Q                | 0.024 Q      | <0.017   | 0.052 Q                  | <0.018              | <0.017              | <0.024      | <0.016       | 0.042 Q | 0.6        |
| MW-611<br><br><br><br><br><br><i>duplicate (QC-2)</i> | 9/5/1996    | nd                                                                              | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | nd                  | nd                  | nd          | nd           | nd      | nd         |
|                                                       | 10/11/1996  | nd                                                                              | nd             | nd         | nd             | nd                | nd                   | nd                   | nd                 | nd       | nd                     | nd           | nd       | nd                       | nd                  | nd                  | nd          | nd           | nd      | nd         |
|                                                       | 6/24/2002   | Well not sampled - located on US Oil property and access could not be obtained. |                |            |                |                   |                      |                      |                    |          |                        |              |          |                          |                     |                     |             |              |         |            |
|                                                       | 10/30/2002  | <0.018                                                                          | <0.019         | <0.020     | <0.014         | <0.012            | <0.013               | <0.019               | <0.016             | <0.014   | <0.016                 | <0.013       | <0.017   | <0.021                   | <0.017              | <0.017              | <0.024      | <0.016       | <0.017  | nd         |
|                                                       | 7/2/2003    | <0.018                                                                          | <0.019         | <0.020     | <0.014         | <0.012            | <0.013               | <0.019               | <0.016             | <0.014   | <0.016                 | <0.013       | <0.017   | <0.021                   | <0.018              | <0.017              | 0.028 Q     | <0.016       | <0.017  | 0.03       |
|                                                       | 7/2/2003    | <0.018                                                                          | <0.019         | <0.020     | <0.014         | <0.012            | <0.013               | <0.019               | <0.016             | <0.014   | <0.016                 | <0.013       | <0.017   | <0.021                   | <0.018              | <0.017              | 0.024 Q     | <0.016       | <0.017  | 0.02       |
|                                                       | 10/16/2003  | <0.018                                                                          | <0.019         | <0.020     | <0.014         | <0.012            | <0.013               | <0.019               | <0.016             | <0.014   | <0.016                 | <0.013       | <0.017   | <0.021                   | <0.018              | <0.017              | <0.024      | <0.016       | <0.017  | nd         |

[JTB/EPK/PAH 8/02, 12/02, 2/03 U-JMK/PAR 10/03][U-PAR/HMS 11/03]

Notes:

PAHs : Polynuclear Aromatic Hydrocarbons

- 1) Concentrations equaling/exceeding the enforcement standard (ES) are shown in bold.
- 2) Concentrations equaling/exceeding the preventive action limit (PAL) are italicized.

nd : Analysis was not performed

µg/L : Micrograms per liter.

<0.018 : Analyte concentration less than method detection limit shown.

ns : NR140 ES or PAL standards have not been established.

duplicate (MW-B) : Field duplicate sample with field identity shown in parentheses.

Q: Analyte detected between the limit of detection (LOD) and limit of quantitation (LOQ).

D: Laboratory Data Qualifier - Analyte value from diluted analysis.

**Table 5 Groundwater Elevations and Monitoring Well Construction Details**  
**Remedial Action Options Report**  
**Wisconsin Public Service Corporation**  
**Former Two Rivers Manufactured Gas Plant Site**

| Sample Location | Date       | TOC Elevation (NGVD) | Ground Surface Elevation (NGVD) | Total Well Depth from TOC (feet)                    | Well Screen Length (feet) | Top of Screen Elevation (NGVD) | Bottom of Screen Elevation (NGVD) | Depth to Water from TOC (feet) | Groundwater Elevation (NGVD) | Middle of Screen Elevation (NGVD) | Vertical Gradient |
|-----------------|------------|----------------------|---------------------------------|-----------------------------------------------------|---------------------------|--------------------------------|-----------------------------------|--------------------------------|------------------------------|-----------------------------------|-------------------|
| MW601           | 12/7/1994  | 586.25               | 583.85                          | 13.54                                               | 10                        | 582.71                         | 572.71                            | 3.40                           | 582.85                       | --                                | --                |
|                 | 12/8/1994  |                      |                                 |                                                     |                           |                                |                                   | 3.40                           | 582.85                       | --                                | --                |
|                 | 12/21/1994 |                      |                                 |                                                     |                           |                                |                                   | 3.53                           | 582.72                       | --                                | --                |
|                 | 1/10/1995  |                      |                                 |                                                     |                           |                                |                                   | 4.33                           | 581.92                       | --                                | --                |
|                 | 1/30/1995  |                      |                                 |                                                     |                           |                                |                                   | 3.80                           | 582.45                       | --                                | --                |
|                 | 6/24/2002  |                      |                                 |                                                     |                           |                                |                                   | 3.20                           | 583.05                       | --                                | --                |
|                 | 7/2/2003   |                      |                                 |                                                     |                           |                                |                                   | 4.95                           | 581.30                       | --                                | --                |
|                 | 10/16/2003 |                      |                                 |                                                     |                           |                                |                                   | * (bent)                       | *                            | --                                | --                |
| MW602           | 12/7/1994  | 586.83               | 584.35                          | 14.18                                               | 10                        | 582.65                         | 572.65                            | 3.45                           | 583.38                       | --                                | --                |
|                 | 12/21/1994 |                      |                                 |                                                     |                           |                                |                                   | 3.38                           | 583.45                       | --                                | --                |
|                 | 1/10/1995  |                      |                                 |                                                     |                           |                                |                                   | 4.64                           | 582.19                       | --                                | --                |
|                 | 1/30/1995  |                      |                                 |                                                     |                           |                                |                                   | 3.92                           | 582.91                       | --                                | --                |
|                 | 6/24/2002  |                      |                                 |                                                     |                           |                                |                                   | 3.50                           | 583.33                       | --                                | --                |
|                 | 7/2/2003   |                      |                                 |                                                     |                           |                                |                                   | 4.85                           | 581.98                       | --                                | --                |
|                 | 10/16/2003 |                      |                                 |                                                     |                           |                                |                                   | 4.85                           | 581.98                       | --                                | --                |
| MW603A          | 12/7/1994  | 585.53               | 582.95                          | 14.50                                               | 10                        | 581.03                         | 571.03                            | 3.23                           | 582.30                       | **                                | 1.2E-02 D         |
|                 | 12/21/1994 |                      |                                 |                                                     |                           |                                |                                   | 3.73                           | 581.80                       | **                                | -7.7E-03 U        |
|                 | 1/10/1995  |                      |                                 |                                                     |                           |                                |                                   | 4.43                           | 581.10                       | **                                | -2.7E-02 U        |
|                 | 1/30/1995  |                      |                                 |                                                     |                           |                                |                                   | ***                            | ***                          | **                                | ***               |
|                 | 6/24/2002  |                      |                                 |                                                     |                           |                                |                                   | 4.00                           | 581.53                       | **                                | -3.4E-02 U        |
|                 | 7/2/2003   |                      |                                 |                                                     |                           |                                |                                   | 4.44                           | 581.09                       |                                   | -7.9E-04 U        |
|                 | 10/16/2003 |                      |                                 |                                                     |                           |                                |                                   | 5.65                           | 579.88                       |                                   | na                |
| MW603B          | 12/7/1994  | 585.25               | 582.85                          | 31.99                                               | 5                         | 558.26                         | 553.26                            | 3.26                           | 581.99                       | 555.76                            |                   |
|                 | 12/8/1994  |                      |                                 |                                                     |                           |                                |                                   | 3.25                           | 582.00                       |                                   |                   |
|                 | 12/21/1994 |                      |                                 |                                                     |                           |                                |                                   | 3.46                           | 581.79                       |                                   |                   |
|                 | 1/10/1995  |                      |                                 |                                                     |                           |                                |                                   | 3.97                           | 581.28                       |                                   |                   |
|                 | 1/30/1995  |                      |                                 |                                                     |                           |                                |                                   | ***                            | ***                          |                                   |                   |
|                 | 6/24/2002  |                      |                                 |                                                     |                           |                                |                                   | 2.85                           | 582.40                       |                                   |                   |
|                 | 7/2/2003   |                      |                                 |                                                     |                           |                                |                                   | 4.14                           | 581.11                       |                                   |                   |
|                 | 10/16/2003 |                      |                                 |                                                     |                           |                                |                                   | 9.57                           | 575.68                       |                                   |                   |
| MW604           | 12/8/1994  | 586.57               | 584.35                          | 14.22                                               | 10                        | 582.35                         | 572.35                            | 4.81                           | 581.76                       | --                                | --                |
|                 | 12/21/1994 |                      |                                 |                                                     |                           |                                |                                   | 4.97                           | 581.60                       | --                                | --                |
|                 | 1/10/1995  |                      |                                 |                                                     |                           |                                |                                   | 5.42                           | 581.15                       | --                                | --                |
|                 | 1/30/1995  |                      |                                 |                                                     |                           |                                |                                   | 4.87                           | 581.70                       | --                                | --                |
|                 | 6/24/2002  |                      |                                 |                                                     |                           |                                |                                   | 4.30                           | 582.27                       | --                                | --                |
|                 | 7/2/2003   |                      |                                 |                                                     |                           |                                |                                   | 5.25                           | 581.32                       | --                                | --                |
|                 | 10/16/2003 |                      |                                 |                                                     |                           |                                |                                   | 7.80                           | 578.77                       | --                                | --                |
| MW605A          | 12/8/1994  | 585.65               | 583.05                          | 14.37                                               | 10                        | 581.28                         | 571.28                            | 4.04                           | 581.61                       | **                                | 1.0E-02 D         |
|                 | 12/21/1994 |                      |                                 |                                                     |                           |                                |                                   | 4.04                           | 581.61                       | **                                | 1.4E-02 D         |
|                 | 1/10/1995  |                      |                                 |                                                     |                           |                                |                                   | 4.98                           | 580.67                       | **                                | -5.2E-03 U        |
|                 | 1/30/1995  |                      |                                 |                                                     |                           |                                |                                   | 4.22                           | 581.43                       | **                                | 6.1E-03 D         |
|                 | 6/24/2002  |                      |                                 |                                                     |                           |                                |                                   | 3.72                           | 581.93                       | **                                | 1.5E-02 D         |
|                 | 7/2/2003   |                      |                                 |                                                     |                           |                                |                                   | *(obstruction)                 | *                            |                                   |                   |
|                 | 10/16/2003 |                      |                                 |                                                     |                           |                                |                                   | *(obstruction)                 | *                            |                                   |                   |
| MW605B          | 12/8/1994  | 585.80               | 583.05                          | 34.71                                               | 5                         | 556.09                         | 551.09                            | 4.48                           | 581.32                       | 553.59                            |                   |
|                 | 12/21/1994 |                      |                                 |                                                     |                           |                                |                                   | 4.59                           | 581.21                       |                                   |                   |
|                 | 1/10/1995  |                      |                                 |                                                     |                           |                                |                                   | 4.99                           | 580.81                       |                                   |                   |
|                 | 1/30/1995  |                      |                                 |                                                     |                           |                                |                                   | 4.54                           | 581.26                       |                                   |                   |
|                 | 6/24/2002  |                      |                                 |                                                     |                           |                                |                                   | 4.30                           | 581.50                       |                                   |                   |
|                 | 7/2/2003   |                      |                                 |                                                     |                           |                                |                                   | 5.43                           | 580.37                       |                                   |                   |
|                 | 10/16/2003 |                      |                                 |                                                     |                           |                                |                                   | 6.49                           | 579.31                       |                                   |                   |
| MW606           | 12/8/1994  | 585.15               | 582.75                          | 14.59                                               | 10                        | 580.56                         | 570.56                            | 3.38                           | 581.77                       | --                                | --                |
|                 | 12/21/1994 |                      |                                 |                                                     |                           |                                |                                   | 3.51                           | 581.64                       | --                                | --                |
|                 | 1/10/1995  |                      |                                 |                                                     |                           |                                |                                   | 3.99                           | 581.16                       | --                                | --                |
|                 | 1/30/1995  |                      |                                 |                                                     |                           |                                |                                   | ice                            | ice                          | --                                | --                |
|                 | 6/24/2002  |                      |                                 | (6.10 - well vandalized, possibly filled with sand) |                           |                                |                                   | 3.00                           | 582.15                       | --                                | --                |
|                 | 7/2/2003   |                      |                                 |                                                     |                           |                                |                                   | 4.06                           | 581.09                       | --                                | --                |
|                 | 10/16/2003 |                      |                                 |                                                     |                           |                                |                                   | 5.62                           | 579.53                       | --                                | --                |

**Table 5 Groundwater Elevations and Monitoring Well Construction Details**  
**Remedial Action Options Report**  
**Wisconsin Public Service Corporation**  
**Former Two Rivers Manufactured Gas Plant Site**

| Sample Location | Date       | TOC Elevation (NGVD) | Ground Surface Elevation (NGVD) | Total Well Depth from TOC (feet) | Well Screen Length (feet) | Top of Screen Elevation (NGVD) | Bottom of Screen Elevation (NGVD) | Depth to Water from TOC (feet) | Groundwater Elevation (NGVD) | Middle of Screen Elevation (NGVD) | Vertical Gradient |
|-----------------|------------|----------------------|---------------------------------|----------------------------------|---------------------------|--------------------------------|-----------------------------------|--------------------------------|------------------------------|-----------------------------------|-------------------|
| MW607A          | 12/8/1994  | 584.61               | 581.65                          | 15.86                            | 10                        | 578.75                         | 568.75                            | 4.18                           | 580.43                       | **                                | -4.6E-03 U        |
|                 | 12/21/1994 |                      |                                 |                                  |                           |                                |                                   | 4.31                           | 580.30                       | **                                | -9.6E-03 U        |
|                 | 1/10/1995  |                      |                                 |                                  |                           |                                |                                   | 4.87                           | 579.74                       | **                                | -1.9E-02 U        |
|                 | 1/30/1995  |                      |                                 |                                  |                           |                                |                                   | 4.41                           | 580.20                       | **                                | -1.5E-02 U        |
|                 | 6/24/2002  |                      |                                 |                                  |                           |                                |                                   | 4.20                           | 580.41                       | **                                | -2.6E-02 U        |
|                 | 7/2/2003   |                      |                                 |                                  |                           |                                |                                   | 5.29                           | 579.32                       |                                   | -5.9E-02 U        |
|                 | 10/16/2003 |                      |                                 |                                  |                           |                                |                                   | 6.10                           | 578.51                       |                                   | -3.8E-03 U        |
| MW607B          | 12/8/1994  | 584.26               | 581.75                          | 34.70                            | 5                         | 554.56                         | 549.56                            | 3.70                           | 580.56                       | 552.06                            |                   |
|                 | 12/21/1994 |                      |                                 |                                  |                           |                                |                                   | 3.69                           | 580.57                       |                                   |                   |
|                 | 1/10/1995  |                      |                                 |                                  |                           |                                |                                   | 3.99                           | 580.27                       |                                   |                   |
|                 | 1/30/1995  |                      |                                 |                                  |                           |                                |                                   | 3.65                           | 580.61                       |                                   |                   |
|                 | 6/24/2002  |                      |                                 |                                  |                           |                                |                                   | 3.10                           | 581.16                       |                                   |                   |
|                 | 7/2/2003   |                      |                                 |                                  |                           |                                |                                   | 3.32                           | 580.94                       |                                   |                   |
|                 | 10/16/2003 |                      |                                 |                                  |                           |                                |                                   | 5.65                           | 578.61                       |                                   |                   |
| MW608A          | 12/8/1994  | 583.37               | 581.15                          | 15.19                            | 10                        | 578.18                         | 568.18                            | 2.80                           | 580.57                       | **                                | 5.1E-01 D         |
|                 | 12/21/1994 |                      |                                 |                                  |                           |                                |                                   | 2.87                           | 580.50                       | **                                | -4.8E-03 U        |
|                 | 1/10/1995  |                      |                                 |                                  |                           |                                |                                   | 3.32                           | 580.05                       | **                                | -1.2E-02 U        |
|                 | 1/30/1995  |                      |                                 |                                  |                           |                                |                                   | 2.92                           | 580.45                       | **                                | -7.8E-03 U        |
|                 | 6/24/2002  |                      |                                 |                                  |                           |                                |                                   | 2.70                           | 580.67                       | **                                | -5.1E-03 U        |
|                 | 7/2/2003   |                      |                                 |                                  |                           |                                |                                   | 3.93                           | 579.44                       |                                   | -9.2E-03 U        |
|                 | 10/16/2003 |                      |                                 |                                  |                           |                                |                                   | 9.77                           | 573.60                       |                                   | na                |
| MW608B          | 12/8/1994  | 584.15               | 581.75                          | 35.54                            | 5                         | 553.61                         | 548.61                            | 18.65                          | 565.50                       | 551.11                            |                   |
|                 | 12/21/1994 |                      |                                 |                                  |                           |                                |                                   | 3.51                           | 580.64                       |                                   |                   |
|                 | 1/10/1995  |                      |                                 |                                  |                           |                                |                                   | 3.76                           | 580.39                       |                                   |                   |
|                 | 1/30/1995  |                      |                                 |                                  |                           |                                |                                   | 3.47                           | 580.68                       |                                   |                   |
|                 | 6/24/2002  |                      |                                 |                                  |                           |                                |                                   | 3.33                           | 580.82                       |                                   |                   |
|                 | 7/2/2003   |                      |                                 |                                  |                           |                                |                                   | 4.45                           | 579.70                       |                                   |                   |
|                 | 10/16/2003 |                      |                                 |                                  |                           |                                |                                   | 5.43                           | 578.72                       |                                   |                   |
| MW-609A         | 12/8/1994  | 584.81               | 582.00                          | 14.70                            | 10                        | 580.11                         | 570.11                            | --                             | --                           | --                                | -- --             |
|                 | 12/21/1994 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | -- --             |
|                 | 1/10/1995  |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | -- --             |
|                 | 1/30/1995  |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | -- --             |
|                 | 6/24/2002  |                      |                                 |                                  |                           |                                |                                   | 4.80                           | 580.01                       | --                                | -3.2E-02 U        |
|                 | 7/2/2003   |                      |                                 |                                  |                           |                                |                                   | 6.43                           | 578.38                       | --                                | -5.0E-02 U        |
|                 | 10/16/2003 |                      |                                 |                                  |                           |                                |                                   | 6.53                           | 578.28                       | --                                | -2.0E-02 U        |
| MW-609B         | 12/8/1994  | 584.69               | 582.00                          | 33.00                            | 5                         | 556.69                         | 551.69                            | --                             | --                           | 554.19                            |                   |
|                 | 12/21/1994 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           |                                   |                   |
|                 | 1/10/1995  |                      |                                 |                                  |                           |                                |                                   | --                             | --                           |                                   |                   |
|                 | 1/30/1995  |                      |                                 |                                  |                           |                                |                                   | --                             | --                           |                                   |                   |
|                 | 6/24/2002  |                      |                                 |                                  |                           |                                |                                   | 3.85                           | 580.84                       |                                   |                   |
|                 | 7/2/2003   |                      |                                 |                                  |                           |                                |                                   | 5.10                           | 579.59                       |                                   |                   |
|                 | 10/16/2003 |                      |                                 |                                  |                           |                                |                                   | 5.94                           | 578.75                       |                                   |                   |
| MW-610          | 12/8/1994  | 585.96               | 583.00                          | *                                | 10                        | *                              | *                                 | --                             | --                           | --                                | --                |
|                 | 12/21/1994 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 1/10/1995  |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 1/30/1995  |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 10/30/2002 |                      |                                 |                                  |                           |                                |                                   | 4.42                           | 581.54                       | --                                | --                |
|                 | 7/2/2003   |                      |                                 |                                  |                           |                                |                                   | 4.72                           | 581.24                       | --                                | --                |
|                 | 10/16/2003 |                      |                                 |                                  |                           |                                |                                   | 6.33                           | 579.63                       | --                                | --                |
| MW-611          | 12/8/1994  | 586.17               | 583.70                          | *                                | 10                        | *                              | *                                 | --                             | --                           | --                                | --                |
|                 | 12/21/1994 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 1/10/1995  |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 1/30/1995  |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 10/30/2002 |                      |                                 |                                  |                           |                                |                                   | 3.90                           | 582.27                       | --                                | --                |
|                 | 7/2/2003   |                      |                                 |                                  |                           |                                |                                   | 4.49                           | 581.68                       | --                                | --                |
|                 | 10/16/2003 |                      |                                 |                                  |                           |                                |                                   | 5.92                           | 580.25                       | --                                | --                |

(JTB/EPK/C-PAH 2/03)

**NOTES:**

TOC : Top of well casing

NGVD : All elevations relative to National Vertical Geodetic Datum.

U : Upward vertical hydraulic gradient

D : Downward vertical hydraulic gradient

ice : Ice present on the inside of the well casing prohibited groundwater elevation measurement.

-- : not applicable

\* : not measured

\*\*\* : Measurement was not collected, area was inaccessible



Table 6 - Stratigraphic Summary  
Remedial Action Options Report  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Location ID  | Date Installed | Ground Elevation<br>ftmsl | Total Depth<br>ft bgs | Toposil              |                   | Gravel           |                   | Cinder Fill     |                   | Peat               |                   | Shell Layer     |                   | Silt                       |                   | Clay                     |                   | Sand              |                   | Fill            |                   | Comments/Fill Depths                                                                                                                                     |
|--------------|----------------|---------------------------|-----------------------|----------------------|-------------------|------------------|-------------------|-----------------|-------------------|--------------------|-------------------|-----------------|-------------------|----------------------------|-------------------|--------------------------|-------------------|-------------------|-------------------|-----------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
|              |                |                           |                       | Thickness<br>ft      | Interval<br>ftmsl | Thickness<br>ft  | Interval<br>ftmsl | Thickness<br>ft | Interval<br>ftmsl | Thickness<br>ft    | Interval<br>ftmsl | Thickness<br>ft | Interval<br>ftmsl | Thickness<br>ft            | Interval<br>ftmsl | Thickness<br>ft          | Interval<br>ftmsl | Thickness<br>ft   | Interval<br>ftmsl | Thickness<br>ft | Interval<br>ftmsl |                                                                                                                                                          |
| SOIL BORINGS |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   |                   |                   |                 |                   |                                                                                                                                                          |
| SB-601       | 11/11/1994     | 581.15                    | 12                    | --                   | --                | --               | --                | --              | --                | --                 | --                | --              | --                | 5 (sandy)                  | 581.15-576.15     | 7                        | 576.15-569.15     | --                | --                | --              | --                | black to dk. brown sand seams below 7 ftgs                                                                                                               |
| SB-602       | 11/10/1994     | 583.25                    | 6                     | 2 (sandy silty clay) | 583.25-581.25     | --               | --                | --              | --                | 3                  | 581.25-578.25     | --              | --                | --                         | --                | 1                        | 578.25-577.25     | --                | --                | --              | --                |                                                                                                                                                          |
| SB-603       | 11/10/1994     | 583.05                    | 6                     | --                   | --                | --               | --                | --              | --                | --                 | --                | --              | --                | 4.5 (sandy)                | 583.05-578.55     | 1.5                      | 578.55-577.05     | --                | --                | --              | --                |                                                                                                                                                          |
| SB-604       | 11/29/1994     | 581.25                    | 12                    | --                   | --                | --               | --                | --              | --                | --                 | --                | --              | --                | 9.5 (w/ peat)              | 581.25-571.75     | 2.5 (sandy clay)         | 571.75-569.25     | --                | --                | --              | --                | clay layer is sandy w/ shells                                                                                                                            |
| SB-605       | 11/29/1994     | 582.95                    | 6                     | --                   | --                | --               | --                | --              | --                | --                 | --                | --              | --                | 4 (sandy w/ peat)          | 582.95-578.95     | 2                        | 578.95-576.95     | --                | --                | 4               | 582.95-578.95     | ash at 2.5-3.5 ftgs in silt                                                                                                                              |
| SB-606       | 11/29/1994     | 582.55                    | 6                     | --                   | --                | --               | --                | --              | --                | --                 | --                | --              | --                | 4.75 (sandy w/ peat)       | 582.55-577.80     | 1.25                     | 577.80-576.55     | --                | --                | --              | --                |                                                                                                                                                          |
| SB-607       | 9/4/1996       | 583.05                    | 10                    | --                   | --                | --               | --                | --              | --                | 3                  | 580.8-577.8       | --              | --                | 2.25 (sand and sandy silt) | 583.05-580.80     | 0.7 (shell layer on top) | 577.8-577.1       | 0.5               | 576.1-575.6       | 2.25            | 583.05-580.80     |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   | 1                          | 577.1-576.1       |                          |                   |                   |                   |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   | 2.5                        | 575.6-573.10      |                          |                   |                   |                   |                 |                   |                                                                                                                                                          |
| SB-608       | 9/4/1996       | 582.65                    | 10                    | --                   | --                | --               | --                | --              | --                | 0.2                | 580.85-580.65     | --              | --                | 1.8                        | 582.65-580.85     | 0.3 (silty clay)         | 578.65-578.35     | 0.5               | 573.2-572.7       | 0.75 (glass)    | 582.65-581.90     |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   | 0.2                | 578.85-578.65     |                 |                   | 1.8                        | 580.65-578.85     | 3.75 (silty clay)        | 576.95-573.20     |                   |                   |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   | 1.4                | 578.35-576.95     |                 |                   |                            |                   |                          |                   |                   |                   |                 |                   |                                                                                                                                                          |
| SB-609       | 9/3/1996       | 582.45                    | 12                    | --                   | --                | --               | --                | 1.6             | 580.75-579.15     | --                 | --                | --              | --                | 1.7 (top 2 in. organic)    | 582.45-580.75     | 7.8                      | 579.15-571.35     |                   |                   | 3.3             | 582.45-579.15     | emulsified coal tar present below 4 ftgs                                                                                                                 |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   | 1                          | 571.35-570.35     |                          |                   |                   |                   |                 |                   |                                                                                                                                                          |
| SB-610       | 9/3/1996       |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   |                   |                   |                 |                   |                                                                                                                                                          |
| SB-611*      |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   |                   |                   |                 |                   |                                                                                                                                                          |
| SB-612*      |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   |                   |                   |                 |                   |                                                                                                                                                          |
| SB-613       | 3/25/1996      | 583                       | 10                    | --                   | --                | 2 (silty gravel) | 583.0-581.0       | --              | --                | 2                  | 581.0-579.0       | --              | --                | --                         | --                | 2 (w/ silt)              | 577.0-575.0       | --                | --                | 2 (gravel)      | 583-581           |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   | 2 (w/ clayey silt) | 579.0-577.0       |                 |                   |                            |                   | 2                        | 575.0-573.0       |                   |                   |                 |                   |                                                                                                                                                          |
| SB-614       | 3/25/1996      | 583.97                    | 10                    | 0.5                  | 583.97-583.47     | 3.5 (silty)      | 583.47-579.97     | --              | --                | 2 (w/ clay)        | 579.97-577.97     | --              | --                |                            |                   | 1                        | 574.97-573.97     | 1                 | 575.97-574.97     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   | 2                  |                   |                 |                   |                            |                   | 2                        | 577.97-575.97     |                   |                   |                 |                   |                                                                                                                                                          |
| SB-615       | 3/25/1996      | 583.8                     | 10                    | --                   | --                | --               | --                | --              | --                | 2                  | 579.8-577.8       | --              | --                | 0.5 (sandy)                | 583.8-583.3       | --                       | --                | 3.5               | 583.3-579.8       | --              | --                |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   | 2 (with clay)      | 577.8-575.8       |                 |                   |                            |                   |                          |                   | 2 (clayey)        | 575.8-573.8       |                 |                   |                                                                                                                                                          |
| SB-616       | 3/25/1996      | 582.56                    | 10                    | --                   | --                | --               | --                | --              | --                | --                 | --                | --              | --                | --                         | --                | 6                        | 578.56-572.56     | 4                 | 582.56-578.56     | --              | --                |                                                                                                                                                          |
| SB-617       | 3/27/1996      | 582.7                     | 6                     | --                   | --                | --               | --                | --              | --                | --                 | --                | --              | --                | --                         | --                | 1.5                      | 578.2-576.7       | 1 (w/gravel)      | 582.7-581.7       | 4.5             | 582.7-578.2       | emulsified coal tar odor at 2.5 ftgs                                                                                                                     |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   | 1.5 (fill)        | 581.7-580.2       |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   | 2 (fill/wood)     | 580.2-578.2       |                 |                   |                                                                                                                                                          |
| SB-618       | 3/27/1996      | 582.2                     | 10                    | --                   | --                | --               | --                | --              | --                | --                 | --                | --              | --                | 1 (clayey)                 | 573.2-572.2       | 5                        | 578.2-573.2       | 4 (silty sand)    | 582.2-578.2       | --              | --                | emulsified coal tar in silty clay layer; odor in clayey silt                                                                                             |
| SB-619       | 3/27/1996      | 582.5                     | 12                    | --                   | --                | --               | --                | --              | --                | 2                  | 578.5-576.5       | --              | --                | --                         | --                | 5.5 (silty clay)         | 576.5-571.0       | 2 (silty sand)    | 582.5-580.5       | 4               | 582.5-578.5       | slight odor in sand at 6.8 to 11.5 ftgs                                                                                                                  |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   | 2.25              | 580.5-578.5       |                 |                   | mild odor in sand at 11.5-12 ftgs                                                                                                                        |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   | 0.5               | 571.0-570.5       |                 |                   | faint odor from 6 to 10 ftgs                                                                                                                             |
| SB-620       | 3/27/1996      | 581.86                    | 12                    | --                   | --                | --               | --                | --              | --                | 2                  | 578.11-576.11     | --              | --                | 4                          | 573.86-569.86     | 2.25 (silty clay)        | 576.11-573.86     | 3.75 (silty sand) | 581.86-578.11     | 3.5             | 581.86-578.36     |                                                                                                                                                          |
| SB-621       | 3/27/1996      | 581.73                    | 12                    | --                   | --                | --               | --                | --              | --                | 4                  | 577.73-573.73     | --              | --                | 4 (thin clay seams)        | 573.73-569.73     | --                       | --                | 4 (silty sand)    | 581.73-577.73     | 4               | 581.73-577.73     |                                                                                                                                                          |
| SB-622       | 3/27/1996      | 580.38                    | 16                    | --                   | --                | --               | --                | --              | --                | 1                  | 576.13-575.13     | --              | --                | 2.5                        | 568.88-566.38     | 2                        | 578.13-576.13     | 2.25 (silty sand) | 580.38-578.13     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 1.75 (silty clay)        | 575.13-573.38     | 4.5               | 573.38-568.88     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   | 2                 | 566.38-564.38     |                 |                   |                                                                                                                                                          |
| SB-623       | 3/27/1996      | 580.2                     | 16                    | --                   | --                | --               | --                | --              | --                | 0.75               | 575.95-575.2      | --              | --                | 2.5                        | 568.7-566.2       | 2 (silty clay)           | 577.95-575.95     | 2.25 (silty sand) | 580.2-577.95      | 2               | 580.2-578.2       |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 2 (silty clay)           | 575.2-573.2       | 4.5               | 573.2-568.70      |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   | 2                 | 566.2-564.2       |                 |                   |                                                                                                                                                          |
| SB-624       | 3/27/1996      | 580.75                    | 18                    | --                   | --                | --               | --                | --              | --                | 1                  | 574.0-573.00      | --              | --                | 2                          | 568.75-566.75     | 1.75 (silty clay)        | 575.75-574.0      | 5 (silty sand)    | 580.75-575.75     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 0.25                     | 572.0-571.75      | 1                 | 573.00-572.0      |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   | 3                 | 571.75-568.75     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   |                          |                   | 2                 | 564.75-562.75     |                 |                   | odor in sand 9-12 ftgs, tar at 12-14 ftgs, odor in clay 14-16 ftgs                                                                                       |
| SB-625       | 3/27/1996      | 582.5                     | 12                    | --                   | --                | --               | --                | --              | --                | 1.75               | 578.25-576.50     | --              | --                | --                         | --                | 6 (silty clay)           | 576.5-570.5       | 4.25 (silty sand) | 582.5-578.25      |                 |                   | emulsified coal tar in sand seam w/in silty clay 9 ftgs                                                                                                  |
| SB-626       | 8/26/2003      | 581.33                    | 20                    | --                   | --                | --               | --                | --              | --                | 5                  | 581.33-576.33     | --              | --                | --                         | --                | 3 (silty)                | 576.33-573.33     | 3.5               | 573.33-569.83     | --              | --                |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 0.5                      | 569.83-569.33     | 3.5               | 569.33-565.83     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 0.5                      | 565.83-565.33     | 0.5               | 565.33-564.83     |                 |                   | emulsified coal tar present in peat (3.5-4.5 ftgs); black wood in clay (7.75-8.0 ftgs); emulsified coal tar present until 16 ftgs, sheen until 16.5 ftgs |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 3.5 (silty)              | 564.83-561.33     |                   |                   |                 |                   |                                                                                                                                                          |
| SB-627       | 8/26/2003      | 578.07                    | 20                    | --                   | --                | --               | --                | --              | --                | 2.75               | 578.07-575.32     | 0.25            | 575.32-575.07     | --                         | --                | 4 (silty)                | 575.07-571.07     | 2.75              | 571.07-568.32     | --              | --                |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 4.25                     | 568.32-564.07     | 2                 | 564.07-562.07     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 1 (silty)                | 562.07-561.07     | 2                 | 561.07-559.07     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 1                        | 559.07-558.07     |                   |                   |                 |                   |                                                                                                                                                          |
| SB-628       | 8/26/2003      | 578.72                    | 20                    | --                   | --                | --               | --                | --              | --                | 5                  | 578.72-573.72     | 0.25            | 468.97-468.72     | --                         | --                | 4.75                     | 573.72-568.97     | 3                 | 567.72-565.22     | --              | --                |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 1 (sandy)                | 568.72-567.72     | 3.5               | 562.22-558.72     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 3                        | 565.22-562.22     |                   |                   |                 |                   |                                                                                                                                                          |
| SB-629       | 8/27/2003      | 582.94                    | 26                    | 4 (sand gravel fill) | 582.94-578.94     | --               | --                | --              | --                | 2                  | 578.94-576.94     | --              | --                | --                         | --                | 3 (silty)                | 576.94-573.94     | 8.5               | 573.94-565.44     | 4               | 582.94-578.94     | petro-like odor from 14 to 25 ftgs                                                                                                                       |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 1.5 (silty)              | 565.44-563.94     | 7                 | 563.94-556.94     |                 |                   |                                                                                                                                                          |
| SB-630       | 8/27/2003      | 582.31                    | 18                    | 6.5 (gravel fill)    | 582.31-575.81     | --               | --                | --              | --                | --                 | --                | --              | --                | --                         | --                | 1 (silty)                | 575.81-574.81     | 3                 | 574.81-571.81     | 6.5             | 582.31-575.81     |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 7.5                      | 571.81-564.31     |                   |                   |                 |                   |                                                                                                                                                          |
| SB-631       | 8/27/2003      | 584.54                    | 14                    | 4.5 (gravel fill)    | 584.54-580.04     | --               | --                | --              | --                | 3.5                | 579.54-576.04     | --              | --                | --                         | --                | 5.5                      | 576.04-570.54     | 0.5               | 580.04-579.54     | 5               | 584.54-579.54     |                                                                                                                                                          |
| SB-632       |                | 582.19                    | 16                    | 2                    | 582.19-580.19     | --               | --                | --              | --                | 3.5                | 580.19-576.69     | 0.5             | 572.69-572.19     | --                         | --                | 1.5 (silty)              | 576.69-575.19     | 2.5               | 575.19-572.69     | --              | --                |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 2.5                      | 568.69-566.19     | 3.5               | 572.19-568.69     |                 |                   |                                                                                                                                                          |
| SB-633       | 8/27/2003      | 582.06                    | 20                    | --                   | --                | --               | --                | --              | --                | 5                  | 582.06-577.06     | 0.25            | 575.06-574.81     | --                         | --                | 2 (silty)                | 577.06-575.06     | 4.25              | 574.81-570.56     | --              | --                | petro-like odor from 7.25-11; 14.5-19.5 ftgs                                                                                                             |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 3                        | 570.56-567.56     | 5                 | 567.56-562.56     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 0.5                      | 562.56-562.06     |                   |                   |                 |                   |                                                                                                                                                          |
| SB-634       | 8/27/2003      | 579.94                    | 20                    | --                   | --                | --               | --                | --              | --                | 4.25               | 579.94-575.69     | 0.5 (w/ clay)   | 573.44-572.94     | --                         | --                | 2.25                     | 575.69-573.44     | 1                 | 572.94-571.94     | --              | --                | trace emulsified coal tar/staining in sands (7-10 ftgs)                                                                                                  |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 0.5 (silty)              | 571.94-571.44     | 4.5               | 571.44-566.94     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 1 (silty)                | 566.94-565.94     | 4                 | 565.94-561.94     |                 |                   |                                                                                                                                                          |
|              |                |                           |                       |                      |                   |                  |                   |                 |                   |                    |                   |                 |                   |                            |                   | 2                        | 561.94-559.94     |                   |                   |                 |                   |                                                                                                                                                          |



Table 6 - Stratigraphic Summary  
Remedial Action Options Report  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Location ID      | Date Installed | Ground Elevation fmsl | Total Depth ft bgs | Toposil          |               | Gravel          |               | Cinder Fill  |               | Peat                             |               | Shell Layer  |               | Silt                                               |                         | Clay                            |                                                         | Sand                                    |                                           | Fill         |               | Comments/Fill Depths                                                                                                |
|------------------|----------------|-----------------------|--------------------|------------------|---------------|-----------------|---------------|--------------|---------------|----------------------------------|---------------|--------------|---------------|----------------------------------------------------|-------------------------|---------------------------------|---------------------------------------------------------|-----------------------------------------|-------------------------------------------|--------------|---------------|---------------------------------------------------------------------------------------------------------------------|
|                  |                |                       |                    | Thickness ft     | Interval fmsl | Thickness ft    | Interval fmsl | Thickness ft | Interval fmsl | Thickness ft                     | Interval fmsl | Thickness ft | Interval fmsl | Thickness ft                                       | Interval fmsl           | Thickness ft                    | Interval fmsl                                           | Thickness ft                            | Interval fmsl                             | Thickness ft | Interval fmsl |                                                                                                                     |
| TEST PITS        |                |                       |                    |                  |               |                 |               |              |               |                                  |               |              |               |                                                    |                         |                                 |                                                         |                                         |                                           |              |               |                                                                                                                     |
| TP-601           | 11/8/1994      | 583.75                | 5                  | 0.5 (silty sand) | 583.75-583.25 | --              | --            | 1 (w/ sand)  | 583.25-582.25 | --                               | --            | --           | --            | --                                                 | --                      | 0.5                             | 579.25-578.75                                           | 3                                       | 582.25-579.25                             | 1.5          | 583.75-582.25 | wood timbers present in marl                                                                                        |
| TP-602           | 11/8/1994      | 583.65                | 6.5                | --               | --            | --              | --            | --           | --            | 3                                | 581.65-578.65 | --           | --            | --                                                 | --                      | 2 (silty/sandy) 1.5 (marl)      | 583.65-581.65 578.65-577.15                             | --                                      | --                                        | 6.5          | 583.65-577.15 |                                                                                                                     |
| TP-603           | 11/8/1994      | 583.95                | 5                  | --               | --            | --              | --            | 0.5 (ash)    | 581.95-581.45 | 2                                | 581.45-579.45 | --           | --            | --                                                 | --                      | 0.5                             | 579.45-578.95                                           | 2 (silty)                               | 583.95-581.95                             | 4.5          | 583.95-579.45 | glass, wood, tile, brick 2.5-4.5 ftgs                                                                               |
| TP-604           | 11/8/1994      | 583.25                | 6                  | --               | --            | --              | --            | 3 (ash)      | 581.75-578.75 | --                               | --            | --           | --            | 1.5 (sandy)                                        | 583.25-581.75           | 1.5                             | 578.75-577.25                                           | --                                      | --                                        | 4.5          | 583.25-578.75 | sheen in cinder fill layer, odor                                                                                    |
| TP-605           | 11/8/1994      | 582.85                | 6                  | --               | --            | --              | --            | --           | --            | --                               | --            | --           | --            | --                                                 | --                      | 1                               | 577.85-576.85                                           | 5 (fill)                                | 582.85-577.85                             | 5            | 582.85-577.85 | blue/black sand at 4 ftgs                                                                                           |
| TP-606           | 11/8/1994      | 583.15                | 5.5                | --               | --            | --              | --            | 1            | 582.15-581.15 | --                               | --            | --           | --            | --                                                 | --                      | 0.5                             | 578.15-577.65                                           | 1 (w/ gravel) 3 (w/ silt)               | 583.15-582.15 581.15-578.15               | 5            | 583.15-578.15 | blue/black wood at 3 ftgs fill at 581.15-578.15                                                                     |
| TP-607           | 11/8/1994      | 583.35                | 5                  | --               | --            | --              | --            | 2 (w/ ash)   | 581.35-579.35 | --                               | --            | --           | --            | --                                                 | --                      | 1                               | 579.35-578.35                                           | 2 (w/ gravel)                           | 583.35-581.35                             | 4            | 583.35-579.35 |                                                                                                                     |
| TP-608           | 11/8/1994      | 583.85                | 6                  | --               | --            | --              | --            | 3 (w/ ash)   | 581.85-578.85 | --                               | --            | --           | --            | --                                                 | --                      | 1                               | 578.85-577.85                                           | 2 (w/ gravel)                           | 583.85-581.85                             | 5            | 583.85-578.85 | blue/black sand at 3.5 to 4 ftgs                                                                                    |
| TP-609           | 11/8/1994      | 585.05                | 5                  | --               | --            | --              | --            | 1 (slag)     | --            | --                               | --            | --           | --            | --                                                 | --                      | 1                               | 581.05-580.05                                           | 3                                       | 585.05-582.05                             | 4            | 585.05-581.05 | timbers                                                                                                             |
| TP-610           | 11/8/1994      | 582.75                | 4.5                | --               | --            | --              | --            | --           | --            | --                               | --            | --           | --            | 3                                                  | 581.75-578.75           | 1 (silt) 0.5                    | 582.75-581.75 578.75-578.25                             | --                                      | --                                        | 4            | 582.75-578.75 | blue black sand in sandy silt, mild to strong odor                                                                  |
| TP-611           | 11/8/1994      | 582.35                | 5                  | --               | --            | --              | --            | --           | --            | 1                                | 580.35-579.35 | --           | --            | 2                                                  | 582.35-580.35           | 1.5 (marl) 0.5                  | 579.35-577.85 577.85-577.35                             | --                                      | --                                        | 2            | 582.35-582.0  |                                                                                                                     |
| TP-612           | 11/8/1994      | 582.55                | 4.5                | --               | --            | --              | --            | --           | --            | 3                                | 581.55-578.55 | --           | --            | --                                                 | --                      | 1 0.5                           | 582.55-581.55 578.55-578.05                             | --                                      | --                                        | 4            | 582.55-578.55 | blue black sand in peat w/ strong odor                                                                              |
| TP-613           | 11/9/1994      | 583.35                | 5                  | --               | --            | --              | --            | --           | --            | 1.5 (some ash)                   | 580.35-578.85 | --           | --            | 1 (sandy)                                          | 582.35-581.35           | 1 (marl) 0.5                    | 581.35-580.35 578.85-578.35                             | 1 (w/ gravel)                           | 583.35-582.35                             | 4.5          | 583.35-578.85 |                                                                                                                     |
| TP-614           | 11/9/1994      | 583.95                | 4.5                | --               | --            | --              | --            | --           | --            | --                               | --            | --           | --            | 1 (sandy)                                          | 583.95-582.95           | 2 (silty sandy)                 | 581.45-579.45                                           | 1.5                                     | 582.95-581.45                             | 4.5          | 583.95-579.45 | sheen in clay, blue/black sand in clay                                                                              |
| TP-615           | 8/25/2003      | 582.55                | 9                  | 0.5              | 582.55-582.05 | --              | --            | 1            | 582.05-581.05 | 2.5                              | 581.05-578.55 | --           | --            | --                                                 | --                      | 5                               | 578.55-573.55                                           | clay grades to sandy clay               |                                           | 4            | 582.55-578.55 | odor 1.5-4 ftgs                                                                                                     |
| TP-616           | 8/25/2003      | 583.23                | 9                  | 2                | 583.23-581.23 | --              | --            | 3            | 581.23-578.23 | peat intermixed with cinder fill |               |              | --            | --                                                 | --                      | 4                               | 578.23-574.23                                           | --                                      | --                                        | 5            | 583.23-578.23 | blue wood present in the cinder fill (2-5 ftgs)                                                                     |
| TP-617           | 8/25/2003      | 582.04                | 10                 | 2                | 582.04-580.04 | --              | --            | --           | --            | 4                                | 580.04-576.04 | --           | --            | --                                                 | --                      | 4 (silty)                       | 576.04-572.04                                           | --                                      | --                                        | --           | --            | emulsified coal tar in peat (4-6 ft bgs), tar flowing at 2 ftgs                                                     |
| TP-618           | 8/25/2003      | 580.31                | 7                  | --               | --            | --              | --            | --           | --            | 3                                | 580.31-577.31 | --           | --            | --                                                 | --                      | 0.5 0.5                         | 577.31-576.81 573.81-573.31                             | 3                                       | 576.81-573.81                             | --           | --            |                                                                                                                     |
| TP-619           | 8/25/2003      | 582.07                | 14                 | 2                | 582.07-580.07 | --              | --            | --           | --            | 3                                | 580.07-577.07 | --           | --            | --                                                 | --                      | --                              | --                                                      | 9                                       | 577.07-568.07                             | --           | --            | emulsified coal tar present in sand (11-14 ft bgs)/blue wood in peat 2-5 ftgs                                       |
| TP-620           | 8/25/2003      | 581.09                | 12                 | --               | --            | --              | --            | --           | --            | 5                                | 581.09-576.09 | --           | --            | --                                                 | --                      | 7 (silty)                       | 576.09-569.09                                           | --                                      | --                                        | --           | --            |                                                                                                                     |
| TP-621           | 8/25/2003      | 578.62                | 9                  | --               | --            | --              | --            | --           | --            | 3.5                              | 578.62-575.12 | 0.25         | 575.12-574.87 | --                                                 | --                      | 4.75                            | 574.87-570.12                                           | 0.5                                     | 570.12-569.62                             | --           | --            | emulsified coal tar present in sand (8.5-9 ft bgs)                                                                  |
| TP-622           | 8/25/2003      | 582.26                | 11                 | --               | --            | 3 (fill/debris) | 582.26-579.26 | --           | --            | 2                                | 579.26-577.26 | --           | --            | --                                                 | --                      | 3                               | 574.26-571.26                                           | 3                                       | 577.26-574.26                             | 3            | 582.26-579.26 | slight odor 8-11 ftgs                                                                                               |
| TP-623           | 8/25/2003      | 582.39                | 9                  | 0.5              | 582.39-581.89 | --              | --            | 1            | 581.89-580.89 | 2.5                              | 580.89-578.39 | --           | --            | --                                                 | --                      | 5                               | 578.39-573.39                                           | --                                      | --                                        | 1.5          | 582.39-580.89 | blue color in peat (1.5-4 ftgs)                                                                                     |
| MONITORING WELLS |                |                       |                    |                  |               |                 |               |              |               |                                  |               |              |               |                                                    |                         |                                 |                                                         |                                         |                                           |              |               |                                                                                                                     |
| MW-601           | 11/8/1994      | 583.85                | 13                 | 0.5              | 583.85-583.35 | --              | --            | --           | --            | --                               | --            | --           | --            | --                                                 | --                      | 10.25                           | 582.85-572.60                                           | 0.5 1.75 (clayey)                       | 583.35-582.85 572.60-570.85               | --           | --            |                                                                                                                     |
| MW-602           | 11/8/1994      | 584.35                | 13                 |                  |               |                 |               |              |               |                                  |               |              |               |                                                    |                         | 9                               | 580.35-571.35                                           | 3 1 (silty)                             | 584.35-581.35 581.35-580.35               |              |               |                                                                                                                     |
| MW-603           | 11/8/1994      | 582.95                | 30                 | --               | --            | --              | --            | --           | --            | --                               | --            | --           | --            | 2.5                                                | 567.95-565.45           | 2.5 4 (silty) 4 12.5 (silty)    | 578.45-575.95 575.95-571.95 571.95-567.95 565.45-552.95 | 1 3.5                                   | 582.95-581.95 581.95-578.45               | 4.5          | 582.95-578.45 | timbers, glass, odor                                                                                                |
| MW-604           | 11/8/1994      | 584.35                | 13                 | --               | --            | --              | --            | --           | --            | 1                                | 579.35-578.35 | --           | --            | --                                                 | --                      | 2 (sandy with silt) 3 (silty) 4 | 584.35-582.35 578.35-575.35 575.35-571.35               | 3                                       | 582.35-579.35                             | --           | --            | odor and sheen at 3', strong odor in peat                                                                           |
| MW-605           | 11/10/1994     | 583.05                | 33                 | --               | --            | --              | --            | --           | --            | --                               | --            | --           | --            | 1 (sandy)                                          | 580.55-579.55           | 7.5 (sandy with silt) 14.5      | 579.55-572.05 564.55-550.05                             | 2.5 (silty) 7.5                         | 583.05-580.55 572.05-564.55               |              |               | 11'-14" emulsified coal tar, odor, sheen                                                                            |
| MW-606           | 11/10/1994     | 582.75                | 13                 | --               | --            | --              | --            | 2.5 (sand)   | 580.75-578.25 | --                               | --            | --           | --            | --                                                 | --                      | 8.5                             | 578.25-569.75                                           | 1.5 (silty)                             | 582.25-580.75                             | 4.5          | 582.75-578.25 | 0'-0.5' concrete                                                                                                    |
| MW-607           | 11/11/1994     | 581.75                | 34                 | --               | --            | --              | --            | --           | --            | --                               | --            | --           | --            | --                                                 | --                      | 8 (silty) 3                     | 570.75-562.75 550.75-547.75                             | 8 (silty with peat) 3 12                | 581.75-573.75 573.75-570.75 562.75-550.75 |              |               |                                                                                                                     |
| MW-608           | 11/28/1994     | 581.75                | 33                 | --               | --            | --              | --            | --           | --            | --                               | --            | --           | --            | --                                                 | --                      | 1.25 7.25 (silty) 13            | 576.75-575.5 572.75-565.5 561.75-548.75                 | 5 (silty w/ organics) 2.75 3.75 (silty) | 581.75-576.75 575.5-572.75 565.5-561.75   | --           | --            | MW-608A screened from 578.15-568.15 MW-608AB screened from 553.75-548.75                                            |
| MW-609           | 9/5/1996       | 582                   | 30                 | --               | --            | --              | --            | --           | --            | 1                                | 574-573       | --           | --            | 1 (sandy w/ conc) 6 (w/ clay and sand) 4 (w/ clay) | 581-580 568-562 560-556 | 1 (silty) 4 4                   | 573-572 572-568 556-552                                 | 1 6 (silty w/ gravel) 2 (w/ trace silt) | 582-581 580-574 562-560                   | 2            | 582-580       | emulsified coal tar in sand 10-14 ftgs, odor to 18 ftgs MW-609A screened from 579-569 MW-609B screened from 557-552 |

Notes:  
1. Ground elevation of SB-613 through SB-625 is approximate  
  
-- = not encountered  
\* soil boring was not installed

**Table 7 2003 Soil and Groundwater Sample Summary**  
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| Sample<br><br>ID <sup>1</sup> | Sample<br><br>Date | Depth,<br><br>(fbs) | Media       | Analysis Requested |                   |                   |                              |                               |                             |                             |                                |                                  |                  |                   |                                  |
|-------------------------------|--------------------|---------------------|-------------|--------------------|-------------------|-------------------|------------------------------|-------------------------------|-----------------------------|-----------------------------|--------------------------------|----------------------------------|------------------|-------------------|----------------------------------|
|                               |                    |                     |             | PVOCs <sup>2</sup> | PAHs <sup>3</sup> | Percent<br>Solids | Total<br>Sulfur <sup>4</sup> | Total<br>Sulfide <sup>4</sup> | WAD<br>Cyanide <sup>5</sup> | RCRA<br>Metals <sup>6</sup> | Dissolved<br>Iron <sup>7</sup> | Nitrate/<br>Nitrite <sup>8</sup> | BTU <sup>9</sup> | TOC <sup>10</sup> | Grainsize<br>Dist. <sup>11</sup> |
| Soil                          |                    |                     |             |                    |                   |                   |                              |                               |                             |                             |                                |                                  |                  |                   |                                  |
| TP-615(3.5)                   | 8/25/2003          | 3.5                 | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| TP-616(3-4)                   | 8/25/2003          | 3-4                 | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| TP-617(4-6)                   | 8/25/2003          | 4-6                 | soil        | X                  | X                 |                   | X                            | X                             | X                           | X                           |                                |                                  |                  |                   |                                  |
| TP-617(9-10)                  | 8/25/2003          | 9-10                | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| TP-619(14)                    | 8/25/2003          | 14                  | soil        | X                  | X                 |                   | X                            | X                             | X                           | X                           |                                |                                  |                  |                   |                                  |
| TP-620(4-5)                   | 8/25/2003          | 4-5                 | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| TP-620(11-12)                 | 8/25/2003          | 11-12               | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| TP-621(8.5-9)                 | 8/25/2003          | 8.5-9               | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| TP-622(11)                    | 8/25/2003          | 11                  | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| SB-626 (12-15)                | 8/26/2003          | 12-15               | soil        | X                  | X                 |                   | X                            | X                             | X                           | X                           |                                |                                  |                  |                   |                                  |
| SB-626 (16.5-20)              | 8/26/2003          | 16.5-20             | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| SB-628 (13.5-16.5)            | 8/26/2003          | 13.5-16.5           | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| SB-627 (9.75-14)              | 8/26/2003          | 9.75-14             | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| SB-629 (14-17.5)              | 8/27/2003          | 14-17.5             | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| SB-630 (14-18)                | 8/27/2003          | 14-18               | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| SB-631 (8.5-14)               | 8/27/2003          | 8.5-14              | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| SB-632 (10.5-13.5)            | 8/27/2003          | 10.5-13.5           | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| SB-633 (14.5-19.5)            | 8/27/2003          | 14.5-19.5           | soil        | X                  | X                 |                   | X                            | X                             | X                           |                             |                                |                                  |                  |                   |                                  |
| SB-634 (7-8)                  | 8/27/2003          | 7-8                 | soil        | X                  | X                 |                   |                              |                               |                             |                             |                                |                                  |                  |                   |                                  |
| SB-627 (4-10)                 | 9/2/2003           | (4-10)              | soil        |                    |                   | X                 |                              |                               |                             |                             |                                |                                  | X                | X                 | X                                |
| TP-615(1-3.5)                 | 9/2/2003           | (1-3.5)             | soil        |                    |                   | X                 |                              |                               |                             |                             |                                |                                  | X                | X                 | X                                |
| TP-616(3-4)                   | 9/2/2003           | (3-4)               | soil        |                    |                   | X                 |                              |                               |                             |                             |                                |                                  | X                | X                 | X                                |
| TP-617(3-4)                   | 9/2/2003           | (3-4)               | soil        |                    |                   | X                 |                              |                               |                             |                             |                                |                                  | X                | X                 | X                                |
| TP-617(4-6)                   | 9/2/2003           | (4-6)               | soil        |                    |                   | X                 |                              |                               |                             |                             |                                |                                  | X                | X                 |                                  |
| TP-618(4-5)                   | 9/2/2003           | (4-5)               | soil        |                    |                   | X                 |                              |                               |                             |                             |                                |                                  |                  | X                 | X                                |
| TP-621(7-9)                   | 9/2/2003           | (7-9)               | soil        |                    |                   | X                 |                              |                               |                             |                             |                                |                                  |                  | X                 | X                                |
| COMP TP615-TP616              | 9/2/2003           | representative      | soil        |                    |                   |                   |                              |                               |                             |                             |                                |                                  | X                | X                 |                                  |
| COMP TP-615,616,617           | 9/2/2003           | representative      | soil        |                    |                   |                   |                              |                               |                             |                             |                                |                                  | X                | X                 |                                  |
| Groundwater                   |                    |                     |             |                    |                   |                   |                              |                               |                             |                             |                                |                                  |                  |                   |                                  |
| MW-601                        | 7/2/2003           | --                  | groundwater | X                  | X                 |                   |                              | X                             |                             | X                           | X                              | X                                |                  | X                 |                                  |
| MW-602                        | 7/2/2003           | --                  | groundwater | X                  | X                 |                   |                              | X                             |                             | X                           | X                              | X                                |                  | X                 |                                  |
| MW-603A                       | 7/2/2003           | --                  | groundwater | X                  | X                 |                   |                              | X                             |                             | X                           | X                              | X                                |                  | X                 |                                  |
| MW-603B                       | 7/2/2003           | --                  | groundwater | X                  | X                 |                   |                              | X                             |                             | X                           | X                              | X                                |                  | X                 |                                  |
| MW-604                        | 7/2/2003           | --                  | groundwater | X                  | X                 |                   |                              | X                             |                             | X                           | X                              | X                                |                  | X                 |                                  |
| MW-605B                       | 7/2/2003           | --                  | groundwater | X                  | X                 |                   |                              | X                             |                             | X                           | X                              | X                                |                  | X                 |                                  |
| MW-606                        | 7/2/2003           | --                  | groundwater | X                  | X                 |                   |                              | X                             |                             | X                           | X                              | X                                |                  | X                 |                                  |
| MW-607A                       | 7/2/2003           | --                  | groundwater | X                  | X                 |                   |                              | X                             |                             | X                           | X                              | X                                |                  | X                 |                                  |

**Table 7 2003 Soil and Groundwater Sample Summary**  
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| Sample ID <sup>1</sup> | Sample Date | Depth, (fbgs) | Media       | Analysis Requested |                   |                |                           |                            |                          |                          |                             |                                  |                  |                   |                               |
|------------------------|-------------|---------------|-------------|--------------------|-------------------|----------------|---------------------------|----------------------------|--------------------------|--------------------------|-----------------------------|----------------------------------|------------------|-------------------|-------------------------------|
|                        |             |               |             | PVOCs <sup>2</sup> | PAHs <sup>3</sup> | Percent Solids | Total Sulfur <sup>4</sup> | Total Sulfide <sup>4</sup> | WAD Cyanide <sup>5</sup> | RCRA Metals <sup>6</sup> | Dissolved Iron <sup>7</sup> | Nitrate/<br>Nitrite <sup>8</sup> | BTU <sup>9</sup> | TOC <sup>10</sup> | Grainsize Dist. <sup>11</sup> |
| Groundwater Continued  |             |               |             |                    |                   |                |                           |                            |                          |                          |                             |                                  |                  |                   |                               |
| MW-608A                | 7/2/2003    | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-608B                | 7/2/2003    | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-609A                | 7/2/2003    | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-609B                | 7/2/2003    | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-610                 | 7/2/2003    | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-611                 | 7/2/2003    | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| QC-1 (Dup of MW-610)   | 7/2/2003    | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| QC-2 (dup of MW-611)   | 7/2/2003    | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-602                 | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-603A                | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-603B                | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-604                 | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-605B                | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-606                 | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-607A                | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-608A                | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-608B                | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-609A                | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-609B                | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-610                 | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| MW-611                 | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| QC-1 (Dup MW-603A)     | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |
| QC-2 (Dup MW-603B)     | 10/16/2003  | --            | groundwater | X                  | X                 |                |                           | X                          |                          | X                        | X                           | X                                |                  | X                 |                               |

Prepared by JMK/Checked by LFK

**NOTES:**

1. Sample locations are provided on Figure 2 and Sheet 2.
  2. Petroleum Volatile Organic Compounds (PVOCs) preserved with methanol and analyzed by SW846 Method 8021.
  3. Polynuclear Aromatic Hydrocarbons (PAHs) analyzed by EPA Method 8270C.
  4. Total Sulfur analyzed by Method 9038 and Total Sulfide analyzed by Method 9034/9030B.
  5. Weak Acid Dissociable cyanide analyzed by SW846 Method 9012A.
  6. Resource Conservation and Recovery Act (RCRA) Metals analyzed by SW 846 Methods 6020, 7471A, and 9012A.
  7. Dissolved Iron analyzed by Method SW846 6010B.
  8. Nitrogen, NO<sub>3</sub> + NO<sub>2</sub> analyzed by EPA 353.2.
  9. BTU = British Thermal Units by ASTM D240.
  10. TOC = Total Organic Carbon by SW846 M9060.
  11. Grainsize Distribution by ASTM D422.
- fbgs = feet below ground surface  
 -- = not applicable

**Table 8 August 2003 Soil Analytical Results - PVOCs<sup>1</sup>**  
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| Sample Location <sup>2</sup><br>(depth bgs) | Sample Date | Benzene<br>(ug/kg) | Ethylbenzene<br>(ug/kg) | Toluene<br>(ug/kg) | Total Xylene<br>(ug/kg) | 1,2,4-Trimethylbenzene<br>(ug/kg) | 1,3,5-Trimethylbenzene<br>(ug/kg) | Methyl-tert-butyl-ether<br>(ug/kg) |
|---------------------------------------------|-------------|--------------------|-------------------------|--------------------|-------------------------|-----------------------------------|-----------------------------------|------------------------------------|
| <b>Generic Guidance Values<sup>3</sup></b>  |             |                    |                         |                    |                         |                                   |                                   |                                    |
| Groundwater Pathway RCL                     |             | 5.5                | 2,900                   | 1,500              | 4,100                   | ns                                | ns                                | ns                                 |
| <b>SOIL BORINGS</b>                         |             |                    |                         |                    |                         |                                   |                                   |                                    |
| SB-626 (12-15)                              | 8/26/2003   | <u>4,200</u>       | <u>130,000</u>          | <u>14,000</u>      | <u>110,000</u>          | 47,000                            | 14,000                            | <620                               |
| SB-626 (16.5-20)                            | 8/26/2003   | <u>36</u>          | 200                     | <25                | 174                     | 82                                | 35                                | <25                                |
| SB-627 (9.75-14)                            | 8/26/2003   | <u>200</u>         | 220                     | <25                | 153                     | <25                               | <25                               | <25                                |
| SB-628 (13.5-16.5)                          | 8/26/2003   | <u>2,100</u>       | 1,800                   | <25                | 209                     | <25                               | <25                               | <25                                |
| SB-629 (14-17.5)                            | 8/27/2003   | <u>370</u>         | 350                     | <25                | 87                      | 92                                | <25                               | <25                                |
| SB-630 (14-18)                              | 8/27/2003   | <u>2,400</u>       | 1,600                   | 47                 | 880                     | 34                                | <25                               | <25                                |
| SB-631 (8.5-14)                             | 8/27/2003   | <25                | <25                     | <25                | <50                     | <25                               | <25                               | <25                                |
| SB-632 (10.5-13.5)                          | 8/27/2003   | <25                | <25                     | <25                | <50                     | <25                               | <25                               | <25                                |
| SB-633 (14.5-19.5)                          | 8/27/2003   | <25                | 110                     | <25                | <50                     | <25                               | <25                               | <25                                |
| SB-634 (7-8)                                | 8/27/2003   | <25                | <25                     | <25                | <50                     | <25                               | <25                               | <25                                |
| <b>TEST PITS</b>                            |             |                    |                         |                    |                         |                                   |                                   |                                    |
| TP-615(3.5)                                 | 8/25/2003   | <25                | <25                     | <25                | <50                     | <25                               | <25                               | <25                                |
| TP-616(3-4)                                 | 8/25/2003   | <u>130,000</u>     | <u>820,000</u>          | <u>6,400</u>       | <u>1,500,000</u>        | 210,000                           | 84,000                            | <1,000                             |
| TP-617(4-6)                                 | 8/25/2003   | <u>2,000</u>       | <u>68,000</u>           | 1,300              | <u>38,000</u>           | 29,000                            | 8,500                             | <500                               |
| TP-617(9-10)                                | 8/25/2003   | <u>260</u>         | 1,100                   | <25                | 760                     | 250                               | 59                                | <25                                |
| TP-619(14)                                  | 8/25/2003   | <100               | <u>18,000</u>           | <u>8,400</u>       | <u>17,000</u>           | 8,000                             | 2,300                             | <100                               |
| TP-620(4-5)                                 | 8/25/2003   | <25                | <25                     | <25                | <50                     | <25                               | <25                               | <25                                |
| TP-620(11-12)                               | 8/25/2003   | <u>3,100</u>       | 2,400                   | 33                 | <u>2,040</u>            | 350                               | 100                               | <25                                |
| TP-621(8.5-9)                               | 8/25/2003   | <u>1,800</u>       | <u>3,100</u>            | 48                 | <u>2,110</u>            | 960                               | 300                               | <25                                |
| TP-622(11)                                  | 8/25/2003   | <u>53</u>          | 310                     | <25                | 169                     | 93                                | <25                               | <25                                |

Prepared by JMK/Checked by EPK

**Notes:**

1. Petroleum Volatile Organic Compounds (PVOCs) analyzed by EnChem, Inc., Green Bay, Wisconsin, by SW846 Method 8021.
2. Sample locations are provided on Figure 2 and Sheet 2.
3. Groundwater Pathway RCL from Wisconsin Administrative Code Department of Natural Resources Chapter NR 720.09 Table 1 Residual Contaminant Levels Protective of groundwater, January 2001.

fbgs = feet below ground surface

ug/kg = micrograms per kilogram

< = constituent was analyzed for but not detected at the listed detection limit

RCL = residual contaminant levels

Q = analyte was detected between the limit of detection and limit of quantitation.

K = detection limit may be elevated due to the presence of an unrequested analyte

Concentrations attaining or exceeding the NR 720 RCL are **bold/underlined**.

Table 9 Analytical 2003 Soil Analytical Results - PAHs<sup>1</sup>  
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| Sample Location (depth<br>fbgs) <sup>2</sup>                | Sample<br>Date | 1-Methylnaphthalene<br>(ug/kg) | 2-Methylnaphthalene<br>(ug/kg) | Acenaphthene<br>(ug/kg) | Acenaphthylene<br>(ug/kg) | Anthracene<br>(ug/kg) | Benzo(a)anthracene<br>(ug/kg) | Benzo(a)pyrene<br>(ug/kg) | Benzo(b)fluoranthene<br>(ug/kg) | Benzo(ghi)perylene<br>(ug/kg) | Benzo(k)fluoranthene<br>(ug/kg) | Chrysene<br>(ug/kg) | Dibenzo(a,h)anthracene<br>(ug/kg) | Fluoranthene<br>(ug/kg) | Fluorene<br>(ug/kg) | Indeno(1,2,3-cd)pyrene<br>(ug/kg) | Naphthalene<br>(ug/kg) | Phenanthrene<br>(ug/kg) | Pyrene<br>(ug/kg) |
|-------------------------------------------------------------|----------------|--------------------------------|--------------------------------|-------------------------|---------------------------|-----------------------|-------------------------------|---------------------------|---------------------------------|-------------------------------|---------------------------------|---------------------|-----------------------------------|-------------------------|---------------------|-----------------------------------|------------------------|-------------------------|-------------------|
| WDNR Draft Generic Soil Cleanup Levels (DSCLs) <sup>3</sup> |                |                                |                                |                         |                           |                       |                               |                           |                                 |                               |                                 |                     |                                   |                         |                     |                                   |                        |                         |                   |
| Groundwater Pathway RCL                                     |                | 23,000                         | 20,000                         | 38,000                  | 700                       | 3,000,000             | 17,000                        | 48,000                    | 360,000                         | 6,800,000                     | 870,000                         | 37,000              | 38,000                            | 500,000                 | 100,000             | 680,000                           | 400                    | 1,800                   | 8,700,000         |
| DCP - Non-Industrial RCL                                    |                | 1,100,000                      | 600,000                        | 900,000                 | 18,000                    | 5,000,000             | 88                            | 8.8                       | 88                              | 1,800                         | 880                             | 8,800               | 8.8                               | 600,000                 | 600,000             | 88                                | 20,000                 | 18,000                  | 500,000           |
| DCP - Industrial RCL                                        |                | 70,000,000                     | 40,000,000                     | 60,000,000              | 360,000                   | 300,000,000           | 3,900                         | 390                       | 3,900                           | 39,000                        | 39,000                          | 390,000             | 390                               | 40,000,000              | 40,000,000          | 3,900                             | 110,000                | 390,000                 | 30,000,000        |
| SOIL BORINGS                                                |                |                                |                                |                         |                           |                       |                               |                           |                                 |                               |                                 |                     |                                   |                         |                     |                                   |                        |                         |                   |
| SB-626 (12-15)                                              | 8/26/2003      | 420,000                        | 510,000                        | 380,000                 | 51000 Q                   | 210,000               | 78,000                        | 75,000                    | 25000 Q                         | 28000 Q                       | 56,000                          | 87,000              | <9,700                            | 180,000                 | 200,000             | 26000 Q                           | 1,100,000              | 540,000                 | 280,000           |
| SB-626 (16.5-20)                                            | 8/26/2003      | 970                            | 1,300                          | 290                     | 730 *                     | 160                   | 68                            | 51                        | 27 Q                            | 33 Q                          | 34 Q                            | 64                  | <19                               | 180                     | 180                 | <28                               | 2,200                  | 580                     | 280               |
| SB-627 (9.75-14)                                            | 8/26/2003      | <8.9                           | <9.6                           | <14                     | <23                       | <14                   | <7.6                          | <7.6                      | <8.3                            | <15                           | <11                             | <8.8                | <9.4                              | <10                     | <7.6                | <14                               | 58                     | 11 Q                    | <17               |
| SB-628 (13.5-16.5)                                          | 8/26/2003      | 8.7 Q                          | 13 Q                           | <13                     | 26 Q                      | <13                   | 59                            | 78                        | 47                              | 45 Q                          | 50                              | 67                  | <9.0                              | 64                      | <7.3                | 30 Q                              | 83                     | 24 Q                    | 120               |
| SB-629 (14-17.5)                                            | 8/27/2003      | 290                            | 120                            | 240                     | <45                       | <28                   | <15                           | <15                       | <16                             | <30                           | <23                             | <17                 | <19                               | <20                     | <15                 | <28                               | 550                    | <20                     | <33               |
| SB-630 (14-18)                                              | 8/27/2003      | <8.7                           | <9.3                           | <14                     | <22                       | <14                   | <7.4                          | <7.4                      | <8.1                            | <15                           | <11                             | <8.5                | <9.2                              | <9.9                    | <7.4                | <14                               | 340                    | <9.9                    | <16               |
| SB-631 (8.5-14)                                             | 8/27/2003      | <8.7                           | <9.3                           | <14                     | <22                       | <14                   | <7.4                          | <7.4                      | <8.0                            | <15                           | <11                             | <8.5                | <9.2                              | <9.9                    | <7.4                | <14                               | <9.3                   | <9.9                    | <16               |
| SB-632 (10.5-13.5)                                          | 8/27/2003      | <8.8*                          | <9.4                           | <14                     | <23                       | <14                   | <7.5                          | <7.5                      | <8.1                            | <15                           | <11                             | <8.6                | <9.3                              | <10                     | <7.5                | <14                               | <9.4 &*                | <10                     | <16               |
| SB-633 (14.5-19.5)                                          | 8/27/2003      | <8.7*                          | <9.3                           | <14                     | <22                       | <14                   | <7.5                          | <7.5                      | <8.1                            | <15                           | <11                             | <8.6                | <9.2                              | <9.9                    | <7.5                | <14                               | 68 &*                  | 10 Q                    | <16               |
| SB-634 (7-8)                                                | 8/27/2003      | 10 Q*                          | 18 Q                           | <14                     | <23                       | <14                   | <7.6                          | <7.6                      | <8.2                            | <15                           | <11                             | <8.7                | <9.3                              | <10                     | <7.6                | <14                               | <9.4 &*                | <10                     | <16               |
| TEST PITS                                                   |                |                                |                                |                         |                           |                       |                               |                           |                                 |                               |                                 |                     |                                   |                         |                     |                                   |                        |                         |                   |
| TP-615(3.5)                                                 | 8/25/2003      | <10                            | <11                            | <16                     | <26                       | <16                   | 31                            | 45                        | 34                              | 23 Q                          | 39 Q                            | 39                  | <11                               | 50                      | <8.6                | 27 Q                              | 16 Q                   | 31 Q                    | 56 Q              |
| TP-616(3-4)                                                 | 8/25/2003      | 100,000                        | 100,000                        | 89,000                  | 7200 Q                    | 54,000                | 26,000                        | 23,000                    | 7,200                           | 9,700                         | 15,000                          | 26,000              | 2700 Q                            | 58,000                  | 44,000              | 8,700                             | 100,000                | 160,000                 | 80,000            |
| TP-617(4-6)                                                 | 8/25/2003      | 41,000                         | 57,000                         | 27,000                  | 19,000                    | 25,000                | 11,000                        | 11,000                    | 3,800                           | 3500 Q                        | 7,400                           | 11,000              | 980 Q                             | 25,000                  | 21,000              | 3700 Q                            | 83,000                 | 75,000                  | 38,000            |
| TP-617(9-10)                                                | 8/25/2003      | 160                            | 74 Q                           | <73                     | <120                      | <73                   | <40                           | <40                       | <43                             | <80                           | <60                             | <46                 | <49                               | <53                     | <40                 | <73                               | 3,800                  | <53                     | <87               |
| TP-619(14)                                                  | 8/25/2003      | 13,000                         | 17,000                         | 2,300                   | 9,700                     | 5,600                 | 2,700                         | 2,300                     | 820                             | 1,100                         | 1,500                           | 2,700               | 230 Q                             | 5,400                   | 4,700               | 960 Q                             | 28,000                 | 17,000                  | 7,800             |
| TP-620(4-5)                                                 | 8/25/2003      | <72                            | <77                            | <110                    | <190                      | <110                  | <62                           | <62                       | <67                             | <120                          | <93                             | <71                 | <76                               | <82                     | <62                 | <110                              | <77                    | <82                     | <130              |
| TP-620(11-12)                                               | 8/25/2003      | 31 Q                           | 30 Q                           | <18                     | <29                       | <18                   | <9.7                          | <9.7                      | <10                             | <19                           | <14                             | <11                 | <12                               | <13                     | <9.7                | <18                               | 2,000                  | <13                     | <21               |
| TP-621(8.5-9)                                               | 8/25/2003      | 2,400                          | 2,600                          | 1,100                   | <270                      | <170                  | <90                           | <90                       | <98                             | <180                          | <140                            | <100                | <110                              | <120                    | <90                 | <170                              | 12,000                 | <120                    | <200              |
| TP-622(11)                                                  | 8/25/2003      | 310                            | 150                            | 350                     | <23                       | <14                   | <7.8                          | <7.8                      | <8.5                            | <16                           | <12                             | <9.0                | <9.6                              | <10                     | 77                  | <14                               | 1,600                  | <10                     | <17               |

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- Notes:
1. Polynuclear Aromatic Hydrocarbons (PAHs) analyzed by EnChem, Inc., Green Bay, Wisconsin, by EPA Method 8270C.
  2. Sample locations are provided on Figure 2 and Sheet 2.
  3. Wisconsin Department of Natural Resources Draft Soil Cleanup Levels (DSCLs) from Table 1 of the Soil Cleanup Levels for Polycyclic Aromatic Hydrocarbons Interim Guidance Document, April 1997.

fbgs = feet below ground surface  
ug/kg = micrograms per kilogram  
< = constituent was analyzed for but not detected at the listed detection limit  
RCL = residual contaminant levels  
DCP = Direct Contact Pathway  
Q = analyte was detected between the limit of detection and limit of quantitation.  
\* = Precison not within control limits.  
& = Laboratory control spike recovery not within control limits.  
Concentrations attaining or exceeding the NR 720 RCL are **bold/underlined**.

**Table 10 Soil Analytical Results -RCRA Metals, Sulfide, Sulfur, and Cyanides<sup>1</sup>**  
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| Sample Location<br>(depth fbgs)           | Sample Date | Percent Solids (%) | Sulfide (mg/kg) | Sulfur (mg/kg) | Cyanide Weak and Dissociable (mg/kg) | Total Cyanide (mg/kg) | RCRA Metals     |                |                 |                  |              |                  |                |                 |
|-------------------------------------------|-------------|--------------------|-----------------|----------------|--------------------------------------|-----------------------|-----------------|----------------|-----------------|------------------|--------------|------------------|----------------|-----------------|
|                                           |             |                    |                 |                |                                      |                       | Arsenic (mg/kg) | Barium (mg/kg) | Cadmium (mg/kg) | Chromium (mg/kg) | Lead (mg/kg) | Selenium (mg/kg) | Silver (mg/kg) | Mercury (mg/kg) |
| NR720 Generic Direct Contact <sup>3</sup> |             |                    |                 |                |                                      |                       |                 |                |                 |                  |              |                  |                |                 |
| RCL Non-Industrial                        |             | ns                 | ns              | ns             | ns                                   | ns                    | 0.039           | ns             | 8               | ns               | 50           | ns               | ns             | ns              |
| RCL Industrial                            |             | ns                 | ns              | ns             | ns                                   | ns                    | 1.6             | ns             | 510             | ns               | 500          | ns               | ns             | ns              |
| SOIL BORINGS                              |             |                    |                 |                |                                      |                       |                 |                |                 |                  |              |                  |                |                 |
| SB-626 (12-15)                            | 8/26/2003   | 76.0               | <31             | 200 Q          | <0.14                                | na                    | 0.61            | 9.1            | <0.045          | 4.1              | 1.2          | 0.43 Q           | <0.026         | 0.0045 Q        |
| SB-626 (16.5-20)                          | 8/26/2003   | 79.3               | <32             | 100 Q          | <0.13                                | na                    | na              | na             | na              | na               | na           | na               | na             | na              |
| SB-627 (9.75-14)                          | 8/26/2003   | 78.5               | <31             | <100           | <0.13                                | na                    | na              | na             | na              | na               | na           | na               | na             | na              |
| SB-628 (13.5-16.5)                        | 8/26/2003   | 82.1               | <31             | <100           | <0.13                                | na                    | na              | na             | na              | na               | na           | na               | na             | na              |
| SB-629 (14-17.5)                          | 8/27/2003   | 79.8               | <30             | 300 Q          | <0.13                                | na                    | na              | na             | na              | na               | na           | na               | na             | na              |
| SB-630 (14-18)                            | 8/27/2003   | 80.7               | <39             | 100 Q          | <0.13                                | na                    | na              | na             | na              | na               | na           | na               | na             | na              |
| SB-631 (8.5-14)                           | 8/27/2003   | 80.8               | <36             | <100           | <0.13                                | na                    | na              | na             | na              | na               | na           | na               | na             | na              |
| SB-632 (10.5-13.5)                        | 8/27/2003   | 79.8               | <36             | 420            | <0.13                                | na                    | na              | na             | na              | na               | na           | na               | na             | na              |
| SB-633 (14.5-19.5)                        | 8/27/2003   | 80.5               | <33             | 330            | <0.13                                | na                    | na              | na             | na              | na               | na           | na               | na             | na              |
| SB-634 (7-8)                              | 8/27/2003   | 79.4               | na              | na             | na                                   | na                    | na              | na             | na              | na               | na           | na               | na             | na              |
| TEST PITS                                 |             |                    |                 |                |                                      |                       |                 |                |                 |                  |              |                  |                |                 |
| TP-615(3.5)                               | 8/25/2003   | 69.9               | 880             | 13,000         | na                                   | 4.3                   | na              | na             | na              | na               | na           | na               | na             | na              |
| TP-616(3-4)                               | 8/25/2003   | 42.1               | <58             | 4,100          | na                                   | 2.1                   | na              | na             | na              | na               | na           | na               | na             | na              |
| TP-617(4-6)                               | 8/25/2003   | 75.6               | <25             | 5,500          | na                                   | 3.3                   | 1.5             | 26             | 0.14 Q          | 7.2              | 2.1          | 1.0              | 0.026 Q        | 0.0044 Q        |
| TP-617(9-10)                              | 8/25/2003   | 80.0               | <24             | 300 Q          | na                                   | 1.4                   | na              | na             | na              | na               | na           | na               | na             | na              |
| TP-619(14)                                | 8/25/2003   | 75.9               | <26             | 410            | na                                   | 0.16 Q                | 0.57            | 19             | 0.11 Q          | 5.2              | 2.2          | <0.25            | <0.026         | 0.017           |
| TP-620(4-5)                               | 8/25/2003   | 19.4               | <230            | 310 Q          | na                                   | 0.63 Q                | na              | na             | na              | na               | na           | na               | na             | na              |
| TP-620(11-12)                             | 8/25/2003   | 82.8               | <24             | 100 Q          | na                                   | 1.3                   | na              | na             | na              | na               | na           | na               | na             | na              |
| TP-621(8.5-9)                             | 8/25/2003   | 70.8               | <30             | 300 Q          | na                                   | 0.70                  | na              | na             | na              | na               | na           | na               | na             | na              |
| TP-622(11)                                | 8/25/2003   | 81.0               | <26             | <100           | na                                   | 0.14 Q                | na              | na             | na              | na               | na           | na               | na             | na              |

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**Notes:**

1. Percent Solids analyzed by SM 2450 G, sulfide analyzed by Method 9034/9030B, sulfur analyzed by Method 9038, weak and dissociable cyanide analyzed by Method SM 4500, Total Cyanide by SW846 9012A, RCRA metals by SW846 Method 6020 (mercury by 7471A). Analysis performed by EnChem Inc., Green Bay, Wisconsin.
2. Sample Locations provided on Figure 2 and Sheet 2.
3. Wisconsin Administrative Code Department of Natural Resources Chapter NR 720.11 Table 2 Residual Contaminant Levels, January 2001.

fbgs = feet below ground surface

% = percent

mg/Kg = milligrams per kilogram

< = constituent was analyzed for but not detected at the listed detection limit

Q = analyte was detected between the limit of detection and limit of quantitation.

na = not analyzed

ns = no standard exists

Concentrations attaining or exceeding the NR 720 RCL are bold/underlined.

**Table 11 Soil Analytical Results - Treatment Parameters**  
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| Sample Location<br>(depth fbgs) | Sample Description                                                          | Sample Date | Percent Solids (%) | Sulfide (mg/kg)  | Sulfur (mg/kg)      | BTU (BTU/lb) | TOC (as NPOC) (mg/kg) | Grain Size Classification <sup>4</sup> |
|---------------------------------|-----------------------------------------------------------------------------|-------------|--------------------|------------------|---------------------|--------------|-----------------------|----------------------------------------|
| <b>SOIL BORINGS</b>             |                                                                             |             |                    |                  |                     |              |                       |                                        |
| SB-627 (4-10)                   | silty clay, soft, wet                                                       | 9/2/2003    | 77.7               | <31 <sup>5</sup> | <100 <sup>5</sup>   | 980          | 54,000                | lean clay                              |
| <b>TEST PITS</b>                |                                                                             |             |                    |                  |                     |              |                       |                                        |
| TP-615(1-3.5)                   | gravel, cinder, timber fill w/ sand and peat, dry to moist                  | 9/2/2003    | 21.5               | 880 <sup>6</sup> | 13,000 <sup>6</sup> | 1,800        | 280,000               | clayey sand w/gravel                   |
| TP-616(3-4)                     | sand w/ gravel, cinder, timber fill and peat, blue wood, tar-like odor, dry | 9/2/2003    | 42.4               | <58              | 4,100               | 1,600        | 99,000                | sand w/silt and gravel                 |
| TP-617(3-4)                     | peat w/sand, sheen, odor, wet                                               | 9/2/2003    | 80.8               | na               | na                  | 350          | 130,000               | sand w/silt and gravel                 |
| TP-617(4-6)                     | peat w/ silty clay wet w/ tar                                               | 9/2/2003    | 50.4               | <25              | 5,500               | 340          | 45,000                | na                                     |
| TP-618(4-5)                     | sand, wet                                                                   | 9/2/2003    | 81.0               | na               | na                  | na           | 2,400                 | sand w/silt                            |
| TP-621(7-9)                     | clay and sand w/ tar, wet                                                   | 9/2/2003    | 76.6               | <30 <sup>7</sup> | 300 Q <sup>7</sup>  | na           | 44,000                | lean clay w/sand                       |
| <b>TEST PITS</b>                |                                                                             |             |                    |                  |                     |              |                       |                                        |
| COMP TP615-TP616                | cinder fill, sand, timber, blue wood, dry                                   | 9/2/2003    | na                 | na               | na                  | 1,600        | 140,000               | na                                     |
| COMP TP-615,TP-616,TP-617       | cinder fill, sand, timber, blue wood, peat, dry                             | 9/2/2003    | na                 | na               | na                  | 760          | 120,000               | na                                     |

Prepared by JMK/Checked by EPK

**Notes:**

1. Percent Solids analyzed by SM 2450 G, sulfide analyzed by Method 9034/9030B, sulfur analyzed by Method 9038, BTU analyzed by D240, TOC analyzed by SW 846 Method 9060, grain size by ASTM D422. Analysis performed by EnChem Inc., Green Bay, Wisconsin. Grain size subcontracted to CQM, Inc.
2. Sample Locations provided on Figure 2 and Sheet 2.
3. Wisconsin Administrative Code Department of Natural Resources Chapter NR 720.11 Table 2 Residual Contaminant Levels, January 2001.
4. Grain size distribution curves provided in Appendix E.
5. Sulfide and sulfur results from SB-627 (9.75-14).
6. Sulfide and sulfur results from TP-615 (3.5).
7. Sulfide and sulfur results from TP-621 (8.5-9).

fbgs = feet below ground surface

% = percent

mg/kg = milligrams per kilogram

< = constituent was analyzed for but not detected at the listed detection limit

Q = analyte was detected between the limit of detection and limit of quantitation.

na = not analyzed



Table 12 - Screening of Remedial Options Summary  
Remedial Action Options Report  
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| TECHNOLOGY OPTION                                | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TECHNICAL FEASIBILITY                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                   | ENGINEERING AND INSTITUTIONAL CONTROLS                                                                                                                                                                                                                                                                                                                                    | ECONOMIC FEASIBILITY                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | LONG TERM EFFECTIVENESS                                                                                                                                                                                                                                                        | SHORT TERM EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                                                                                   | IMPLEMENTABILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | RESTORATION TIME FRAME                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                          |
| Upland Control Actions                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                          |
| 1A - Excavation with On-Site Thermal Desorption  | Soils affected by MGP residuals (ash/cinders, blue wood chips, coal tar residuals, etc.) in the vicinity of the former gas plant structures are excavated to their vertical extent (approximately 4 to 5 feet bgs) and treated on site. Impacted soils are fed into a medium temperature thermal desorber. Excavated soils are screened, debris is landfilled, and MGP residuals are volatilized and vapors are destroyed in an oxidizer at temperatures up to 1200°F. Treated material will be used as backfill. Includes the eastern and southeastern portions of the site.        | The volume of upland contamination would be substantially reduced. Direct contact exposure would be minimized. Reduces further groundwater impacts. Thermal treatment well demonstrated at MGP sites. Contaminant destruction removal efficiency (DRE) >99% for VOCs and PAHs. | Proven technology for MGP site remediation. Potential for direct contact exposure during excavation. Excavation remains open during treatment. May require excavation dewatering, treatment, and discharge. Potential for fugitive VOC emissions and nuisance odor require perimeter and workzone air monitoring during excavation and treatment. Reuse of treated soils.                                                  | Shoring not required for shallow excavation, sidewalls can be sloped. Excavation and thermal treatment contractors are readily available. Debris in soil may be extensive and require additional stockpiling areas. High BTU, sulfur, and moisture content may require blending with clean material to meet feedstock requirements. Site has sufficient, but limited area available for the staging of the treatment unit, untreated soil, screening equipment, debris stockpile, treated soil stockpile, dewatering and water treatment equipment. Treated soils can be tested to verify treatment goals have been met prior to use as backfill.                                                                                                                                        | Removal of shallow MGP impacted soil would reduce potential impacts to groundwater and direct contact. Reduce time frame to meet applicable groundwater standards due to contaminant mass removal in unsaturated soil. Restoration time frame dependent on the extent and quantity of material thermally treated. | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Perimeter fence</li><li>● Erosion controls</li><li>● Excavation dewatering</li><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li><li>● Soil screening structure</li><li>● Perimeter misting system</li></ul> | HIGH RELATIVE TOTAL COST - Relatively cost effective; costs could increase substantially if excessive blending is required to meet BTU, sulfur, and moisture content requirements. Capital costs are substantial. Initial costs for design, treatment, and testing. Annual costs for routine groundwater monitoring/reporting. Potential future liability is limited.                    |
| 1B - Excavation with Off-Site Thermal Desorption | Soils affected by MGP residuals (ash/cinders, blue wood chips, coal tar residuals, etc.) in the vicinity of the former gas plant structures are excavated to their vertical extent (approximately 4 to 5 feet bgs) and treated off site. Impacted soils are fed into an off-site medium temperature thermal treatment unit. Excavated soils are screened, debris is landfilled, and MGP residuals are volatilized and vapors are destroyed in an oxidizer at temperatures up to 1200°F. Clean backfill will be imported. Includes the eastern and southeastern portions of the site. | The volume of upland contamination would be substantially reduced. Direct contact exposure would be minimized. Reduces further groundwater impacts. Off-site thermal treatment; DRE >99% for VOCs and PAHs.                                                                    | Proven technology for MGP site remediation. Potential for direct contact exposure during excavation. Excavations backfilled nearly as soon as it is removed. Shorter duration of excavation dewatering, treatment, and discharge than Option 1A. Potential for fugitive VOC emissions and nuisance odor require perimeter and workzone air monitoring during excavation. Treated materials recycled by treatment facility. | Shoring not required for shallow excavation, sidewalls can be sloped. Excavation contractors are readily available. Off-site thermal treatment facilities are located within 400 miles of the site. Debris in soil may be extensive and require additional stockpiling areas. High BTU and sulfur content would be managed by the treatment facility. Soil may require dewatering prior to transportation if excessive moisture exists. Additional contract requirements for transporting the materials to the treatment facility. Possibility of generating characteristically hazardous waste based on ignitability or reactivity exists. Site has sufficient, but limited area available for the staging excavated material, screening debris, and dewatering material for transport. | Removal of shallow MGP impacted soil would reduce potential impacts to groundwater and direct contact. Reduce time frame to meet applicable groundwater standards due to contaminant mass removal in unsaturated soil. Restoration time frame nearly immediately after excavation.                                | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Perimeter fence</li><li>● Erosion controls</li><li>● Excavation dewatering</li><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li></ul>                                                                       | HIGH RELATIVE TOTAL COST - Costs include excavation, transportation, off-site treatment, and respective contract management, likely to all be separate contractors requiring additional coordination. Capital costs are substantial. Initial costs for design, treatment, and testing. Annual costs for routine groundwater monitoring/reporting. Potential future liability is limited. |



Table 12 - Screening of Remedial Options Summary  
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| TECHNOLOGY OPTION                    | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                | TECHNICAL FEASIBILITY                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                           | ENGINEERING AND INSTITUTIONAL CONTROLS                                                                                                                                                                                                                                                              | ECONOMIC FEASIBILITY                                                                                                                                                                                                                                                              |
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|                                      |                                                                                                                                                                                                                                                                                                                                                                            | LONG TERM EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                                                  | SHORT TERM EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                              | IMPLEMENTABILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | RESTORATION TIME FRAME                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                   |
| <b>Upland Control Actions</b>        |                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                   |
| 1C - Excavation Disposal at Landfill | Soils affected by MGP residuals (ash/cinders, blue wood chips, coal tar residuals, etc.) in the vicinity of the former gas plant structures are excavated to their vertical extent (approximately 4 to 5 feet bgs) and disposed off site in an approved solid waste landfill. Clean backfill will be imported. Includes the eastern and southeastern portions of the site. | The volume of upland contamination would be substantially reduced. Direct contact exposure would be minimized. Reduces further groundwater impacts. Off-site disposal to a solid waste landfill without treatment.                                                                                                                                                                       | Proven technology for MGP site remediation. Potential for direct contact exposure during excavation. Excavations backfilled nearly as soon as it is removed. May require less excavation dewatering, treatment, and discharge than Option 1A. Potential for fugitive VOC emissions and nuisance odor require perimeter and workzone air monitoring during excavation. | Shoring not required for shallow excavation, sidewalls can be sloped. Excavation contractors is readily available. At least one solid waste landfill within 30 miles of the site. Debris in soil does not require screening and stockpiling. Soil may require dewatering prior to transportation if excessive moisture exists. Possibility of generating characteristically hazardous waste based on ignitability or reactivity exists. Site has sufficient, but limited area available for the staging excavated material, and dewatering material for transport.                            | Removal of shallow MGP impacted soil would reduce potential impacts to groundwater and direct contact. Reduce time frame to meet applicable groundwater standards due to contaminant mass removal in unsaturated soil. Restoration time frame nearly immediately after excavation.                                        | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Perimeter fence</li><li>● Erosion controls</li><li>● Excavation dewatering</li><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li></ul> | MODERATE RELATIVE TOTAL COST - Costs include excavation, transportation, disposal. Capital costs are substantial. Initial costs for design and tipping fees. Annual costs for routine groundwater monitoring/reporting. Potential future liability greater than Option 1A and 1B. |
| 2A - Geosynthetic Cover              | Capping of contaminated MGP soils using surficial seal. Purpose of surface seal would be to limit direct contact. Engineered cover of geosynthetic material covered with 1-foot thickness of soil/vegetation.                                                                                                                                                              | No treatment or contaminant removal, provides long term protection for potential direct contact and surface water, may improve groundwater quality by acting as a barrier to reduce infiltration through unsaturated soil with MGP residuals. Saturated soil remain in contact with groundwater. Engineered cover requires monitoring and maintenance to ensure protection of receptors. | Effective capping technology with implementation quality assurance/quality control plan. Direct contact exposure during construction is less than Options 1A, 1B & 1C. Low potential for fugitive VOC emissions and nuisance odors.                                                                                                                                   | Relatively easy implementation, requires limited grading, debris removal, and quality control, technology is readily available, area is easily accessible. Requires long term monitoring to verify cap is intact. May require a soil management plan during future site development if the area is to be excavated as part of redevelopment.                                                                                                                                                                                                                                                  | Immediate protection for direct contact and surface water exposure pathways. Long term reduction in contaminant leaching to groundwater from MGP materials. Groundwater impacts are unlikely to be significantly reduced without addressing the impacted saturated material or including a groundwater technology option. | The technology serves as an engineering control for direct contact with upland area MGP residuals.                                                                                                                                                                                                  | LOW RELATIVE TOTAL COST - Construction of an engineered cover provides a low cost option to minimize direct contact exposure.                                                                                                                                                     |
| 2B - Asphalt Capping                 | Capping of contaminated MGP soils using surficial seal. Purpose of surface seal would be to limit direct contact. Engineered cap using a total of approximately 1-foot thickness including asphalt and base course materials.                                                                                                                                              | No treatment or contaminant removal, provides long term protection for potential direct contact and surface water, may improve groundwater quality by acting as a barrier to reduce infiltration through impacted MGP material. Saturated soil remains in contact with groundwater. Engineered cap requires monitoring and maintenance to ensure protection of receptors.                | Effective capping technology. Direct contact exposure during construction is less than Options 1A, 1B & 1C. Low potential for fugitive VOC emissions and nuisance odors.                                                                                                                                                                                              | Relatively easy implementation, requires limited grading, debris removal, and quality control, technology is readily available, area is easily accessible. Requires long term monitoring to verify cap is intact and resealing every 5 years. An engineered cap can be integrated with future site redevelopment needs as parking area, may be used as a staging pad for site activities (daily linemen activities and other source or downgradient area options). May require a soil management plan during future site development if the area is to be excavated as part of redevelopment. | Immediate protection for direct contact and surface water exposure pathways. Long term reduction in contaminant leaching to groundwater from MGP materials. Groundwater impacts are unlikely to be significantly reduced without addressing the impacted saturated material or including a groundwater technology option. | The technology serves as an engineering control for direct contact with upland area MGP residuals.                                                                                                                                                                                                  | LOW RELATIVE TOTAL COST - Construction of an engineered cover provides a low cost option for source containment.                                                                                                                                                                  |

Table 12 - Screening of Remedial Options Summary  
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| TECHNOLOGY OPTION                                | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | TECHNICAL FEASIBILITY                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                   | ENGINEERING AND INSTITUTIONAL CONTROLS                                                                                                                                                                                                                                                                                                                                    | ECONOMIC FEASIBILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
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|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | LONG TERM EFFECTIVENESS                                                                                                                                                                                             | SHORT TERM EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | IMPLEMENTABILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | RESTORATION TIME FRAME                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Source Control Actions</b>                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 3A - Excavation with On-Site Thermal Desorption  | Soils affected by MGP residuals in select "Hot Spot" locations (i.e. emulsified tar-like material) west of the former gas plant structures within the wetland area are excavated to their vertical extent (approximately 7 to 17 feet bgs) and treated on site. Impacted soils are fed into a medium temperature thermal desorber. Excavated soils are screened. Debris material is disposed in a solid waste landfill. MGP residuals are volatilized and thermally destroyed from the soil by heating to temperatures up to 1200°F. Treated material will be used as backfill. Includes central portions of the site.                                                                                 | The volume of source contamination would be reduced. Direct contact exposure would be minimized. Reduces further groundwater impacts. Thermal treatment well demonstrated at MGP sites. DRE >99% for VOCs and PAHs. | Proven technology for MGP site remediation. Potential for direct contact exposure during excavation. Excavation remains open during treatment. Will require temporary shoring to limit excavation dewatering, treatment, and discharge. Fugitive VOC emissions and nuisance odor will require perimeter and workzone air monitoring and possibly vapor suppression during excavation and treatment. Extensive permitting/restoration may be required to minimize impact to wetland and floodplain. Reuse of treated soils.                                       | Shoring requirements are extensive for dewatering and stability. Excavation and thermal treatment contractors are readily available. Debris in soil is not anticipated to be extensive; may require minimal debris stockpiling areas. High BTU, sulfur, and moisture content may require blending with clean material to meet feedstock requirements. Stockpile management of impacted materials required to reduce surface water contact with MGP materials. Detailed erosion control plan required. Site has limited, potentially insufficient, area available for the staging of the treatment unit, untreated soil, screening equipment, debris stockpile, treated soil stockpile, dewatering and water treatment equipment. Treated soils can be tested to verify treatment goals have been met prior to use as backfill. May require extensive permitting/restoration for wetland and floodplain impacts. | Removal of source MGP impacted soil would substantially reduce further potential impacts to groundwater and direct contact. Reduce time frame to meet applicable groundwater standards. Restoration time frame dependent on the extent, quantity, and quality of material thermally treated. Permitting and restoration may be required to work in a wetland.     | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Perimeter fence</li><li>● Erosion controls</li><li>● Excavation dewatering</li><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li><li>● Soil screening structure</li><li>● Perimeter misting system</li></ul> | MODERATE TO HIGH<br>RELATIVE TOTAL COST - Costs could increase if extensive blending is required to meet BTU, sulfur, and moisture content requirements. Capital costs are high. Initial costs for design, treatment, and testing. Annual costs for routine groundwater monitoring/reporting. Permits may require annual monitoring of wetland species if restoration is required on site. Potential future liability is limited.                                                                            |
| 3B - Excavation with Off-Site Thermal Desorption | Soils affected by MGP residuals in select "Hot Spot" locations (i.e. emulsified tar-like material) west of the former gas plant structures within the wetland area are excavated to their vertical extent (approximately 7 to 17 feet bgs), transported, and treated off site. Excavated soils are screened. Debris material is disposed in a solid waste landfill. Impacted soils are fed into a thermal desorber. MGP residuals are volatilized and thermally destroyed from the soil by heating to temperatures up to 1200°F. Imported clean fill will be used as backfill. Treated soil is beneficially reused in a cement kiln or as daily landfill cover. Includes central portions of the site. | The volume of source contamination would be reduced. Direct contact exposure would be minimized. Reduces further groundwater impacts. Off-site thermal treatment; DRE >99% for VOCs and PAHs.                       | Proven technology for MGP site remediation. Potential for direct contact exposure during excavation. Will require temporary shoring. Excavation backfilled faster than Option 3A results in shorter duration of excavation dewatering, treatment, and discharge. Fugitive VOC emissions and nuisance odor will require perimeter and work zone air monitoring and possibly vapor suppression during excavation. Extensive permitting/restoration may be required to minimize impact to wetland and floodplain. Treated materials recycled by treatment facility. | Shoring requirements are extensive for dewatering and stability. Excavation contractors readily available. A few off-site thermal treatment facilities within 400 miles of the site. Debris in soil is not anticipated to be extensive; may require minimal debris stockpiling areas. High moisture content will likely require the addition of lime and blending in managed stockpile areas. Stockpile management of impacted materials required to reduce surface water contact with MGP materials. Detailed erosion control plan required. Site has limited, but sufficient area available for the staging untreated soil, screening equipment, debris stockpile, treated soil stockpile, dewatering and water treatment equipment. Imported soil for backfill material. May require extensive permitting/restoration for wetland and floodplain impacts.                                                    | Removal of source MGP impacted soil would substantially reduce potential impacts to groundwater and direct contact. Reduce time frame to meet applicable groundwater standards. Restoration time frame dependent on the extent and quantity of material excavated. Less duration than Option 3A. Permitting and restoration may be required to work in a wetland. | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Perimeter fence</li><li>● Erosion controls</li><li>● Excavation dewatering</li><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li></ul>                                                                       | HIGH RELATIVE TOTAL COST - Costs include excavation, transportation, and treatment, likely under separate contracts. Costs could increase if extensive blending is required to meet BTU, sulfur, and moisture content requirements. Capital costs are high. Initial costs for design, treatment, and testing. Annual costs for routine groundwater monitoring/reporting. Permits may require annual monitoring of wetland species if restoration is required on site. Potential future liability is limited. |

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| TECHNOLOGY OPTION                        | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | TECHNICAL FEASIBILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                   | ENGINEERING AND INSTITUTIONAL CONTROLS                                                                                                                                                                                                                                                              | ECONOMIC FEASIBILITY                                                                                                                                                                                                                                                                                                                                                                                                              |
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|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | LONG TERM EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | SHORT TERM EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | IMPLEMENTABILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | RESTORATION TIME FRAME                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Source Control Actions                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 3C - Excavation Disposal at Landfill     | Soils affected by MGP residuals in select "Hot Spot" locations (i.e. emulsified tar-like material) west of the former gas plant structures within the wetland area are excavated to their vertical extent (approximately 7 to 17 feet bgs), transported, and disposed off site in an approved solid waste landfill. Clean backfill will be imported. Includes central portions of the site.                                                                                                                                                                                            | The volume of source contamination would be reduced. Direct contact exposure would be minimized with the possible exception of future construction workers. Reduces further groundwater impacts. Off-site disposal into a solid waste landfill with no treatment.                                                                                                                                                                                                                                                                             | Proven technology for MGP site remediation. Potential for direct contact exposure during excavation. Will require temporary shoring. Excavation backfilled faster than Option 3A results in shorter duration of excavation dewatering, treatment, and discharge. Fugitive VOC emissions and nuisance odor will require perimeter and work zone air monitoring and possibly vapor suppression during excavation. Extensive permitting/restoration may be required to minimize impact to wetland and floodplain.                            | Shoring requirements are extensive for dewatering and stability. Excavation contractor is readily available. At least one solid waste landfill within 30 miles of site. Debris in soil is not an issue, if present. High moisture content may require the addition of lime and blending in managed stockpile areas prior to transport. Stockpile management of impacted materials is required to reduce surface water contact with MGP materials. Detailed erosion control plan required. Site has limited, but sufficient area available for the staging of untreated soil, dewatering and water treatment equipment. Imported soil for backfill material. May require extensive permitting/restoration for wetland and floodplain impacts.                                                                                                            | Removal of source MGP impacted soil would substantially reduce potential impacts to groundwater and direct contact. Reduce time frame to meet applicable groundwater standards. Restoration time frame dependent on the extent and quantity of material excavated. Less duration than Option 3A. Permitting and restoration may be required to work in a wetland. | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Perimeter fence</li><li>● Erosion controls</li><li>● Excavation dewatering</li><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li></ul> | LOW RELATIVE TOTAL COST - Costs could increase substantially if excessive blending is required to meet moisture content requirements. Capital costs are high. Initial costs for design, treatment, and testing. Annual costs for routine groundwater monitoring/reporting. Permits may require annual monitoring of wetland species if restoration is required on site. Potential future liability greater than Option 3A and 3B. |
| 4 - In-Situ Stabilization/Solidification | Soils affected by MGP residuals in select "Hot Spot" locations (i.e. emulsified tar-like material) west of the former gas plant structures within the wetland area are stabilized in-situ to their vertical extent (approximately 7 to 17 feet bgs). In-situ stabilization reduces mobility of MGP residuals through physical/and/or chemical means. Stabilizing agents such as Portland cement, fly ash, lime, kiln dust, and blast furnace slag are injected and mixed into the soil matrix with specialized equipment - large diameter augers with hollow kelly bars for injection. | May effectively stabilize/encapsulate source areas. Source areas containing large percentages of coal tar may be resistant to stabilizing agents and require additional solidification reagents. Increase in material volumes of 20-40% likely and strength of columns could pose challenges for future site development. Swell material could be used as backfill in excavated areas of the site. Stabilized areas are unable to support wetland vegetation without backfilling clean unconsolidated materials at or near the final surface. | In-Situ Stabilization would quickly reduce continued impact to groundwater resulting from leaching MGP residuals. Large equipment is necessary to perform in-situ stabilization, construction workers would need to practice general health and safety around large equipment and protect themselves while mixing reagents. Fugitive VOC emissions and nuisance odors would require perimeter and work zone air monitoring and possibly vapor suppression. Permitting may be required to perform work/fill in a wetland and a floodplain. | In-Situ Stabilization has been successfully demonstrated at several other MGP sites. Bench and pilot scale testing would be necessary to evaluate appropriate mix designs. In-Situ Stabilization contractors are readily available. Bench and pilot scale testing will take several months to complete. Site has limited, potentially insufficient, staging areas. Wetland conditions may require a platform for heavy equipment access. Swell material management may be difficult if upland areas are not excavated. Debris, if encountered will have to be removed and disposed prior to stabilization of an area. Quality control of the column overlap is difficult to assess. Permit requirements for wetland and floodplain impacts. WDNR approval possible with adequate bench and pilot scale testing and wetland restoration/mitigation plan. | Encapsulation/stabilization of source MGP impacted soil would reduce potential impacts to groundwater through leaching MGP residuals and may reduce time to meet applicable groundwater standards. Restoration time frame would be dependent on level of treatment achieved and wetland restoration requirements.                                                 | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Perimeter fence</li><li>● Erosion controls</li><li>● Excavation dewatering</li><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li></ul> | LOW TO MODERATE RELATIVE TOTAL COST - Mid-to high range capital costs; potentially high treatment costs (i.e. stabilizing/solidification reagents). Quality assurance/quality control testing during application. Low annual O&M costs.                                                                                                                                                                                           |

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| TECHNOLOGY OPTION                              | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | TECHNICAL FEASIBILITY                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | ENGINEERING AND INSTITUTIONAL CONTROLS                                                                                                                                                                         | ECONOMIC FEASIBILITY                                                                                                                                                                                                                             |
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|                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | LONG TERM EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                                                                | SHORT TERM EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                                                                                                      | IMPLEMENTABILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | RESTORATION TIME FRAME                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                  |
| <b>Source Control Actions</b>                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                  |
| 5A - In-Situ Chemical Oxidation - Source       | Soils affected by MGP residuals with emulsified coal tar west of the former gas plant structures within the wetland area are stabilized in-situ to their vertical extent (approximately 7 to 17 feet bgs). In-situ chemical oxidation of groundwater affected by MGP residuals is performed by delivering an oxidant such as Fenton's Reagent, and sodium or potassium permanganate to the source areas via a pressure injection system. MGP residuals are oxidized as they come in contact with oxidant and degraded into less toxic intermediates, CO <sub>2</sub> , and water.                                            | Potential contaminant reduction >90% for VOCs and 90% for PAHs. Effectiveness could be limited in source areas that contain emulsified coal tar based on stoichiometry of moles of oxidant per moles of contaminant to be treated. Chemical oxidation may encourage natural attenuation. Potential for contaminant migration during injection process would be minimized during design and sequencing. | Protect workers from chemical exposure during implementation - low potential for exposure to MGP residuals. Requires perimeter monitoring wells for groundwater and vapor during application. Potential fugitive VOC emissions require perimeter and work zone air monitoring. Technology may not be as effective in treating contaminants within a peat matrix. Least disturbance of wetlands relative to other source control technologies. | In-situ chemical oxidation has been demonstrated at a few MGP sites. Treatment encourages natural attenuation. Bench and pilot scale testing would be necessary to evaluate the appropriateness and the best oxidants. In-situ chemical oxidation contractors are readily available. Bench and pilot scale testing could take several weeks to complete. May have to design adequate extraction system to limit contaminant migration. Does not require heavy equipment for application. May not require permanent injection points thereby limiting impacts to the wetland and floodplain. Wetland and floodplain permits may be necessary. WDNR approval will likely require adequate bench and pilot scale testing and wetland restoration/mitigation/monitoring plan. | Likely short term - chemical reaction with MGP residuals is nearly instantaneous. In-situ chemical oxidation of source MGP impacted soil would substantially reduce potential impacts to groundwater and reduce time to meet applicable groundwater standards. Restoration time frame would be dependent on level of treatment achieved. Recalcitrant areas may require more than one application. Efficiency of treatment is measure 7, 30, and 90-days after application. | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li></ul> | LOW TO MODERATE<br>RELATIVE TOTAL COST -<br>Dependent on how many treatment applications are required. Cost is sensitive to the amount of oxidizing chemicals required. Vapor and groundwater monitoring during treatment. Low annual O&M costs. |
| <b>Groundwater Response Actions</b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                |                                                                                                                                                                                                                                                  |
| 5B - In-Situ Chemical Oxidation - Downgradient | Soils affected by MGP residuals in select locations downgradient (west) of the "Hot Spot" locations (i.e. emulsified tar-like material) towards the West Twin River are stabilized in-situ to their vertical extent (approximately 11 to 14 feet bgs). In-situ chemical oxidation of groundwater affected by MGP residuals is performed by delivering an oxidant such as Fenton's Reagent or potassium or sodium permanganate to the source areas via a pressure injection system. MGP residuals are oxidized as they come in contact with oxidant. and degraded into less toxic intermediates, CO <sub>2</sub> , and water. | Potential contaminant reduction >90% for VOCs and 90% for PAHs. Effectiveness could be limited in source areas that contain emulsified coal tar, however chemical oxidation may encourage natural attenuation. Potential to spread contamination during injection process is limited.                                                                                                                  | Protect workers from chemical exposure during implementation - low potential for exposure to MGP residuals. Requires perimeter monitoring wells for groundwater and vapor during application.                                                                                                                                                                                                                                                 | In-situ chemical oxidation has been demonstrated at a few MGP sites. Treatment encourages natural attenuation and can isolate an impacted interval at depth without major disturbance to the material at surface. In-situ chemical oxidation of areas downgradient of the source can isolate treatment of a "seam" of MGP residuals to meet groundwater standards faster and reduce the need for groundwater control technologies. Implementability the same as In-situ chemical oxidation - source as described above.                                                                                                                                                                                                                                                   | Likely short term - chemical reaction with MGP residuals is nearly instantaneous. In-situ chemical oxidation of downgradient MGP impacted soil would further reduce potential impacts to groundwater and reduce time to meet applicable groundwater standards. Restoration time frame would be dependent on level of treatment achieved. May require several rounds of injection. Efficiency of treatment is measure 7, 30, and 90-days after application.                  | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li></ul> | LOW TO MODERATE<br>RELATIVE TOTAL COST -<br>Dependent on how many treatment applications are required. Cost is sensitive to the amount of oxidizing chemicals required. Vapor and groundwater monitoring during treatment. Low annual O&M costs. |

Table 12 - Screening of Remedial Options Summary  
Remedial Action Options Report  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| TECHNOLOGY OPTION                                          | DESCRIPTION                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | TECHNICAL FEASIBILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                  | ENGINEERING AND INSTITUTIONAL CONTROLS                                                                                                                                                                                                                                                              | ECONOMIC FEASIBILITY                                                                                                                                          |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | LONG TERM EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | SHORT TERM EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                                             | IMPLEMENTABILITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | RESTORATION TIME FRAME                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                               |
| Groundwater Response Actions                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                               |
| 6A - Slurry Wall Containment with Pump and Treat           | Containment of groundwater affected by MGP residuals using vertical slurry barrier wall. A trench will be excavated to mix site soils with bentonite/cement or other appropriate mix, to create a barrier and reduce MGP residual exposure to sensitive receptors (West Twin River). Hydraulic gradient control would be accomplished using extraction and treatment of groundwater through an interceptor trench equipped with collection sumps. Collected groundwater is treated on site and discharged to the public wastewater treatment facility or surface water, as approved.                                                                                                                                                                 | Immediate containment of impacted groundwater and protection of West Twin River. Treatment efficiency can be up to 90% for groundwater. Emulsified tar is difficult to extract from the subsurface. Heterogeneous conditions in the subsurface precludes use of extraction wells. Relatively low permeabilities can limit effectiveness.                                                                                                                                                                                     | Potential for direct contact exposure during construction. Fugitive VOC emissions and nuisance odors require perimeter and work zone air monitoring and emission controls. Pump and treat has low potential for direct contact exposure. Requires treatment building. Treatment of groundwater aboveground allows for the use of widely available and proven treatment technologies. | Effectiveness of containment wall is dependent on quality of clay confinement layer. Pump and treat may be difficult with site permeabilities. May require a temporary platform due to stability of soil near the river. Materials and contractors are readily available. Geotechnical data is required to determine key-in depths. Long term groundwater monitoring would be required.                                                                                                                                              | Immediate containment of impacted groundwater, likely long term relying on collection trench and treatment. May take significant time to reach applicable standards unless combined with source control, as primary purpose is gradient control. | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Perimeter fence</li><li>● Erosion controls</li><li>● Excavation dewatering</li><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li></ul> | MODERATE RELATIVE TOTAL COST - Low capital costs, moderate O&M cost depending on concentrations of groundwater to be treated and volume extracted.            |
| 6B - Slurry Wall Containment with Pump and Treat and Phyto | Containment of groundwater affected by MGP residuals using vertical slurry barrier wall. A trench will be dug to mix site soils with bentonite/cement or other appropriate mix to limit MGP residual exposure to sensitive receptors (West Twin River). Hydraulic gradient control would be accomplished using extraction and treatment of groundwater through an interceptor trench equipped with collection sumps during the non-growing season. Collected groundwater would be treated on site and discharged to the public wastewater treatment facility or surface water, as approved. During the growing season (approximately Apr 15 to Oct 15) hybrid poplar trees would act as pumps, uptaking groundwater and providing hydraulic control. | Immediate containment of impacted groundwater and protection of West Twin River. Poplar trees become more effective at uptaking larger volumes of groundwater with maturity. In addition, phytoremediation has been proven effective in the breakdown of VOCs and PAHs. Emulsified tar is difficult to extract from the subsurface. Heterogeneous conditions in the subsurface precludes use of extraction wells. Relatively low permeabilities can limit effectiveness. Trees may are unlikely to withstand emulsified tar. | Potential for direct contact exposure during construction. Fugitive VOC emissions and nuisance odors require perimeter and work zone air monitoring and possible vapor suppression. Phytoremediation and pump and treat has low potential for direct contact. Requires treatment building.                                                                                           | Effectiveness of containment wall is dependent on quality of clay confinement layer. Pump and treat may be difficult with site permeabilities. May require a temporary platform due to stability of soil near the river. Successful phytoremediation may reduce or eliminate the need for pump and treat. Hybrid poplar trees are readily available. Materials and contractors for barrier wall are readily available. Geotechnical data is required to determine key-in depths. Long term groundwater monitoring would be required. | Immediate containment of impacted groundwater, likely long term relying on collection trench and treatment. May take significant time to reach applicable standards unless combined with source control, as primary purpose is gradient control. | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Perimeter fence</li><li>● Erosion controls</li><li>● Excavation dewatering</li><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li></ul> | MODERATE RELATIVE TOTAL COST - Low capital costs, moderate O&M cost depending on concentrations of groundwater to be treated, volume extracted and tree loss. |

Table 12 - Screening of Remedial Options Summary  
Remedial Action Options Report  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| TECHNOLOGY OPTION                                       | DESCRIPTION                                                                                                                                                                                                                                                                                                             | TECHNICAL FEASIBILITY                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                            | ENGINEERING AND INSTITUTIONAL CONTROLS                                                                                                                                                                                                                                                              | ECONOMIC FEASIBILITY                                                                                                                                                                          |
|---------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                         |                                                                                                                                                                                                                                                                                                                         | LONG TERM EFFECTIVENESS                                                                                                                                                                                                                                                                                                                                                                                   | SHORT TERM EFFECTIVENESS                                                                                                                                                                          | IMPLEMENTABILITY                                                                                                                                                                                                                                                                                                                                                                                                                                        | RESTORATION TIME FRAME                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                               |
| Groundwater Response Actions                            |                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                               |
| 7A - Continuous Permeable Reactive Barrier (PRB)        | This technology would remediate groundwater affected by MGP residuals by treating groundwater as it passes through a permeable treatment wall filled with granular activated carbon treatment media with sand.                                                                                                          | Treatment method specific; MGP residuals are more resistant to in-situ-treatment than more aggressive ex-sit treatment, may not be appropriate for areas with extensive emulsified tar (central wetland area). Effectiveness of the wall may be limited by low gradients across the site and low permeability. Site can be fully used while the PRB is in place, as no aboveground treatment is required. | Potential for direct contact exposure during construction. Fugitive VOC emissions and nuisance odors require perimeter and work zone air monitoring and emission controls.                        | Additional geotechnical data required to determine key in depths. Materials and contractors are readily available. A platform may need to be built to allow construction of the PRB. Groundwater treatment may be extremely slow as pumping is not used. Groundwater monitoring is required to assess break through of the treatment media. Carbon replacement is assumed to occur after 15 years. Emulsified tar requires consideration during design. | Immediate treatment of impacted groundwater passing through PRB. Long restoration time until the source areas end. May take significant time to reach applicable standards unless combined with source control, as primary purpose is passive treatment.   | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Perimeter fence</li><li>● Erosion controls</li><li>● Excavation dewatering</li><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li></ul> | HIGH RELATIVE TOTAL COST - Moderate to high capital costs - depends on quantity of reactive media used and effective design. Low to high O&M costs depending on carbon replacement frequency. |
| 7B - Funnel and Gate Permeable Reactive Barrier         | This technology would remediate groundwater affected by MGP residuals by treating groundwater as it passes through a permeable treatment "gate" filled with granular activated carbon treatment media with sand. Impervious "funnel" sections constructed of slurry wall would direct groundwater to the gate sections. | Treatment method specific; MGP residuals are more resistant to in-situ-treatment than more aggressive ex-sit treatment, may not be appropriate for areas with extensive emulsified tar (central wetland area). Effectiveness of the wall may be limited by low gradients across the site and low permeability. Site can be fully used while the PRB is in place, as no aboveground treatment is required. | Potential for direct contact exposure during construction. Fugitive VOC emissions and nuisance odors require perimeter and work zone air monitoring and emission controls.                        | Additional geotechnical data required to determine key in depths. Materials and contractors are readily available. A platform may need to be built to allow construction of the PRB. Groundwater treatment may be extremely slow. Groundwater monitoring is required to assess break through of the treatment media. Carbon replacement is assumed to be replaced every 10 years. Emulsified tar requires consideration during design.                  | Immediate treatment of impacted groundwater passing through PRB. Long restoration time until the source areas end. May take significant time to reach applicable standards unless combined with source control, as primary purpose is passive treatment.   | During remediation, the following engineering and institutional controls would be implemented: <ul style="list-style-type: none"><li>● Perimeter fence</li><li>● Erosion controls</li><li>● Excavation dewatering</li><li>● Fugitive emission controls</li><li>● Perimeter air monitoring</li></ul> | HIGH RELATIVE TOTAL COST - Moderate to high capital costs - depends on quantity of reactive media used and effective design. Low to high O&M costs depending on carbon replacement frequency. |
| 8 - Remediation by Natural Attenuation (RNA) Monitoring | This technology monitors contaminant concentration trends and several natural attenuation (RNA) over time. The purpose of RNA monitoring is to demonstrate that a contaminant plume will be remediated by natural chemical and biological processes with time.                                                          | Effectiveness based on mass of contaminants in the areas of concern. Not effective with significant volume of free product/coal tar present. Extensive source area of emulsified tar would be recalcitrant to RNA. RNA may be effective if combined with a technology to remove/stabilize MGP impacts in source and downgradient areas.                                                                   | Short term effectiveness negligible. RNA O&M includes 2 year monitoring period with annual monitoring thereafter. Effectiveness measured by geochemical parameters and COC concentrations/trends. | Simple to implement - requires groundwater sampling for RNA parameters. WDNR approval unlikely without combination with additional source control or groundwater response technologies.                                                                                                                                                                                                                                                                 | Requires definition and demonstration of stable or receding groundwater plume. Long term performance monitoring required to demonstrate continued stable or receding plume. May not achieve groundwater standards without combining with other technology. | Monitoring well network will be used as an engineering control to verify groundwater plume is not expanding.                                                                                                                                                                                        | LOW RELATIVE TOTAL COST - Low capital cost for installation of groundwater monitoring network. Low O&M costs for long term groundwater monitoring/reporting.                                  |

(O-JMK 11/03 SLF12/10/03)



Table 13 - Unit and Annual Cost Summary of Remedial Options  
Remedial Action Options Report  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Remedial Options                                                       | CAPITAL               |              |             | ANNUAL O&M            |                                     | Total Option Cost | Considered in Assembled Remedial Alternative |
|------------------------------------------------------------------------|-----------------------|--------------|-------------|-----------------------|-------------------------------------|-------------------|----------------------------------------------|
|                                                                        | Unit Rate             | Quantity     | Cost        | Annual O&M for 1 year | Present Worth over 30 Years, 9% ROR |                   |                                              |
| Upland Control Actions                                                 |                       |              |             |                       |                                     |                   |                                              |
| <i>Excavation</i>                                                      |                       |              |             |                       |                                     |                   |                                              |
| 1A - Excavation - with On-Site Thermal Desorption                      | \$ 242.00 / TON       | 7,380 TONS   | \$1,783,500 | --                    | --                                  | \$1,783,500       | Alt. No. 1                                   |
| 1B - Excavation - with Off-Site Thermal Desorption                     | \$ 214.00 / TON       | 7,380 TONS   | \$1,579,100 | --                    | --                                  | \$1,579,100       |                                              |
| 1C - Excavation - Disposal at Landfill                                 | \$ 120.00 / TON       | 7,380 TONS   | \$882,100   | --                    | --                                  | \$882,100         | Alt. No. 2, 4A and 4B                        |
| <i>Capping</i>                                                         |                       |              |             |                       |                                     |                   |                                              |
| 2A - Geosynthetic Cover                                                | \$ 68 / SY            | 3,622 SY     | \$245,600   | \$3,800               | \$39,040                            | \$284,640         |                                              |
| 2B - Asphalt Capping                                                   | \$ 48 / SY            | 3,622 SY     | \$174,000   | \$4,400               | \$45,204                            | \$219,204         | Alt. No. 3                                   |
| Source Control Actions                                                 |                       |              |             |                       |                                     |                   |                                              |
| <i>Excavation</i>                                                      |                       |              |             |                       |                                     |                   |                                              |
| 3A - Excavation - with On-Site Thermal Desorption                      | \$ 183.00 / TON       | 22,500 TONS  | \$4,120,800 | --                    | --                                  | \$4,120,800       | Alt. No. 1                                   |
| 3B - Excavation - with Off-Site Thermal Desorption                     | \$ 208.00 / TON       | 22,500 TONS  | \$4,682,400 | --                    | --                                  | \$4,682,400       |                                              |
| 3C - Excavation - Disposal at Landfill                                 | \$ 106.00 / TON       | 22,500 TONS  | \$2,375,000 | --                    | --                                  | \$2,375,000       |                                              |
| <i>Stabilization</i>                                                   |                       |              |             |                       |                                     |                   |                                              |
| 4 - In-Situ Stabilization/Solidification                               | \$189.00 / CY         | 15,000 CY    | \$2,833,800 | --                    | --                                  | \$2,833,800       | Alt. No. 2                                   |
| <i>Oxidation</i>                                                       |                       |              |             |                       |                                     |                   |                                              |
| 5A - Initial Treatment In-Situ Chemical Oxidation - Source             | \$151.00 / CY         | 9,000 CY     | \$1,355,400 | --                    | --                                  |                   |                                              |
| - Additional Treatments In-Situ Chemical Oxidation-Source              | \$ 631,000 /TREATMENT | 2 TREATMENTS | \$1,262,000 | --                    | --                                  |                   |                                              |
| - Total Estimated Cost (includes a total of three treatments)          |                       |              | \$2,617,400 | --                    | --                                  | \$2,617,400       | Alt. No. 3                                   |
| 5B - One Treatment In-Situ Chemical Oxidation - Source                 | \$151.00 / CY         | 9,000 CY     | \$1,355,400 | --                    | --                                  | \$1,355,400       | Alt. No. 4A                                  |
| Groundwater Response Actions                                           |                       |              |             |                       |                                     |                   |                                              |
| <i>Oxidation</i>                                                       |                       |              |             |                       |                                     |                   |                                              |
| 5C - Initial Treatment In-Situ Chemical Oxidation - Downgradient       | \$215.00 / CY         | 2,600 CY     | \$558,500   | --                    | --                                  |                   |                                              |
| - Additional Treatments In-Situ Chemical Oxidation-Downgradient        | \$ 252,100 /TREATMENT | 1 TREATMENTS | \$252,100   | --                    | --                                  |                   |                                              |
| - Total Estimated Cost (includes a total of two treatments)            |                       |              | \$810,600   | --                    | --                                  | \$810,600         | Alt. No. 1 and 3                             |
| 5D - One Treatment In-Situ Chemical Oxidation - Downgradient           | \$215.00 / CY         | 2,600 CY     | \$558,500   | --                    | --                                  | \$558,500         | Alt. No. 4A and 4B                           |
| <i>Containment</i>                                                     |                       |              |             |                       |                                     |                   |                                              |
| 6A - Slurry Wall Containment with Pump and Treat                       | \$ 932 / SY           | 756 SY       | \$704,100   | \$76,000              | \$780,798                           | \$1,484,898       |                                              |
| 6B - Slurry Wall Containment with Pump and Treat and Phyto             | \$ 992 / SY           | 756 SY       | \$749,500   | \$51,300              | \$527,038                           | \$1,276,538       | Alt. No. 4B                                  |
| <i>Reactive Barrier Technology</i>                                     |                       |              |             |                       |                                     |                   |                                              |
| 7A - Continuous Permeable Reactive Barrier                             | \$ 7,427.00 /LF       | 340 LF       | \$2,525,300 | \$178,800             | \$1,836,929                         | \$4,362,229       |                                              |
| 7B - Funnel and Gate Permeable Reactive Barrier                        | \$ 5,899.00 /LF       | 340 LF       | \$2,005,800 | \$133,800             | \$1,374,615                         | \$3,380,415       | Alt. 2                                       |
| <i>Groundwater Monitoring (Two years quarterly; 28 years annually)</i> |                       |              |             |                       |                                     |                   |                                              |
| 8 - Remediation by Natural Attenuation (RNA) Monitoring                | --                    | --           | \$26,900    | \$72,300              | \$347,710                           | \$374,610         | Alt. 1, 3 and 4A                             |
| 9 - Routine Groundwater Monitoring                                     | --                    | --           | \$20,700    | \$57,300              | \$288,968                           | \$309,668         | Alt. 2 and 4B                                |

(O-HMS 12/9/03 C-JMK 12/29/03)

Table 14 - Assembly of Remedial Alternatives  
Remedial Action Options Report  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

|                                                                       | Remedial Alternative                                                                                                                                                |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                       | Alt. No. 1                                                                                                                                                          | Alt. No. 2                                                                                                                                                                    | Alt. No. 3                                                                                                                                                                | Alt. No. 4A                                                                                                                                                                               | Alt. No. 4B                                                                                                                                                            |
|                                                                       | Excavation and On-Site Thermal Desorption of Upland and Source Areas; and, In-Situ Chemical Oxidation Downgradient and Natural Attenuation for Groundwater Response | Excavation and Off-site Disposal of Upland Area; In-Situ Stabilization of Source Area; and, Funnel and Gate Permeable Reactive Barrier for Groundwater/ Downgradient Response | Asphalt Capping for Upland Area; In-Situ Chemical Oxidation of Source Area; and, In-Situ Chemical Oxidation Downgradient and Natural Attenuation for Groundwater Response | Excavation and Off-site Disposal of Upland Area; In-Situ Chemical Oxidation for Source Area; and In-Situ Chemical Oxidation Downgradient and Natural Attenuation for Groundwater Response | Excavation and Landfill of Upland Area; In-Situ Chemical Oxidation for Downgradient and Slurry Wall Containment with Pump and Treat and Trees for Groundwater Response |
| <b>Upland Control Actions</b>                                         |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| <b>Excavation</b>                                                     |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 1A - Excavation - with On-Site Thermal Desorption                     | \$1,783,500                                                                                                                                                         |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 1B - Excavation - with Off-Site Thermal Desorption*                   |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 1C - Excavation - Disposal at Landfill                                |                                                                                                                                                                     | \$882,100                                                                                                                                                                     |                                                                                                                                                                           | \$882,100                                                                                                                                                                                 | \$882,100                                                                                                                                                              |
| <b>Capping</b>                                                        |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 2A - Geosynthetic Cover*                                              |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 2B - Asphalt Capping                                                  |                                                                                                                                                                     |                                                                                                                                                                               | \$174,000                                                                                                                                                                 |                                                                                                                                                                                           |                                                                                                                                                                        |
| <b>Source Control Actions</b>                                         |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| <b>Excavation</b>                                                     |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 3A - Excavation - with On-Site Thermal Desorption                     | \$4,120,800                                                                                                                                                         |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 3B - Excavation - with Off-Site Thermal Desorption*                   |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 3C - Excavation - Disposal at Landfill*                               |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| <b>Stabilization</b>                                                  |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 4 - In-Situ Stabilization/Solidification                              |                                                                                                                                                                     | \$2,833,800                                                                                                                                                                   |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| <b>Oxidation</b>                                                      |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 5A - In-Situ Chemical Oxidation - Source (3 Treatments)               |                                                                                                                                                                     |                                                                                                                                                                               | \$2,617,400                                                                                                                                                               |                                                                                                                                                                                           |                                                                                                                                                                        |
| 5B - In-Situ Chemical Oxidation - Source (1 Treatment)                |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           | \$1,355,400                                                                                                                                                                               |                                                                                                                                                                        |
| <b>Groundwater Response Actions</b>                                   |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| <b>Oxidation</b>                                                      |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 5C - In-Situ Chemical Oxidation - Downgradient (2 Treatments)         | \$810,600                                                                                                                                                           |                                                                                                                                                                               | \$810,600                                                                                                                                                                 |                                                                                                                                                                                           |                                                                                                                                                                        |
| 5D - In-Situ Chemical Oxidation - Downgradient (1 Treatment)          |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           | \$558,500                                                                                                                                                                                 | \$558,500                                                                                                                                                              |
| <b>Containment</b>                                                    |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 6A - Slurry Wall Containment with Pump and Treat*                     |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 6B - Slurry Wall Containment with Pump and Treat and Phyto            |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           | \$749,500                                                                                                                                                              |
| <b>Reactive Barrier Technology</b>                                    |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 7A - Continuous Permeable Reactive Barrier*                           |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 7B - Funnel and Gate Permeable Reactive Barrier                       |                                                                                                                                                                     | \$2,005,800                                                                                                                                                                   |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| <b>Groundwater Monitoring</b>                                         |                                                                                                                                                                     |                                                                                                                                                                               |                                                                                                                                                                           |                                                                                                                                                                                           |                                                                                                                                                                        |
| 8 - Remediation by Natural Attenuation (RNA) Monitoring               | \$26,900                                                                                                                                                            |                                                                                                                                                                               | \$26,900                                                                                                                                                                  | \$26,900                                                                                                                                                                                  |                                                                                                                                                                        |
| 9 - Routine Groundwater Monitoring                                    |                                                                                                                                                                     | \$20,700                                                                                                                                                                      |                                                                                                                                                                           |                                                                                                                                                                                           | \$20,700                                                                                                                                                               |
| <b>TOTAL CAPITAL COST TO IMPLEMENT</b>                                | \$6,741,800                                                                                                                                                         | \$5,721,700                                                                                                                                                                   | \$3,628,900                                                                                                                                                               | \$2,822,900                                                                                                                                                                               | \$2,190,100                                                                                                                                                            |
| <b>POTENTIAL CAPITAL COST SAVINGS</b>                                 | (\$784,000)                                                                                                                                                         | (\$448,300)                                                                                                                                                                   | (\$188,900)                                                                                                                                                               | (\$183,900)                                                                                                                                                                               | \$0                                                                                                                                                                    |
| <b>TOTAL ANNUAL O&amp;M COSTS</b>                                     | \$72300 and \$25900**                                                                                                                                               | \$191,100 and \$155,900**                                                                                                                                                     | \$76,700 and \$30,300**                                                                                                                                                   | \$72300 and \$25900**                                                                                                                                                                     | \$108,600 and \$73,400**                                                                                                                                               |
| <b>TOTAL CAPITAL COST W/ PRESENT WORTH ANNUAL COSTS OVER 30 YEARS</b> | \$6,305,510                                                                                                                                                         | \$6,936,983                                                                                                                                                                   | \$3,832,914                                                                                                                                                               | \$2,986,710                                                                                                                                                                               | \$3,006,107                                                                                                                                                            |

NOTES:

\* Removed during initial screening.

\*\* 1st and 2nd years annual cost for quarterly monitoring. 3rd through 30 years annual cost for annual monitoring.

Potential Capital Cost Savings estimated based on duplicated efforts including bench scale, engineering, thermal treatment pad, chain link fence, truck scale, mob/demob, perimeter misting, screening structure and air monitoring.

(04-BK 12/10/03 C - BOK 12/29/03)



**APPENDIX A**

**SEDIMENT SURVEY MAPPING & BORING LOGS**

Route To:

- ☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

SOIL BORING LOG INFORMATION

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|                                                                                        |                           |                                    |                                             |                                                                                                                                                              |                                      |
|----------------------------------------------------------------------------------------|---------------------------|------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |                           |                                    | <b>License/Permit/Monitoring Number</b>     |                                                                                                                                                              | <b>Boring Number</b><br>SD601-V      |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                                    | <b>Date Drilling Started</b><br>06/20/96    | <b>Date Drilling Completed</b><br>06/20/96                                                                                                                   | <b>Drilling Method</b><br>VIBROCORE  |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>4 inches |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br>Long                          | <b>Local Grid Location (If applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                      |
| <b>County</b><br>Manitowac                                                             |                           |                                    | <b>DNR County Code</b><br>36                | <b>Civil Town/City/ or Village</b><br>City of Two Rivers                                                                                                     |                                      |

| Sample<br>Number<br>and Type | Length Att. &<br>Recovered (in) | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                         | USCS | Graphic<br>Log | Well<br>Diagram | PTD/FID | Soil Properties         |                     |                 |                     |       | RGD/<br>Comments |
|------------------------------|---------------------------------|-------------|---------------|-----------------------------------------------------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
|                              |                                 |             |               |                                                                                                                             |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                              |                                 |             | 1             | 0"-33" <u>SILT</u> : dark brown with organics,<br>TAR saturated, STRONG ODOR                                                |      |                |                 | 1503    |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 2             | 33"-39" As above with 50% shell fragments,<br>TAR saturated, STRONG ODOR                                                    | ML   |                |                 |         |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 3             |                                                                                                                             |      |                |                 | 1529    |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 4             | 39"-105" <u>SILTY CLAY/ SILT</u> : (10YR 5/2)<br>grayish brown, pure TAR in fissures                                        |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 5             |                                                                                                                             |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 6             |                                                                                                                             | CL   |                |                 | 1189    |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 7             |                                                                                                                             |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 8             |                                                                                                                             |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 9             | 105"-114" <u>SILT</u> : (5Y 4/2) olive gray, with<br>20% shell fragments, trace clay, shells are<br>TAR coated, STRONG ODOR | ML   |                |                 | 226     |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 10            | EOB @ 114" Depth to sediment 2' 5"                                                                                          |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 11            |                                                                                                                             |      |                |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Stephanie A. Van Dyke

Firm

Natural Resource Technology

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

|                                                                                        |  |                           |  |                                          |  |                                                          |  |                                                                                                                                                              |  |                                      |  |
|----------------------------------------------------------------------------------------|--|---------------------------|--|------------------------------------------|--|----------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------|--|
| <b>Facility/Project Name</b><br>WPSC - Two Rivers - Sediment Investigation             |  |                           |  | <b>License/Permit/Monitoring Number</b>  |  |                                                          |  | <b>Boring Number</b><br>SD602-AV                                                                                                                             |  |                                      |  |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |  |                           |  | <b>Date Drilling Started</b><br>06/20/96 |  | <b>Date Drilling Completed</b><br>06/20/96               |  | <b>Drilling Method</b><br>VIBROCORE                                                                                                                          |  |                                      |  |
| <b>DNR Facility Well No.</b>                                                           |  | <b>WI Unique Well No.</b> |  | <b>Common Well Name</b>                  |  | <b>Final Static Water Level</b><br>Feet MSL              |  | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         |  | <b>Borehole Diameter</b><br>4 inches |  |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |  |                           |  | <b>Feet N</b><br><b>Feet E</b>           |  | <b>Lat</b><br><b>Long</b>                                |  | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |                                      |  |
| <b>County</b><br>Manitowac                                                             |  |                           |  | <b>DNR County Code</b><br>36             |  | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |  |                                                                                                                                                              |  |                                      |  |

| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                        | USCS   | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | ROD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|------------------------------------------------------------------------------------------------------------|--------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                            |        |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                    |                                 |             | 1             | 0"-38" <u>SILT</u> : dark brown with abundant organics, spongy, bottom 8" with shell fragments             | ML     |                |                 | 383     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 3             | 38"-47" SHELLS with SILT, dark brown silt, white brachipods                                                | SHELLS |                |                 | 284     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 4             | 47"-111" <u>SILT</u> : (5YR 4/2) olive gray, poorly graded, contains abundant organics and shell fragments | ML     |                |                 | 144     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 10            | EOB @ 111" Depth to sediment 2' 4.5"                                                                       |        |                |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Stephanie A. Van Dyke Firm **Natural Resource Technology**

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Route To:  
☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

|                                                                                        |                           |                                    |                                                          |                                                                                                                                                              |                                      |
|----------------------------------------------------------------------------------------|---------------------------|------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |                           |                                    | <b>License/Permit/Monitoring Number</b>                  |                                                                                                                                                              | <b>Boring Number</b><br>SD602-BV     |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                                    | <b>Date Drilling Started</b><br>06/20/96                 | <b>Date Drilling Completed</b><br>06/20/96                                                                                                                   | <b>Drilling Method</b><br>VIBROCORE  |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL              | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>4 inches |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br><br><b>Long</b>                            | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                      |
| <b>County</b><br>Manitowac                                                             |                           | <b>DNR County Code</b><br>36       | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |                                      |

| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                        | USCS | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|----------------------------------------------------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                            |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                    |                                 |             | 1             | 0"-48" <u>SILT</u> : dark brown with organics,<br>trace shell fragments in lower 12", loose                                |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 2             |                                                                                                                            |      |                |                 | 301     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 3             |                                                                                                                            |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 4             | 48"-63" <u>SILT</u> : with 50% shell fragments,<br>(5Y 4/2) olive gray, high organic content<br>(roots)                    |      |                |                 | 258     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 5             |                                                                                                                            |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 6             | 63"-139" <u>SILT</u> : (5YR 4/2) olive gray, with<br>10% shell fragments, trace clay, clay<br>content increases with depth | ML   |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 7             |                                                                                                                            |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 8             |                                                                                                                            |      |                |                 | 336     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 9             |                                                                                                                            |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 10            |                                                                                                                            |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 11            |                                                                                                                            |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             |               |                                                                                                                            | CL   |                |                 | 284     |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Stephanie A. Van Dyke Firm **Natural Resource Technology**

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[illegible]

Route To:

- ☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund

- ☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

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|-----------------------------------------------------------------------------------------------|---------------------------|--------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation                      |                           |                                | <b>License/Permit/Monitoring Number</b>                  |                                                                                                                                                              | <b>Boring Number</b><br>SD602-CV     |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                           |                           |                                | <b>Date Drilling Started</b><br>06/20/96                 | <b>Date Drilling Completed</b><br>06/20/96                                                                                                                   | <b>Drilling Method</b><br>VIBROCORE  |
| <b>DNR Facility Well No.</b>                                                                  | <b>WI Unique Well No.</b> | <b>Common Well Name</b>        | <b>Final Static Water Level</b><br>Feet MSL              | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>4 inches |
| <b>Boring Location</b><br><b>State Plane</b><br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           | <b>Feet N</b><br><b>Feet E</b> | <b>Lat</b><br><b>Long</b>                                | <b>Local Grid Location (If applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                      |
| <b>County</b><br>Manitowac                                                                    |                           | <b>DNR County Code</b><br>36   | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |                                      |

| Sample<br>Number<br>and Type | Length Att. &<br>Recovered (in) | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit         | USCS | Graphic<br>Log | Well<br>Diagram | PTD/FID | Soil Properties         |                     |                 |                     |  | P 200 | RSD/<br>Comments |
|------------------------------|---------------------------------|-------------|---------------|-----------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|--|-------|------------------|
|                              |                                 |             |               |                                                                             |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index |  |       |                  |
|                              |                                 |             | 1             | 0"-20" <u>SILT</u> : dark brown with organics,<br>loose, bottom 3" wood     |      |                |                 | 446     |                         |                     |                 |                     |  |       |                  |
|                              |                                 |             | 2             | 20"-61" <u>SILT</u> : dark brown, organics<br>present, trace clay           | ML   |                |                 |         |                         |                     |                 |                     |  |       |                  |
|                              |                                 |             | 3             |                                                                             |      |                |                 | 242     |                         |                     |                 |                     |  |       |                  |
|                              |                                 |             | 4             |                                                                             |      |                |                 |         |                         |                     |                 |                     |  |       |                  |
|                              |                                 |             | 5             |                                                                             |      |                |                 |         |                         |                     |                 |                     |  |       |                  |
|                              |                                 |             | 6             | 61"-90" <u>SANDY SILT</u> : dark brown with<br>organics, trace clay, spongy | ML   |                |                 | 173     |                         |                     |                 |                     |  |       |                  |
|                              |                                 |             | 7             |                                                                             |      |                |                 |         |                         |                     |                 |                     |  |       |                  |
|                              |                                 |             | 8             | EOB @ 90" Depth to sediment 3' 2"                                           |      |                |                 |         |                         |                     |                 |                     |  |       |                  |
|                              |                                 |             | 9             |                                                                             |      |                |                 |         |                         |                     |                 |                     |  |       |                  |
|                              |                                 |             | 10            |                                                                             |      |                |                 |         |                         |                     |                 |                     |  |       |                  |
|                              |                                 |             | 11            |                                                                             |      |                |                 |         |                         |                     |                 |                     |  |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

*Stephanie A. Van Dyke*

Firm

Natural Resource Technology

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Route To:

- ☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund

- ☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

SOIL BORING LOG INFORMATION

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|                                                                                        |  |                           |  |                                          |  |                                                                                                                                                              |  |
|----------------------------------------------------------------------------------------|--|---------------------------|--|------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |  |                           |  | <b>License/Permit/Monitoring Number</b>  |  | <b>Boring Number</b><br>SD603-AV                                                                                                                             |  |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |  |                           |  | <b>Date Drilling Started</b><br>06/20/96 |  | <b>Date Drilling Completed</b><br>06/20/96                                                                                                                   |  |
| <b>DNR Facility Well No.</b>                                                           |  | <b>WI Unique Well No.</b> |  | <b>Common Well Name</b>                  |  | <b>Drilling Method</b><br>VIBROCORE                                                                                                                          |  |
| <b>Final Static Water Level</b><br>Feet MSL                                            |  |                           |  | <b>Surface Elevation</b><br>Feet MSL     |  | <b>Borehole Diameter</b><br>4 inches                                                                                                                         |  |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |  |                           |  | <b>Feet N</b><br><b>Feet E</b>           |  | <b>Local Grid Location</b> (if applicable)<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |
| <b>County</b><br>Manitowac                                                             |  |                           |  | <b>DNR County Code</b><br>36             |  | <b>Civil Town/City/ or Village</b><br>City of Two Rivers                                                                                                     |  |

| Sample<br>Number<br>and Type | Length Att. &<br>Recovered (in) | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                        | USCS  | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|------------------------------|---------------------------------|-------------|---------------|------------------------------------------------------------------------------------------------------------|-------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
|                              |                                 |             |               |                                                                                                            |       |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                              |                                 |             | 1             | 0"-22" <u>SANDY SILT</u> ; with organics, dark brown, sand and silt laminations, (toothpaste tube in core) | ML    |                |                 | 146     |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 2             | 22"-63" <u>SILTY SAND</u> ; with shell fragments and organics, fine sand laminations, spongy silt          | SM    |                |                 | 171     |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 6             | 63"-117" <u>SILTY CLAY / SILT</u> ; (10YR 5/2) grayish brown, compact                                      | CL ML |                |                 | 143     |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 10            | EOB @ 117" Depth to sediment 2' 1.5"                                                                       |       |                |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Firm

Natural Resource Technology

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Route To:

- ☐ Solid Waste ☐ Haz. Waste  
☐ Emergency Response ☐ Underground Tanks  
☐ Wastewater ☐ Water Resources  
☐ Superfund ☐ Other:



SOIL BORING LOG INFORMATION

Form 4400-122

Rev. 5-92

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|                                                                                        |                           |                                    |                                                          |                                                                                                                                                              |                                      |
|----------------------------------------------------------------------------------------|---------------------------|------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |                           |                                    | <b>License/Permit/Monitoring Number</b>                  |                                                                                                                                                              | <b>Boring Number</b><br>SD603-BV     |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                                    | <b>Date Drilling Started</b><br>06/20/96                 | <b>Date Drilling Completed</b><br>06/20/96                                                                                                                   | <b>Drilling Method</b><br>VIBROCORE  |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL              | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>4 inches |
| <b>Boring Location</b><br>State Plane<br>NW 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br><br><b>Long</b>                            | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                      |
| <b>County</b><br>Manitowac                                                             |                           | <b>DNR County Code</b><br>36       | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |                                      |

| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                     | USCS | Graphic<br>Log                                                                     | Well<br>Diagram                                                                     | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                                                         |      |                                                                                    |                                                                                     |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                    |                                 |             | 1             | 0"-42" <u>SANDY SILT</u> ; dark brown, with organics (roots) and abundant wood (bark), black with strong PETROLEUM ODOR, TAR globules on organic matter | ML   |  |  | 324     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 2             |                                                                                                                                                         |      |                                                                                    |                                                                                     |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 3             |                                                                                                                                                         |      |                                                                                    |                                                                                     |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 4             | 42"-126" <u>SANDY SILT</u> ; dark brown with organics (roots), trace clay, contains brachipods and other shell fragments                                |      |                                                                                    |                                                                                     |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 5             |                                                                                                                                                         |      |                                                                                    |                                                                                     |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 6             |                                                                                                                                                         |      |                                                                                    |                                                                                     |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 7             |                                                                                                                                                         |      |                                                                                    |                                                                                     |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 8             |                                                                                                                                                         |      |                                                                                    |                                                                                     |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 9             |                                                                                                                                                         |      |                                                                                    |                                                                                     |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 10            |                                                                                                                                                         |      |                                                                                    |                                                                                     |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 11            | EOB @ 126" Depth to sediment 3' 3"                                                                                                                      |      |                                                                                    |                                                                                     |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Stephanie A. Va Dyle

Firm

Natural Resource Technology

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Route To:

- ☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

SOIL BORING LOG INFORMATION

Form 4400-122

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|                                                                                        |                           |                         |                                             |                                                          |                                                                                                                                                              |
|----------------------------------------------------------------------------------------|---------------------------|-------------------------|---------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |                           |                         | <b>License/Permit/Monitoring Number</b>     |                                                          | <b>Boring Number</b><br>SD603-CV                                                                                                                             |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                         | <b>Date Drilling Started</b><br>06/20/96    | <b>Date Drilling Completed</b><br>06/20/96               | <b>Drilling Method</b><br>VIBROCORE                                                                                                                          |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b> | <b>Final Static Water Level</b><br>Feet MSL | <b>Surface Elevation</b><br>Feet MSL                     | <b>Borehole Diameter</b><br>4 inches                                                                                                                         |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           |                         | <b>Feet N</b><br><b>Feet E</b>              | <b>Lat</b><br><b>Long</b>                                | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |
| <b>County</b><br>Manitowac                                                             |                           |                         | <b>DNR County Code</b><br>36                | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |





| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit               | USCS | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       |  | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|-----------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|--|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                   |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |  |                  |
|                    |                                 |             | 1             | 0"-14" <u>SILT</u> ; dark brown, with organics and interbedded TAR, poorly graded |      |                |                 | 191     |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 2             | 14"-16" As above with 50% organics saturated with TAR                             | ML   |                |                 | 574     |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 3             | 16"-26" As 0-14" with TAR and organic layers                                      |      |                |                 | 483     |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 4             | 26"-30" As 14-16" TAR                                                             | ML   |                |                 | 267     |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 5             | 30"-50" <u>SANDY SILT</u> ; dark brown with organics, ODOR                        |      |                |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 6             | 50"-52" <u>SAND</u> ; brown, fine compact                                         | SP   |                |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 7             | 52"-98" <u>SANDY SILT</u> ; dark brown, 15% organic matter, spongy                | ML   |                |                 | 54.9    |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 8             |                                                                                   |      |                |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 9             | EOB @ 98" Depth to sediment 3' 8.5"                                               |      |                |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 10            |                                                                                   |      |                |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 11            |                                                                                   |      |                |                 |         |                         |                     |                 |                     |       |  |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                           |                                     |
|-------------------------------------------|-------------------------------------|
| Signature<br><i>Stephanie A. Van Dyke</i> | Firm<br>Natural Resource Technology |
|-------------------------------------------|-------------------------------------|

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

|                                                                                        |                           |                                    |                                                          |                                                                                                                                                              |                                      |
|----------------------------------------------------------------------------------------|---------------------------|------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |                           |                                    | <b>License/Permit/Monitoring Number</b>                  |                                                                                                                                                              | <b>Boring Number</b><br>SD603-DV     |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                                    | <b>Date Drilling Started</b><br>06/20/96                 | <b>Date Drilling Completed</b><br>06/20/96                                                                                                                   | <b>Drilling Method</b><br>VIBROCORE  |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL              | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>4 inches |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br><br><b>Long</b>                            | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                      |
| <b>County</b><br>Manitowac                                                             |                           | <b>DNR County Code</b><br>36       | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |                                      |

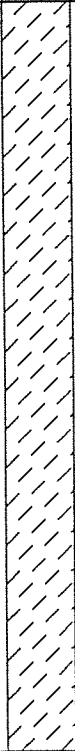

| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                              | USCS | Graphic<br>Log                                                                      | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |  |
|--------------------|---------------------------------|-------------|---------------|----------------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|--|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                                  |      |                                                                                     |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |  |
|                    |                                 |             | 1             | 0"-25" <u>SILT</u> ; dark brown, with organics,<br>poorly graded, loose                                                          | ML   |    |                 | 126     |                         |                     |                 |                     |       |                  |  |
|                    |                                 |             | 2             | 25"-95" <u>SANDY SILT</u> ; dark brown, with<br>shell fragments and organics (root and<br>bark), trace clay, soft                | ML   |   |                 | 80.7    |                         |                     |                 |                     |       |                  |  |
|                    |                                 |             | 3             |                                                                                                                                  |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
|                    |                                 |             | 4             |                                                                                                                                  |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
|                    |                                 |             | 5             |                                                                                                                                  |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
|                    |                                 |             | 6             |                                                                                                                                  |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
|                    |                                 |             | 7             |                                                                                                                                  |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
|                    |                                 |             | 8             | 95"-100" <u>WOOD</u> ; sawdust consistency, dark<br>brown and black                                                              | WOOD |  |                 | 98.5    |                         |                     |                 |                     |       |                  |  |
|                    |                                 |             | 9             | 100"-129" <u>SANDY SILT</u> and <u>SILTY SAND</u><br>laminations; both contain trace clay and<br>organics, trace shell fragments | ML   |  |                 | 59.4    |                         |                     |                 |                     |       |                  |  |
|                    |                                 |             | 10            |                                                                                                                                  |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
|                    |                                 |             | 11            | EOB @ 129" Depth to sediment 4' 1"                                                                                               |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                           |                                     |
|-------------------------------------------|-------------------------------------|
| Signature<br><i>Stephanie A. Van Dyke</i> | Firm<br>Natural Resource Technology |
|-------------------------------------------|-------------------------------------|

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|                                                                                        |                           |                              |                                                          |                                            |                                                                                                                                                              |
|----------------------------------------------------------------------------------------|---------------------------|------------------------------|----------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |                           |                              | <b>License/Permit/Monitoring Number</b>                  |                                            | <b>Boring Number</b><br>SD604-AV                                                                                                                             |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                              | <b>Date Drilling Started</b><br>06/12/96                 | <b>Date Drilling Completed</b><br>06/21/96 | <b>Drilling Method</b><br>VIBROCORE                                                                                                                          |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b>      | <b>Final Static Water Level</b><br>Feet MSL              | <b>Surface Elevation</b><br>Feet MSL       | <b>Borehole Diameter</b><br>4 inches                                                                                                                         |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           |                              | <b>Feet N</b><br><br><b>Feet E</b>                       | <b>Lat</b><br>Long                         | <b>Local Grid Location</b> (if applicable)<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |
| <b>County</b><br>Manitowac                                                             |                           | <b>DNR County Code</b><br>36 | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                            |                                                                                                                                                              |

| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit             | USCS     | Graphic<br>Log                                                                      | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|---------------------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                 |          |                                                                                     |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                    |                                 |             | 1             | 0"-48" <u>SILT</u> : dark brown, with organics,<br>trace shell fragments        | ML       |   |                 | 152     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 2             |                                                                                 |          |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 3             |                                                                                 |          |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 4             |                                                                                 |          |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 5             |                                                                                 |          |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 6             |                                                                                 |          |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 7             |                                                                                 |          |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 8             |                                                                                 |          |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 9             | 107"-144" <u>SILTY CLAY / SILT</u> : (10YR 5/2)<br>grayish brown, soft, compact | CL<br>ML |  |                 | 97.1    |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 10            |                                                                                 |          |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 11            |                                                                                 |          |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             |               | EOB @ 144" Depth to sediment 7' 7"                                              |          |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                           |                                     |
|-------------------------------------------|-------------------------------------|
| Signature<br><i>Stephanie A. Van Dyke</i> | Firm<br>Natural Resource Technology |
|-------------------------------------------|-------------------------------------|

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|                                                                                        |                           |                                    |                                                          |                                                                                                                                                              |                                      |
|----------------------------------------------------------------------------------------|---------------------------|------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Facility/Project Name</b><br>WPSC - Two Rivers - Sediment Investigation             |                           |                                    | <b>License/Permit/Monitoring Number</b>                  |                                                                                                                                                              | <b>Boring Number</b><br>SD604-BV     |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                                    | <b>Date Drilling Started</b><br>06/21/96                 | <b>Date Drilling Completed</b><br>06/21/96                                                                                                                   | <b>Drilling Method</b><br>VIBROCORE  |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL              | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>4 inches |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br>Long                                       | <b>Local Grid Location</b> (If applicable)<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                      |
| <b>County</b><br>Manitowac                                                             |                           | <b>DNR County Code</b><br>36       | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |                                      |

| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                               | USCS | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | ROD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                                   |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                    |                                 |             | 1             | 0"-56" <u>SILT</u> : dark brown, with organics,<br>loose, trace shell fragment in bottom 12"                                      |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 2             |                                                                                                                                   |      |                |                 | 131     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 3             |                                                                                                                                   |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 4             |                                                                                                                                   |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 5             | 56"-68" <u>SILT</u> : (5Y 2.5/2) dark olive, with<br>30% shell fragments and organics (roots),<br>loose                           | ML   |                |                 | 100     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 6             | 68"-131" <u>SILT</u> : (5YR 4/2) olive gray, with<br>organics and few shell fragment layers<br>(10-20%), trace clay, soft compact |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 7             |                                                                                                                                   |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 8             |                                                                                                                                   |      |                |                 | 77.8    |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 9             |                                                                                                                                   |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 10            |                                                                                                                                   |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 11            | EOB @ 131" Depth to sediment 7' 7"                                                                                                |      |                |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Stephanie A. Van Dyke Firm **Natural Resource Technology**

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Route To:  
☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

|                                                                                        |                           |                         |                                             |                                                          |                                                                                                                                                              |
|----------------------------------------------------------------------------------------|---------------------------|-------------------------|---------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |                           |                         | <b>License/Permit/Monitoring Number</b>     |                                                          | <b>Boring Number</b><br>SD605-AV                                                                                                                             |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                         | <b>Date Drilling Started</b><br>06/22/96    | <b>Date Drilling Completed</b><br>06/22/96               | <b>Drilling Method</b><br>VIBROCORE                                                                                                                          |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b> | <b>Final Static Water Level</b><br>Feet MSL | <b>Surface Elevation</b><br>Feet MSL                     | <b>Borehole Diameter</b><br>4 inches                                                                                                                         |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           |                         | <b>Feet N</b><br><br><b>Feet E</b>          | <b>Lat</b><br>Long                                       | <b>Local Grid Location</b> (If applicable)<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |
| <b>County</b><br>Manitowac                                                             |                           |                         | <b>DNR County Code</b><br>36                | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |

| Sample<br>Number<br>and Type | Length Att. &<br>Recovered (in) | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                 | USCS | Graphic<br>Log | Well<br>Diagram | PTD/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|------------------------------|---------------------------------|-------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
|                              |                                 |             |               |                                                                                                                                     |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                              |                                 |             | 1             | 0"-36" <u>SILT</u> : dark brown poorly graded with organic matter TAR globules, loose SHEEN, ODOR                                   | ML   |                |                 | 69.1    |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 2             |                                                                                                                                     |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 3             | 36"-42" <u>WOOD</u> : dark brown                                                                                                    | WOOD |                |                 | 34.7    |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 4             | 42"-77" <u>SILT</u> : dark brown poorly graded with organic matter TAR abundant especially on organic matter roots, trace clay soft | ML   |                |                 | 3049    |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 5             |                                                                                                                                     |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 6             |                                                                                                                                     |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 7             | 77"-80" <u>SAND</u> : fine, poorly graded brown-tan TAR saturated                                                                   | SP   |                |                 | 677     |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 8             | 80"-89" <u>SILT</u> : like 42"-77"                                                                                                  | ML   |                |                 | 451     |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 9             | EOB @ 89" Depth to sediment 2' 5"                                                                                                   |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 10            |                                                                                                                                     |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 11            |                                                                                                                                     |      |                |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                           |                                     |
|-------------------------------------------|-------------------------------------|
| Signature<br><i>Stephanie A. Van Dyke</i> | Firm<br>Natural Resource Technology |
|-------------------------------------------|-------------------------------------|

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Route To:

- ☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

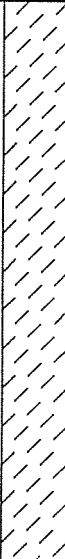

SOIL BORING LOG INFORMATION

Form 4400-122

Rev. 5-92

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|                                                                                        |                           |                                    |                                             |                                                                                                                                                              |                                      |
|----------------------------------------------------------------------------------------|---------------------------|------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |                           |                                    | <b>License/Permit/Monitoring Number</b>     |                                                                                                                                                              | <b>Boring Number</b><br>SD605-BV     |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                                    | <b>Date Drilling Started</b><br>06/21/96    | <b>Date Drilling Completed</b><br>06/21/96                                                                                                                   | <b>Drilling Method</b><br>VIBROCORE  |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>4 inches |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br>Long                          | <b>Local Grid Location (If applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                      |
| <b>County</b><br>Manitowac                                                             |                           |                                    | <b>DNR County Code</b><br>36                | <b>Civil Town/City/ or Village</b><br>City of Two Rivers                                                                                                     |                                      |

| Sample          |                              | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                | USCS | Graphic Log                                                                         | Well Diagram | PID/FID | Soil Properties      |                  |              |                  |       | RQD/<br>Comments |
|-----------------|------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|--------------|---------|----------------------|------------------|--------------|------------------|-------|------------------|
| Number and Type | Length Att. & Recovered (in) |             |               |                                                                                                                                                                    |      |                                                                                     |              |         | Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 |                  |
|                 |                              |             | 1             | 0"-80" <u>SILT</u> : dark brown, loose, poorly graded with organic matter wood from 6-12" and 23-29" TAR saturated. TAR in organic layers, SHEEN down to 80", ODOR | ML   |   |              | 772     |                      |                  |              |                  |       |                  |
|                 |                              |             | 2             |                                                                                                                                                                    |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 3             |                                                                                                                                                                    |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 4             |                                                                                                                                                                    |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 5             |                                                                                                                                                                    |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 6             |                                                                                                                                                                    |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 7             | 80"-101" <u>SANDY SILT</u> trace clay with organic matter, 40% organic matter (sawdust like wood) slight ODOR                                                      | ML   |  |              | 244     |                      |                  |              |                  |       |                  |
|                 |                              |             | 8             |                                                                                                                                                                    |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 9             | EOB @ 101" Depth to sediment "                                                                                                                                     |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 10            |                                                                                                                                                                    |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 11            |                                                                                                                                                                    |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature



Stephanie A. Van Dyke

Firm

Natural Resource Technology

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|                                                                                        |                           |                         |                                             |                                                          |                                                                                                                                                              |
|----------------------------------------------------------------------------------------|---------------------------|-------------------------|---------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |                           |                         | <b>License/Permit/Monitoring Number</b>     |                                                          | <b>Boring Number</b><br>SD605-CV                                                                                                                             |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                         | <b>Date Drilling Started</b><br>06/21/96    | <b>Date Drilling Completed</b><br>06/21/96               | <b>Drilling Method</b><br>VIEROCORE                                                                                                                          |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b> | <b>Final Static Water Level</b><br>Feet MSL | <b>Surface Elevation</b><br>Feet MSL                     | <b>Borehole Diameter</b><br>4 inches                                                                                                                         |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           |                         | <b>Feet N</b><br><b>Feet E</b>              | <b>Lat</b><br><b>Long</b>                                | <b>Local Grid Location</b> (If applicable)<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |
| <b>County</b><br>Manitowac                                                             |                           |                         | <b>DNR County Code</b><br>36                | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |

| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit            | USCS | Graphic<br>Log                                                                      | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       |  | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|--------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|--|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                |      |                                                                                     |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |  |                  |
|                    |                                 |             | 1             | 0"-30" <u>SILT</u> ; dark brown, poorly graded<br>with organic                 | ML   |   |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 2             |                                                                                |      |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 3             | 30"-100" <u>SILTY CLAY</u> dark brown very<br>soft with organic matter, spongy | CL   |  |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 4             |                                                                                |      |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 5             |                                                                                |      |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 6             |                                                                                |      |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 7             |                                                                                |      |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 8             | EOB @ 100" Depth to sediment "                                                 |      |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 9             |                                                                                |      |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 10            |                                                                                |      |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             | 11            |                                                                                |      |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                           |                                     |
|-------------------------------------------|-------------------------------------|
| Signature<br><i>Stephanie A. Van Dyke</i> | Firm<br>Natural Resource Technology |
|-------------------------------------------|-------------------------------------|

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Route To:

- ☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund

- ☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:


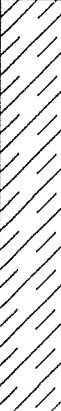
SOIL BORING LOG INFORMATION

Form 4400-122

Rev. 5-92

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|                                                                                        |                           |                         |                                             |                                                          |                                                                                                                                                              |
|----------------------------------------------------------------------------------------|---------------------------|-------------------------|---------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |                           |                         | <b>License/Permit/Monitoring Number</b>     |                                                          | <b>Boring Number</b><br>SD605-DV                                                                                                                             |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                         | <b>Date Drilling Started</b><br>06/21/96    | <b>Date Drilling Completed</b><br>06/21/96               | <b>Drilling Method</b><br>VIBROCORE                                                                                                                          |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b> | <b>Final Static Water Level</b><br>Feet MSL | <b>Surface Elevation</b><br>Feet MSL                     | <b>Borehole Diameter</b><br>4 inches                                                                                                                         |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           |                         | <b>Feet N</b><br><br><b>Feet E</b>          | <b>Lat</b><br>Long                                       | <b>Local Grid Location</b> (If applicable)<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |
| <b>County</b><br>Manitowac                                                             |                           |                         | <b>DNR County Code</b><br>36                | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |

| Sample          |                              | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                 | USCS | Graphic Log                                                                         | Well Diagram | PID/FID | Soil Properties      |                  |              |                  |       | RQD/<br>Comments |
|-----------------|------------------------------|-------------|---------------|-----------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|--------------|---------|----------------------|------------------|--------------|------------------|-------|------------------|
| Number and Type | Length Att. & Recovered (in) |             |               |                                                                                                     |      |                                                                                     |              |         | Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 |                  |
|                 |                              |             | 1             | 0"-28" <u>SILT</u> ; dark brown, with organic matter few shell fragments                            | ML   |   |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 2             |                                                                                                     |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 3             | 28"-87" <u>SILTY CLAY</u> ; dark brown with organic matter, firm in some places few shell fragments | CL   |  |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 4             |                                                                                                     |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 5             |                                                                                                     |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 6             |                                                                                                     |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 7             |                                                                                                     |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 8             | EOB @ 87" Depth to sediment "                                                                       |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 9             |                                                                                                     |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 10            |                                                                                                     |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |             | 11            |                                                                                                     |      |                                                                                     |              |         |                      |                  |              |                  |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.


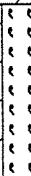
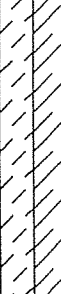
|                                           |                                     |
|-------------------------------------------|-------------------------------------|
| Signature<br><i>Stephanie A. Van Dyke</i> | Firm<br>Natural Resource Technology |
|-------------------------------------------|-------------------------------------|

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Route To:  
☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

|                                                                                |                           |                         |                                             |                                                          |                                                                                                                                                              |
|--------------------------------------------------------------------------------|---------------------------|-------------------------|---------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation       |                           |                         | <b>License/Permit/Monitoring Number</b>     |                                                          | <b>Boring Number</b><br>SD606-V                                                                                                                              |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI            |                           |                         | <b>Date Drilling Started</b><br>06/20/96    | <b>Date Drilling Completed</b><br>06/20/96               | <b>Drilling Method</b><br>VIBROCORE                                                                                                                          |
| <b>DNR Facility Well No.</b>                                                   | <b>WI Unique Well No.</b> | <b>Common Well Name</b> | <b>Final Static Water Level</b><br>Feet MSL | <b>Surface Elevation</b><br>Feet MSL                     | <b>Borehole Diameter</b><br>4 inches                                                                                                                         |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, Section 1, T19N, R24E |                           |                         | <b>Feet N</b><br><br><b>Feet E</b>          | <b>Lat</b><br>Long                                       | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |
| <b>County</b><br>Manitowac                                                     |                           |                         | <b>DNR County Code</b><br>36                | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |

| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit             | USCS         | Graphic<br>Log                                                                      | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|---------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                 |              |                                                                                     |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                    |                                 |             | 1             | 0"-22" <u>SILT</u> : dark brown, with organic matter (roots), loose             | ML           |   |                 | 71.4    |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 2             | 22"-32" As above with shell fragments, possible petro, slight ODOR              |              |                                                                                     |                 | 83.4    |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 3             | 32"-48" As above with 50% shell fragments, olive brown slight ODOR              | ML<br>SHELLS |  |                 | 154     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 4             | 48"-54" As above few shell fragmetns, slight ODOR                               |              |                                                                                     |                 | 294     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 5             | 54"-57" Like 32-48" slight ODOR                                                 |              |                                                                                     |                 | 307     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 6             | 57"-100" <u>SILT/SILTY CLAY</u> : grayish brown (10YR 5/2) with TAR in fissures | ML<br>CL     |  |                 | 219     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 7             |                                                                                 |              |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 8             |                                                                                 |              |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 9             | 100"-149" As above no tar present                                               |              |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 10            |                                                                                 |              |                                                                                     |                 | 57.6    |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 11            |                                                                                 |              |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                           |                                     |
|-------------------------------------------|-------------------------------------|
| Signature<br><i>Stephanie A. Van Dyke</i> | Firm<br>Natural Resource Technology |
|-------------------------------------------|-------------------------------------|

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Route To:  
☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

# SOIL BORING LOG INFORMATION

Form 4400-122

Rev. 5-92

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|                                                                                               |  |                           |  |                                          |  |                                                          |  |                                                                                                                                                              |  |                                      |  |
|-----------------------------------------------------------------------------------------------|--|---------------------------|--|------------------------------------------|--|----------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------|--|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation                      |  |                           |  | <b>License/Permit/Monitoring Number</b>  |  |                                                          |  | <b>Boring Number</b><br>SD607-AV                                                                                                                             |  |                                      |  |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                           |  |                           |  | <b>Date Drilling Started</b><br>06/21/96 |  | <b>Date Drilling Completed</b><br>06/21/96               |  | <b>Drilling Method</b><br>VIBROCORE                                                                                                                          |  |                                      |  |
| <b>DNR Facility Well No.</b>                                                                  |  | <b>WI Unique Well No.</b> |  | <b>Common Well Name</b>                  |  | <b>Final Static Water Level</b><br>Feet MSL              |  | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         |  | <b>Borehole Diameter</b><br>4 inches |  |
| <b>Boring Location</b><br><b>State Plane</b><br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |  |                           |  | <b>Feet N</b><br><b>Feet E</b>           |  | <b>Lat</b><br><b>Long</b>                                |  | <b>Local Grid Location</b> (if applicable)<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |                                      |  |
| <b>County</b><br>Manitowac                                                                    |  |                           |  | <b>DNR County Code</b><br>36             |  | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |  |                                                                                                                                                              |  |                                      |  |

| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                              | USCS | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                  |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                    |                                 |             | 1             | 0"-77" <u>SILT</u> : dark brown, with organic matter, loose, trace sand, trace clay              |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 2             |                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 3             |                                                                                                  | ML   |                |                 | 181     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 4             |                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 5             |                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 6             |                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 7             | 77"-98" <u>SILTY CLAY</u> : dark brown with 30% organic matter, (roots) and some wood, very soft | CL   |                |                 | 149     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 8             | 98"-104" As above with 50% organic matter and abundant wood                                      | OL   |                |                 | 75.8    |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 9             | 104"-112" <u>SILTY CLAY</u> : trace sand dark brown 10% organic matter                           |      |                |                 | 131     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 10            | 112"-136" As above TAR layers, pure TAR in catcher, slight ODOR                                  | CL   |                |                 | 585     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 11            |                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             |               | EOB @ 136" Depth to sediment "                                                                   |      |                |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Stephanie A. Van Dyke

Firm

Natural Resource Technology

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Route To:

- ☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

SOIL BORING LOG INFORMATION

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|                                                                                        |  |                           |  |                                          |  |                                                          |  |                                                                                                                                                              |  |                                      |  |
|----------------------------------------------------------------------------------------|--|---------------------------|--|------------------------------------------|--|----------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------|--|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |  |                           |  | <b>License/Permit/Monitoring Number</b>  |  |                                                          |  | <b>Boring Number</b><br>SD607-BV                                                                                                                             |  |                                      |  |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |  |                           |  | <b>Date Drilling Started</b><br>06/22/96 |  | <b>Date Drilling Completed</b><br>06/22/96               |  | <b>Drilling Method</b><br>VIBROCORE                                                                                                                          |  |                                      |  |
| <b>DNR Facility Well No.</b>                                                           |  | <b>WI Unique Well No.</b> |  | <b>Common Well Name</b>                  |  | <b>Final Static Water Level</b><br>Feet MSL              |  | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         |  | <b>Borehole Diameter</b><br>4 inches |  |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |  |                           |  | <b>Feet N</b><br><br><b>Feet E</b>       |  | <b>Lat</b><br>Long                                       |  | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |                                      |  |
| <b>County</b><br>Manitowac                                                             |  |                           |  | <b>DNR County Code</b><br>36             |  | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |  |                                                                                                                                                              |  |                                      |  |

| Sample          |                              | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                               | USCS | Graphic Log | Well Diagram | P10/F10 | Soil Properties      |                  |              |                  |       | RQD/<br>Comments |  |
|-----------------|------------------------------|-------------|---------------|-------------------------------------------------------------------------------------------------------------------|------|-------------|--------------|---------|----------------------|------------------|--------------|------------------|-------|------------------|--|
| Number and Type | Length Att. & Recovered (in) |             |               |                                                                                                                   |      |             |              |         | Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 |                  |  |
|                 |                              |             | 1             | 0"-28" SILT; dark brown, poorly graded with organic matter, loose (pudding)                                       | ML   |             |              | 513     |                      |                  |              |                  |       |                  |  |
|                 |                              |             | 2             | 28"-37" As above with wood and shell fragments                                                                    |      |             |              | 312     |                      |                  |              |                  |       |                  |  |
|                 |                              |             | 3             | 37"-115" SILTY CLAY; with organic matter, very soft, trace sand trace bivalves throughout<br><br>Few TAR globules | CL   |             |              | 186     |                      |                  |              |                  |       |                  |  |
|                 |                              |             | 4             |                                                                                                                   |      |             |              |         |                      |                  |              |                  |       |                  |  |
|                 |                              |             | 5             |                                                                                                                   |      |             |              |         |                      |                  |              |                  |       |                  |  |
|                 |                              |             | 6             |                                                                                                                   |      |             |              |         |                      |                  |              |                  |       |                  |  |
|                 |                              |             | 7             |                                                                                                                   |      |             |              |         |                      |                  |              |                  |       |                  |  |
|                 |                              |             | 8             |                                                                                                                   |      |             |              |         |                      |                  |              |                  |       |                  |  |
|                 |                              |             | 9             |                                                                                                                   |      |             |              |         |                      |                  |              |                  |       |                  |  |
|                 |                              |             | 10            | EOB @ 115" Depth to sediment "                                                                                    |      |             |              |         |                      |                  |              |                  |       |                  |  |
|                 |                              |             | 11            |                                                                                                                   |      |             |              |         |                      |                  |              |                  |       |                  |  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature

Stephanie A. Van Dyke

Firm

Natural Resource Technology

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Route To:

- ☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund
- ☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:



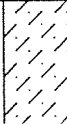


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|                                                                                       |                           |                         |                                             |                                                          |                                                                                                                                                              |
|---------------------------------------------------------------------------------------|---------------------------|-------------------------|---------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation              |                           |                         | <b>License/Permit/Monitoring Number</b>     |                                                          | <b>Boring Number</b><br>SD607-CV                                                                                                                             |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                   |                           |                         | <b>Date Drilling Started</b><br>06/22/96    | <b>Date Drilling Completed</b><br>06/22/96               | <b>Drilling Method</b><br>VIBROCORE                                                                                                                          |
| <b>DNR Facility Well No.</b>                                                          | <b>WI Unique Well No.</b> | <b>Common Well Name</b> | <b>Final Static Water Level</b><br>Feet MSL | <b>Surface Elevation</b><br>Feet MSL                     | <b>Borehole Diameter</b><br>4 inches                                                                                                                         |
| <b>Boring Location</b><br><b>State Plane</b><br>NE 1/4, NW 1/4, Section 1, T19N, R24E |                           |                         | <b>Feet N</b><br><b>Feet E</b>              | <b>Lat</b><br><b>Long</b>                                | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |
| <b>County</b><br>Manitowac                                                            |                           |                         | <b>DNR County Code</b><br>36                | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |

| Sample             |                                 | Blow Counts | Depth in Feet                                                                                                 | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                    | USCS                                                                                | Graphic<br>Log                                                                       | Well<br>Diagram                                                                     | PID/FID | Soil Properties         |                     |                 |                     |       |  | ROD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|--|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |                                                                                                               |                                                                                        |                                                                                     |                                                                                      |                                                                                     |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |  |                  |
|                    |                                 |             | 1                                                                                                             | 0"-24" <u>SILT</u> ; dark brown, poorly graded<br>with organic matter, loose (pudding) | ML                                                                                  |    |  | 222     |                         |                     |                 |                     |       |  |                  |
|                    |                                 | 2           | 24"-78" <u>SILT</u> ; trace clay, dark brown,<br>with trace organic matter <10% shell<br>fragments, very soft | 100                                                                                    |                                                                                     |                                                                                      |                                                                                     |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 | 3           |                                                                                                               |                                                                                        |                                                                                     |                                                                                      |                                                                                     |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 | 4           |                                                                                                               |                                                                                        |                                                                                     |                                                                                      |                                                                                     |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 | 5           |                                                                                                               |                                                                                        |                                                                                     |                                                                                      |                                                                                     |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 | 6           |                                                                                                               |                                                                                        |                                                                                     |                                                                                      |                                                                                     |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 | 7           | 78"-96" <u>SANDY SILT</u> ; trace clay dark<br>brown, trace organic matter (roots)                            | ML                                                                                     |  |  | 267                                                                                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 | 8           |                                                                                                               |                                                                                        |                                                                                     |                                                                                      |                                                                                     |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 | 9           | 96"-106" <u>SAND</u> ; dark brown fine, trace clay<br>compact                                                 | SP                                                                                     |  |                                                                                      | 1003                                                                                |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 | 10          |                                                                                                               |                                                                                        |                                                                                     |                                                                                      |                                                                                     |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 | 11          |                                                                                                               |                                                                                        |                                                                                     |                                                                                      |                                                                                     |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |             |                                                                                                               | EOB @ 106" Depth to sediment "                                                         |                                                                                     |                                                                                      |                                                                                     |         |                         |                     |                 |                     |       |  |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                        |                                     |
|----------------------------------------|-------------------------------------|
| Signature<br><i>Stephanie Van Dyke</i> | Firm<br>Natural Resource Technology |
|----------------------------------------|-------------------------------------|

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|                                                                                        |                           |                                    |                                                          |                                                                                                                                                              |                                      |
|----------------------------------------------------------------------------------------|---------------------------|------------------------------------|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation               |                           |                                    | <b>License/Permit/Monitoring Number</b>                  |                                                                                                                                                              | <b>Boring Number</b><br>SD608-AV     |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                    |                           |                                    | <b>Date Drilling Started</b><br>06/22/96                 | <b>Date Drilling Completed</b><br>06/22/96                                                                                                                   | <b>Drilling Method</b><br>VIBROCORE  |
| <b>DNR Facility Well No.</b>                                                           | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL              | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>4 inches |
| <b>Boring Location</b><br>State Plane<br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br><br><b>Long</b>                            | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                      |
| <b>County</b><br>Manitowac                                                             |                           | <b>DNR County Code</b><br>36       | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                                                                                                                                              |                                      |

| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                     | USCS | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                                         |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                    |                                 |             | 1             | 0"-24" <u>SILT</u> : dark brown, loose (pudding) with organic matter (roots) poorly graded slight SHEEN at top no ODOR possible organic | ML   |                |                 | 81.5    |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 2             | 24"-72" <u>SILTY CLAY</u> : dark brown, poorly graded very soft trace organic matter, spongy                                            | CL   |                |                 | 46.5    |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 3             |                                                                                                                                         |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 4             |                                                                                                                                         |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 5             | 72"-88" <u>SILT CLAY</u> : grayish brown soft (10YR 5/2) trace shell fragments (white)                                                  |      |                |                 | 65.1    |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 6             |                                                                                                                                         |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 7             | EOB @ 88" Depth to sediment "                                                                                                           |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 8             |                                                                                                                                         |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 9             |                                                                                                                                         |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 10            |                                                                                                                                         |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 11            |                                                                                                                                         |      |                |                 |         |                         |                     |                 |                     |       |                  |


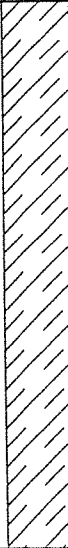

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                    |                                     |
|------------------------------------|-------------------------------------|
| Signature<br><i>Steph Van Dyke</i> | Firm<br>Natural Resource Technology |
|------------------------------------|-------------------------------------|

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Route To:  
☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

|                                                                                               |                           |                              |                                                          |                                            |                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------|---------------------------|------------------------------|----------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC-Two Rivers - Sediment Investigation                      |                           |                              | <b>License/Permit/Monitoring Number</b>                  |                                            | <b>Boring Number</b><br>SD609-AV                                                                                                                             |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>ASCI                           |                           |                              | <b>Date Drilling Started</b><br>06/22/96                 | <b>Date Drilling Completed</b><br>06/22/96 | <b>Drilling Method</b><br>VIBROCORE                                                                                                                          |
| <b>DNR Facility Well No.</b>                                                                  | <b>WI Unique Well No.</b> | <b>Common Well Name</b>      | <b>Final Static Water Level</b><br>Feet MSL              | <b>Surface Elevation</b><br>Feet MSL       | <b>Borehole Diameter</b><br>4 inches                                                                                                                         |
| <b>Boring Location</b><br><b>State Plane</b><br>NE 1/4, NW 1/4, NW 1/4, Section 1, T19N, R24E |                           |                              | <b>Feet N</b><br><b>Feet E</b>                           | <b>Lat</b><br><b>Long</b>                  | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |
| <b>County</b><br>Manitowac                                                                    |                           | <b>DNR County Code</b><br>36 | <b>Civil Town/City/ or Village</b><br>City of Two Rivers |                                            |                                                                                                                                                              |

| Sample             |                                 | Blow Counts | Depth in Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit               | USCS | Graphic<br>Log                                                                      | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|-----------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                   |      |                                                                                     |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                    |                                 |             | 1             | 0"-44" <u>SILT</u> ; dark brown, loose (pudding)<br>with organic matter           | ML   |   |                 | 139     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 2             |                                                                                   |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 3             |                                                                                   |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 4             | 44"-96" <u>SILTY CLAY</u> ; dark brown, very<br>soft with organic matter, (roots) | CL   |  |                 | 109     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 5             |                                                                                   |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 6             |                                                                                   |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 7             |                                                                                   |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 8             | 96"-122" As above with few sand (fine)<br>layers, black smears strong ODOR        |      |  |                 | 205     |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 9             |                                                                                   |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 10            |                                                                                   |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 11            | EOB @ 122" Depth to sediment "                                                    |      |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Stephanie A. Van Dyke Firm **Natural Resource Technology**

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Route To:

- ☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
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☐ Underground Tanks  
☐ Water Resources  
☐ Other:


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|                                                                                             |                           |                                    |                                             |                                                                                                                                                              |                                            |
|---------------------------------------------------------------------------------------------|---------------------------|------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |                           |                                    | <b>License/Permit/Monitoring Number</b>     |                                                                                                                                                              | <b>Boring Number</b><br>BKGD-601           |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |                           |                                    | <b>Date Drilling Started</b><br>07/11/95    | <b>Date Drilling Completed</b><br>07/11/95                                                                                                                   | <b>Drilling Method</b><br>Sediment Sampler |
| <b>DNR Facility Well No.</b>                                                                | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>2.0 inches     |
| <b>Boring Location</b><br>State Plane                                                       |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br><br><b>Long</b>               | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                            |
| <b>County</b><br>Manitowoc                                                                  |                           |                                    | <b>DNR County Code</b><br>36                | <b>Civil Town/City/ or Village</b><br>Two Rivers                                                                                                             |                                            |

| Sample<br>Number<br>and Type | Length Att. &<br>Recovered (in) | Blow Counts | DEPTH IN INCHES | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                | USCS     | Graphic<br>Log                                                                     | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments                                                                                                                                                 |
|------------------------------|---------------------------------|-------------|-----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                              |                                 |             |                 |                                                                                                                                                                    |          |                                                                                    |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                                                                                                                                                                  |
|                              |                                 |             | 2               | CLAY, SILT, SAND: Brown to dark brown loose, clay/silt and fine sands. Broken shells/organic material present (sticks, roots) - no hydrocarbon odor/sheen present. | SC<br>SM |  |                 |         |                         |                     |                 |                     |       | Collect sample 30' from shore in line with fence marking the northern boundary of the site. Do PAH immuno assay test and submit sample for lab analysis of PAHs. |
|                              |                                 |             | 4               |                                                                                                                                                                    |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                                                                                                                                                  |
|                              |                                 |             | 6               |                                                                                                                                                                    |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                                                                                                                                                  |
|                              |                                 |             | 8               |                                                                                                                                                                    |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                                                                                                                                                  |
|                              |                                 |             | 10              |                                                                                                                                                                    |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                                                                                                                                                  |
|                              |                                 |             | 12              |                                                                                                                                                                    |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                                                                                                                                                  |
|                              |                                 |             | 14              |                                                                                                                                                                    |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                                                                                                                                                  |
|                              |                                 |             | 16              |                                                                                                                                                                    |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                                                                                                                                                  |
|                              |                                 |             | 18              |                                                                                                                                                                    |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                                                                                                                                                  |
|                              |                                 |             | 20              |                                                                                                                                                                    |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                                                                                                                                                  |
|                              |                                 |             | 22              | Collect 20-inch Core Sample                                                                                                                                        |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                                                                                                                                                  |
|                              |                                 |             |                 | DTS = 4'6" and DTB = 4'11". DTS is Depth to Sediment and DTB is Depth to Bottom.                                                                                   |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                                                                                                                                                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Signature<br><i>Eric P. Kovatch</i> | Firm<br>Natural Resource Technology |
|-------------------------------------|-------------------------------------|

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.



|                                                                                             |                           |                                    |                                                  |                                                                                                                                                              |                                            |
|---------------------------------------------------------------------------------------------|---------------------------|------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |                           |                                    | <b>License/Permit/Monitoring Number</b>          |                                                                                                                                                              | <b>Boring Number</b><br>SD-601             |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |                           |                                    | <b>Date Drilling Started</b><br>07/10/95         | <b>Date Drilling Completed</b><br>07/10/95                                                                                                                   | <b>Drilling Method</b><br>Sediment Sampler |
| <b>DNR Facility Well No.</b>                                                                | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL      | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>2.0 inches     |
| <b>Boring Location</b><br>State Plane                                                       |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br><br><b>Long</b>                    | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                            |
| <b>County</b><br>Manitowoc                                                                  |                           | <b>DNR County Code</b><br>36       | <b>Civil Town/City/ or Village</b><br>Two Rivers |                                                                                                                                                              |                                            |

| Sample             |                                 | Blow Counts | DEPTH IN INCHES | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                                             | USCS | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments                                                                                |
|--------------------|---------------------------------|-------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|-------------------------------------------------------------------------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |                 |                                                                                                                                                                                                 |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                                                                                                 |
|                    |                                 |             | 2               | CLAY, SILT, SAND: Brown to dark brown loose, clay/silt and fine sands, broken shells/organic material present (sticks, roots) - slight hydrocarbon odor/sheen present in cores.                 |      |                |                 |         |                         |                     |                 |                     |       | Collect sample 17' from shore. Do immuno assay tets and submit sample for lab analysis of PAHs. |
|                    |                                 |             | 4               |                                                                                                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                                                                                                 |
|                    |                                 |             | 6               | In grab sample pull up what looks like a tar "cow pie" approximately 1.5' round and 1.5" thick - strong odor, blue-black (iridescent), sticks and other organic material bound together by tar. |      |                |                 |         |                         |                     |                 |                     |       |                                                                                                 |
|                    |                                 |             | 8               |                                                                                                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                                                                                                 |
|                    |                                 |             | 10              |                                                                                                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                                                                                                 |
|                    |                                 |             | 12              |                                                                                                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                                                                                                 |
|                    |                                 |             | 14              |                                                                                                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                                                                                                 |
|                    |                                 |             | 16              |                                                                                                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                                                                                                 |
|                    |                                 |             | 18              |                                                                                                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                                                                                                 |
|                    |                                 |             | 20              |                                                                                                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                                                                                                 |
|                    |                                 |             | 22              |                                                                                                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                                                                                                 |


I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                     |                                     |
|-------------------------------------|-------------------------------------|
| Signature<br><i>Eric P. Kovatch</i> | Firm<br>Natural Resource Technology |
|-------------------------------------|-------------------------------------|

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|                                                                                             |  |                           |  |                                             |  |                                                                                                                                                              |  |
|---------------------------------------------------------------------------------------------|--|---------------------------|--|---------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |  |                           |  | <b>License/Permit/Monitoring Number</b>     |  | <b>Boring Number</b><br>SD-602A                                                                                                                              |  |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |  |                           |  | <b>Date Drilling Started</b><br>07/11/95    |  | <b>Date Drilling Completed</b><br>07/11/95                                                                                                                   |  |
| <b>Drilling Method</b><br>Sediment Sampler                                                  |  |                           |  | <b>Final Static Water Level</b><br>Feet MSL |  | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         |  |
| <b>DNR Facility Well No.</b>                                                                |  | <b>WI Unique Well No.</b> |  | <b>Common Well Name</b>                     |  | <b>Borehole Diameter</b><br>2.0 inches                                                                                                                       |  |
| <b>Boring Location</b><br>State Plane                                                       |  |                           |  | <b>Feet N</b><br><br><b>Feet E</b>          |  | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |
| <b>County</b><br>Manitowoc                                                                  |  |                           |  | <b>DNR County Code</b><br>36                |  | <b>Civil Town/City/ or Village</b><br>Two Rivers                                                                                                             |  |

| Sample<br>Number<br>and Type | Length Att. &<br>Recovered (in) | Blow Counts | DEPTH IN INCHES | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                              | USCS  | Graphic<br>Log                                                                     | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |  | P 200 | RQD/<br>Comments                                                                                 |
|------------------------------|---------------------------------|-------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|--|-------|--------------------------------------------------------------------------------------------------|
|                              |                                 |             |                 |                                                                                                                                                                                  |       |                                                                                    |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index |  |       |                                                                                                  |
|                              |                                 |             | 2               | CLAY, SILT, SAND: Dark brown to black, loose, clay/silt and fine sands, broken shells/organic material present (sticks, roots) - slight hydrocarbon odor/sheen present in cores. | CL SM |  |                 |         |                         |                     |                 |                     |  |       | Collect sample 36' from shore. Do immuno assay tests and submit sample for lab analysis of PAHs. |
|                              |                                 |             | 4               |                                                                                                                                                                                  |       |                                                                                    |                 |         |                         |                     |                 |                     |  |       |                                                                                                  |
|                              |                                 |             | 6               |                                                                                                                                                                                  |       |                                                                                    |                 |         |                         |                     |                 |                     |  |       |                                                                                                  |
|                              |                                 |             | 8               |                                                                                                                                                                                  |       |                                                                                    |                 |         |                         |                     |                 |                     |  |       |                                                                                                  |
|                              |                                 |             | 10              |                                                                                                                                                                                  |       |                                                                                    |                 |         |                         |                     |                 |                     |  |       |                                                                                                  |
|                              |                                 |             | 12              |                                                                                                                                                                                  |       |                                                                                    |                 |         |                         |                     |                 |                     |  |       |                                                                                                  |
|                              |                                 |             | 14              |                                                                                                                                                                                  |       |                                                                                    |                 |         |                         |                     |                 |                     |  |       |                                                                                                  |
|                              |                                 |             | 16              |                                                                                                                                                                                  |       |                                                                                    |                 |         |                         |                     |                 |                     |  |       |                                                                                                  |
|                              |                                 |             | 18              |                                                                                                                                                                                  |       |                                                                                    |                 |         |                         |                     |                 |                     |  |       |                                                                                                  |
|                              |                                 |             | 20              |                                                                                                                                                                                  |       |                                                                                    |                 |         |                         |                     |                 |                     |  |       |                                                                                                  |
|                              |                                 |             | 22              | Collect 20-inch Core Sample                                                                                                                                                      |       |                                                                                    |                 |         |                         |                     |                 |                     |  |       |                                                                                                  |
|                              |                                 |             |                 | DTS = 1'11" and DTB = 2'4". DTS is Depth to Sediment and DTB is Depth to Bottom.                                                                                                 |       |                                                                                    |                 |         |                         |                     |                 |                     |  |       |                                                                                                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Eric P. Kovatch

Firm **Natural Resource Technology**

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Route To:  
☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

SOIL BORING LOG INFORMATION

Form 4400-122

Rev. 5-92

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|                                                                                             |  |                           |  |                                          |  |                                                  |  |                                                                                                                                                              |  |                                        |  |
|---------------------------------------------------------------------------------------------|--|---------------------------|--|------------------------------------------|--|--------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------|--|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |  |                           |  | <b>License/Permit/Monitoring Number</b>  |  |                                                  |  | <b>Boring Number</b><br>SD-602B                                                                                                                              |  |                                        |  |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |  |                           |  | <b>Date Drilling Started</b><br>07/11/95 |  | <b>Date Drilling Completed</b><br>07/11/95       |  | <b>Drilling Method</b><br>Sediment Sampler                                                                                                                   |  |                                        |  |
| <b>DNR Facility Well No.</b>                                                                |  | <b>WI Unique Well No.</b> |  | <b>Common Well Name</b>                  |  | <b>Final Static Water Level</b><br>Feet MSL      |  | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         |  | <b>Borehole Diameter</b><br>2.0 inches |  |
| <b>Boring Location</b><br>State Plane                                                       |  |                           |  | <b>Feet N</b><br><br><b>Feet E</b>       |  | <b>Lat</b><br>Long                               |  | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |                                        |  |
| <b>County</b><br>Manitowoc                                                                  |  |                           |  | <b>DNR County Code</b><br>36             |  | <b>Civil Town/City/ or Village</b><br>Two Rivers |  |                                                                                                                                                              |  |                                        |  |

| Sample             |                                 | Blow Counts | DEPTH IN INCHES | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                              | USCS | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments               |
|--------------------|---------------------------------|-------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|--------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |                 |                                                                                                                                                                                  |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                                |
|                    |                                 |             | 2               | CLAY, SILT, SAND: Dark brown to black, loose, clay/silt and fine sands, broken shells/organic material present (sticks, roots) - slight hydrocarbon odor/sheen present in cores. |      | CL<br>SM       |                 |         |                         |                     |                 |                     |       | Collect sample 85' from shore. |
|                    |                                 |             | 4               |                                                                                                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                                |
|                    |                                 |             | 6               | In first grab sample pull up another "tar pie" - 6" diameter/1" thick. Similar to "tar pie" found at SD-601.                                                                     |      |                |                 |         |                         |                     |                 |                     |       |                                |
|                    |                                 |             | 8               |                                                                                                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                                |
|                    |                                 |             | 10              |                                                                                                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                                |
|                    |                                 |             | 12              |                                                                                                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                                |
|                    |                                 |             | 14              |                                                                                                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                                |
|                    |                                 |             | 16              | Collect 16-inch Core Sample                                                                                                                                                      |      |                |                 |         |                         |                     |                 |                     |       |                                |
|                    |                                 |             | 18              | DTS = 2'4" and DTB = 4'0". DTS is Depth to Sediment and DTB is Depth to Bottom.                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                                |
|                    |                                 |             | 20              |                                                                                                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                                |
|                    |                                 |             | 22              |                                                                                                                                                                                  |      |                |                 |         |                         |                     |                 |                     |       |                                |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

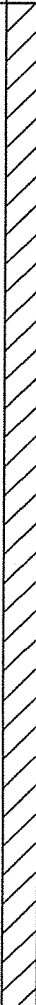


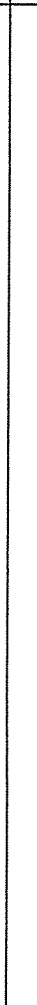




|           |                                         |
|-----------|-----------------------------------------|
| Signature | Firm <b>Natural Resource Technology</b> |
|-----------|-----------------------------------------|

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- ☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund

- ☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

|                                                                                             |                           |                                    |                                             |                                                                                                                                                              |                                            |
|---------------------------------------------------------------------------------------------|---------------------------|------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |                           |                                    | <b>License/Permit/Monitoring Number</b>     |                                                                                                                                                              | <b>Boring Number</b><br>SD-602C            |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |                           |                                    | <b>Date Drilling Started</b><br>07/11/95    | <b>Date Drilling Completed</b><br>07/11/95                                                                                                                   | <b>Drilling Method</b><br>Sediment Sampler |
| <b>DNR Facility Well No.</b>                                                                | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>2.0 inches     |
| <b>Boring Location</b><br>State Plane                                                       |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br>Long                          | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                            |
| <b>County</b><br>Manitowoc                                                                  |                           |                                    | <b>DNR County Code</b><br>36                | <b>Civil Town/City/ or Village</b><br>Two Rivers                                                                                                             |                                            |


| Sample             |                                 | Blow Counts | DEPTH-INCHES                                                                                                                        | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                                                      | USCS     | Graphic<br>Log                                                                     | Well<br>Diagram                                                                     | PID/FID                                                                              | Soil Properties                                                                      |                                                                                      |                                                                                      |                                                                                      |                                                                                      | P 200                                                                                            | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |                                                                                                                                     |                                                                                                                                                                                                          |          |                                                                                    |                                                                                     |                                                                                      | Compressive<br>Strength                                                              | Moisture<br>Content                                                                  | Liquid<br>Limit                                                                      | Plasticity<br>Index                                                                  |                                                                                      |                                                                                                  |                  |
|                    |                                 |             | 2<br>4<br>6<br>8<br>10<br>12<br>14<br>16<br>18<br>20<br>22                                                                          | <u>CLAY, SILT, SAND:</u> Dark brown, loose, clay/silt and fine sands with floating detritus/muck. Looks like a layer with abundant biological activity. Grades back into typical sediments at 10 inches. | CL<br>SM |  |  |  |  |  |  |  |  | Collect sample 145' from shore. Do immuno assay tets and submit sample for lab analysis of PAHs. |                  |
|                    |                                 |             | <u>CLAY, SILT, SAND:</u> Dark brown to black, loose, clay/silt/fine sand, organic material present (sticks, roots) - no sheen/odor. |                                                                                                                                                                                                          |          |                                                                                    |                                                                                     |                                                                                      |                                                                                      |                                                                                      |                                                                                      |                                                                                      |                                                                                      |                                                                                                  |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                  |                                            |
|------------------|--------------------------------------------|
| <b>Signature</b> | <b>Firm</b><br>Natural Resource Technology |
|------------------|--------------------------------------------|

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|                                                                                             |                           |                                          |                                                  |                                                                                                                                                              |                                        |
|---------------------------------------------------------------------------------------------|---------------------------|------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |                           | <b>License/Permit/Monitoring Number</b>  |                                                  | <b>Boring Number</b><br>SD-602D                                                                                                                              |                                        |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |                           | <b>Date Drilling Started</b><br>07/11/95 |                                                  | <b>Date Drilling Completed</b><br>07/11/95                                                                                                                   |                                        |
| <b>Drilling Method</b><br>Sediment Sampler                                                  |                           |                                          |                                                  |                                                                                                                                                              |                                        |
| <b>DNR Facility Well No.</b>                                                                | <b>WI Unique Well No.</b> | <b>Common Well Name</b>                  | <b>Final Static Water Level</b><br>Feet MSL      | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>2.0 inches |
| <b>Boring Location</b><br>State Plane                                                       |                           | <b>Feet N</b><br><br><b>Feet E</b>       | <b>Lat</b><br><br><b>Long</b>                    | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                        |
| <b>County</b><br>Manitowoc                                                                  |                           | <b>DNR County Code</b><br>36             | <b>Civil Town/City/ or Village</b><br>Two Rivers |                                                                                                                                                              |                                        |

| Sample             |                                 | Blow Counts | DEPTH-INCHES                                               | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                      | USCS     | Graphic<br>Log                                                                     | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       |                                 | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------|------------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|---------------------------------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |                                                            |                                                                                                                          |          |                                                                                    |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                                 |                  |
|                    |                                 |             | 2<br>4<br>6<br>8<br>10<br>12<br>14<br>16<br>18<br>20<br>22 | CLAY, SILT, SAND: Dark brown/black, loose, clay/silt/fine sands, broken shells/organic material present - no sheen/odor. | SP<br>SC |  |                 |         |                         |                     |                 |                     |       | Collect sample 170' from shore. |                  |
|                    |                                 |             | Collect 16-inch Core Sample                                |                                                                                                                          |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                 |                  |
|                    |                                 |             |                                                            | DTB = 2'6" and DTB = 4'11". DTB is Depth to Sediment and DTB is Depth to Bottom.                                         |          |                                                                                    |                 |         |                         |                     |                 |                     |       |                                 |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                  |                                         |
|----------------------------------|-----------------------------------------|
| Signature <i>Eric P. Kovatch</i> | Firm <b>Natural Resource Technology</b> |
|----------------------------------|-----------------------------------------|

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.

Route To:  
☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

SOIL BORING LOG INFORMATION

Form 4400-122

Rev. 5-92

Page 1 of 1

|                                                                                             |                           |                                          |                                                  |                                                                                                                                                              |                                        |
|---------------------------------------------------------------------------------------------|---------------------------|------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |                           | <b>License/Permit/Monitoring Number</b>  |                                                  | <b>Boring Number</b><br>SD-603A                                                                                                                              |                                        |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |                           | <b>Date Drilling Started</b><br>07/11/95 |                                                  | <b>Date Drilling Completed</b><br>07/11/95                                                                                                                   |                                        |
| <b>Drilling Method</b><br>Sediment Sampler                                                  |                           |                                          |                                                  |                                                                                                                                                              |                                        |
| <b>DNR Facility Well No.</b>                                                                | <b>WI Unique Well No.</b> | <b>Common Well Name</b>                  | <b>Final Static Water Level</b><br>Feet MSL      | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>2.0 inches |
| <b>Boring Location</b><br>State Plane                                                       |                           | <b>Feet N</b><br><br><b>Feet E</b>       | <b>Lat</b><br><br><b>Long</b>                    | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                        |
| <b>County</b><br>Manitowoc                                                                  |                           | <b>DNR County Code</b><br>36             | <b>Civil Town/City/ or Village</b><br>Two Rivers |                                                                                                                                                              |                                        |

| Sample             |                                 | Blow Counts | DEPTH-INCHES | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                             | USCS  | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |  | P 200 | RQD/<br>Comments               |
|--------------------|---------------------------------|-------------|--------------|-----------------------------------------------------------------------------------------------------------------|-------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|--|-------|--------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |              |                                                                                                                 |       |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index |  |       |                                |
|                    |                                 |             | 1            | CLAY, SILT, SAND: Dark brown/black, loose, clay/silt/fine sand with organic material -hard to tell if impacted. | CL SM |                |                 |         |                         |                     |                 |                     |  |       | Collect sample 45' from shore. |
|                    |                                 |             | 2            |                                                                                                                 |       |                |                 |         |                         |                     |                 |                     |  |       |                                |
|                    |                                 |             | 3            | Collect 3-inch Core Sample                                                                                      |       |                |                 |         |                         |                     |                 |                     |  |       |                                |
|                    |                                 |             | 4            |                                                                                                                 |       |                |                 |         |                         |                     |                 |                     |  |       |                                |
|                    |                                 |             | 5            |                                                                                                                 |       |                |                 |         |                         |                     |                 |                     |  |       |                                |
|                    |                                 |             | 6            |                                                                                                                 |       |                |                 |         |                         |                     |                 |                     |  |       |                                |
|                    |                                 |             | 7            |                                                                                                                 |       |                |                 |         |                         |                     |                 |                     |  |       |                                |
|                    |                                 |             | 8            |                                                                                                                 |       |                |                 |         |                         |                     |                 |                     |  |       |                                |
|                    |                                 |             | 9            |                                                                                                                 |       |                |                 |         |                         |                     |                 |                     |  |       |                                |
|                    |                                 |             | 10           |                                                                                                                 |       |                |                 |         |                         |                     |                 |                     |  |       |                                |
|                    |                                 |             | 11           |                                                                                                                 |       |                |                 |         |                         |                     |                 |                     |  |       |                                |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Eric P. Kovatch Firm **Natural Resource Technology**

This form is authorized by Chapters 144.147 and 182, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 182.06, Wis. Stats.

Route To:  
☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

|                                                                                             |                           |                                          |                                                  |                                                                                                                                                              |                                      |
|---------------------------------------------------------------------------------------------|---------------------------|------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |                           | <b>License/Permit/Monitoring Number</b>  |                                                  | <b>Boring Number</b><br>SD-603B                                                                                                                              |                                      |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |                           | <b>Date Drilling Started</b><br>07/11/95 |                                                  | <b>Date Drilling Completed</b><br>07/11/95                                                                                                                   |                                      |
| <b>Drilling Method</b><br>Sediment Sampler                                                  |                           |                                          |                                                  |                                                                                                                                                              |                                      |
| <b>DNR Facility Well No.</b>                                                                | <b>WI Unique Well No.</b> | <b>Common Well Name</b>                  |                                                  | <b>Final Static Water Level</b><br>Feet MSL                                                                                                                  | <b>Surface Elevation</b><br>Feet MSL |
|                                                                                             |                           |                                          |                                                  | <b>Borehole Diameter</b><br>2.0 inches                                                                                                                       |                                      |
| <b>Boring Location</b><br>State Plane                                                       |                           | <b>Feet N</b><br><br><b>Feet E</b>       |                                                  | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                      |
| <b>County</b><br>Manitowoc                                                                  |                           | <b>DNR County Code</b><br>36             | <b>Civil Town/City/ or Village</b><br>Two Rivers |                                                                                                                                                              |                                      |

| Sample             |                                 | Blow Counts | DEPTH IN INCHES | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                | USCS     | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments                                                                                     |
|--------------------|---------------------------------|-------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------|----------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------------------------------------------------------------------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |                 |                                                                                                                                    |          |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                                                                                                      |
|                    |                                 |             | 2               | CLAY, SILT, SAND: Dark brown/black, loose, clay/silt/fine sand, organic material present - have sheen and mild to strong tar odor. | SC<br>SM |                |                 |         |                         |                     |                 |                     |       | Collect sample 75' from shore. Do PAH immuno assay test and submit sample for lab analysis for PAHs. |
|                    |                                 |             | 4               |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             | 6               |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             | 8               |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             | 10              |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             | 12              |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             | 14              |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             | 16              |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             | 18              |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             | 20              |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             | 22              |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             |                 |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             |                 |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             |                 |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             |                 |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             |                 |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             |                 |                                                                                                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             |                 | Collect 18-inch Core Sample                                                                                                        |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |
|                    |                                 |             |                 | DTS = 3'0" and DTB = 5'4". DTS is Depth to Sediment and DTB is Depth to Bottom.                                                    |          |                |                 |         |                         |                     |                 |                     |       |                                                                                                      |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|           |                                         |
|-----------|-----------------------------------------|
| Signature | Firm <b>Natural Resource Technology</b> |
|-----------|-----------------------------------------|

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Route To:  
☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

|                                                                                             |                           |                                    |                                             |                                                                                                                                                              |                                            |
|---------------------------------------------------------------------------------------------|---------------------------|------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |                           |                                    | <b>License/Permit/Monitoring Number</b>     |                                                                                                                                                              | <b>Boring Number</b><br>SD-603C            |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |                           |                                    | <b>Date Drilling Started</b><br>07/11/95    | <b>Date Drilling Completed</b><br>07/11/95                                                                                                                   | <b>Drilling Method</b><br>Sediment Sampler |
| <b>DNR Facility Well No.</b>                                                                | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>2.0 inches     |
| <b>Boring Location</b><br>State Plane                                                       |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br><br><b>Long</b>               | <b>Local Grid Location (If applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                            |
| <b>County</b><br>Manitowoc                                                                  |                           |                                    | <b>DNR County Code</b><br>36                | <b>Civil Town/City/ or Village</b><br>Two Rivers                                                                                                             |                                            |

| Sample<br>Number<br>and Type | Length Att. &<br>Recovered (in) | Blow Counts | DEPTH-INCHES                                          | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                   | USCS | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments                                          |
|------------------------------|---------------------------------|-------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|-----------------------------------------------------------|
|                              |                                 |             |                                                       |                                                                                                                                       |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                                                           |
|                              |                                 |             | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11 | CLAY, SILT, SAND: Dark brown/black, loose, clay/silt/fine sand, with organic material - very faint tar odor-hard to tell if impacted. | SC   |                |                 |         |                         |                     |                 |                     |       | Collect sample 135' from shore. Do PAH immuno assay test. |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Eric P. Kovatch Firm Natural Resource Technology

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Route To:  
☐ Solid Waste  
☐ Emergency Response  
☐ Wastewater  
☐ Superfund  
☐ Haz. Waste  
☐ Underground Tanks  
☐ Water Resources  
☐ Other:

|                                                                                             |  |                           |  |                                          |  |                                                                                                                                                              |  |
|---------------------------------------------------------------------------------------------|--|---------------------------|--|------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |  |                           |  | <b>License/Permit/Monitoring Number</b>  |  | <b>Boring Number</b><br>SD-603D                                                                                                                              |  |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |  |                           |  | <b>Date Drilling Started</b><br>07/11/95 |  | <b>Date Drilling Completed</b><br>07/11/95                                                                                                                   |  |
| <b>Drilling Method</b><br>Sediment Sampler                                                  |  |                           |  |                                          |  |                                                                                                                                                              |  |
| <b>DNR Facility Well No.</b>                                                                |  | <b>WI Unique Well No.</b> |  | <b>Common Well Name</b>                  |  | <b>Final Static Water Level</b><br>Feet MSL                                                                                                                  |  |
|                                                                                             |  |                           |  |                                          |  | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         |  |
|                                                                                             |  |                           |  |                                          |  | <b>Borehole Diameter</b><br>2.0 inches                                                                                                                       |  |
| <b>Boring Location</b><br>State Plane                                                       |  |                           |  | <b>Feet N</b><br><br><b>Feet E</b>       |  | <b>Lat</b><br>Long                                                                                                                                           |  |
|                                                                                             |  |                           |  |                                          |  | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |
| <b>County</b><br>Manitowoc                                                                  |  |                           |  | <b>DNR County Code</b><br>36             |  | <b>Civil Town/City/ or Village</b><br>Two Rivers                                                                                                             |  |

| Sample             |                                 | Blow Counts | DEPTH IN INCHES | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                   | USCS  | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments                                          |
|--------------------|---------------------------------|-------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------|-------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|-----------------------------------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |                 |                                                                                                                                       |       |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                                                           |
|                    |                                 |             | 2               | CLAY, SILT, SAND: Dark brown/black, loose, clay/silt/fine sand, with organic material - slight sheen and tar odor present - impacted. | CL SM |                |                 |         |                         |                     |                 |                     |       | Collect sample 195' from shore. Do PAH immuno assay test. |
|                    |                                 |             | 4               |                                                                                                                                       |       |                |                 |         |                         |                     |                 |                     |       |                                                           |
|                    |                                 |             | 6               |                                                                                                                                       |       |                |                 |         |                         |                     |                 |                     |       |                                                           |
|                    |                                 |             | 8               |                                                                                                                                       |       |                |                 |         |                         |                     |                 |                     |       |                                                           |
|                    |                                 |             | 10              |                                                                                                                                       |       |                |                 |         |                         |                     |                 |                     |       |                                                           |
|                    |                                 |             | 12              |                                                                                                                                       |       |                |                 |         |                         |                     |                 |                     |       |                                                           |
|                    |                                 |             | 14              |                                                                                                                                       |       |                |                 |         |                         |                     |                 |                     |       |                                                           |
|                    |                                 |             | 16              |                                                                                                                                       |       |                |                 |         |                         |                     |                 |                     |       |                                                           |
|                    |                                 |             | 18              |                                                                                                                                       |       |                |                 |         |                         |                     |                 |                     |       |                                                           |
|                    |                                 |             | 20              |                                                                                                                                       |       |                |                 |         |                         |                     |                 |                     |       |                                                           |
|                    |                                 |             | 22              | Collect 20-inch Core Sample                                                                                                           |       |                |                 |         |                         |                     |                 |                     |       |                                                           |
|                    |                                 |             |                 | DTS = 3'6" and DTB = 6'11". DTS is Depth to Sediment and DTB is Depth to Bottom.                                                      |       |                |                 |         |                         |                     |                 |                     |       |                                                           |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                      |                                            |
|----------------------|--------------------------------------------|
| <b>Signature</b><br> | <b>Firm</b><br>Natural Resource Technology |
|----------------------|--------------------------------------------|

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|                                                                                             |                           |                                          |                                                  |                                                                                                                                                              |                                        |
|---------------------------------------------------------------------------------------------|---------------------------|------------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |                           | <b>License/Permit/Monitoring Number</b>  |                                                  | <b>Boring Number</b><br>SD-603E                                                                                                                              |                                        |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |                           | <b>Date Drilling Started</b><br>07/11/95 |                                                  | <b>Date Drilling Completed</b><br>07/11/95                                                                                                                   |                                        |
| <b>Drilling Method</b><br>Sediment Sampler                                                  |                           |                                          |                                                  |                                                                                                                                                              |                                        |
| <b>DNR Facility Well No.</b>                                                                | <b>WI Unique Well No.</b> | <b>Common Well Name</b>                  | <b>Final Static Water Level</b><br>Feet MSL      | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>2.0 inches |
| <b>Boring Location</b><br>State Plane                                                       |                           | <b>Feet N</b><br><br><b>Feet E</b>       | <b>Lat</b><br><br><b>Long</b>                    | <b>Local Grid Location (If applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                        |
| <b>County</b><br>Manitowoc                                                                  |                           | <b>DNR County Code</b><br>36             | <b>Civil Town/City/ or Village</b><br>Two Rivers |                                                                                                                                                              |                                        |

| Sample             |                                 | Blow Counts | DEPTH-INCHES | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                             | USCS | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|--------------|-----------------------------------------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |              |                                                                                                                 |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
|                    |                                 |             | 1            | CLAY, SILT, SAND: Dark brown/black, loose, clay/silt/fine sand, organic material present - no signs of impacts. |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 2            |                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 3            |                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 4            |                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 5            |                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 6            |                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 7            |                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 8            |                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 9            |                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 10           |                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 11           |                                                                                                                 |      |                |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                  |                                         |
|----------------------------------|-----------------------------------------|
| Signature <i>Eric P. Kovatch</i> | Firm <b>Natural Resource Technology</b> |
|----------------------------------|-----------------------------------------|

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than \$10 nor more than \$5,000 for each violation. Fined not less than \$10 or more than \$100 or imprisoned not less than 30 days, or both for each violation. Each day of continued violation is a separate offense, pursuant to ss 144.99 and 162.06, Wis. Stats.



|                                                                                             |                           |                                    |                                                  |                                                                                                                                                              |                                            |
|---------------------------------------------------------------------------------------------|---------------------------|------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| <b>Facility/Project Name</b><br>WPSC/Two Rivers MGP                                         |                           |                                    | <b>License/Permit/Monitoring Number</b>          |                                                                                                                                                              | <b>Boring Number</b><br>SD-603F            |
| <b>Boring Drilled By</b> (Firm name and name of crew chief)<br>NRT, Inc.<br>Eric P. Kovatch |                           |                                    | <b>Date Drilling Started</b><br>07/11/95         | <b>Date Drilling Completed</b><br>07/11/95                                                                                                                   | <b>Drilling Method</b><br>Sediment Sampler |
| <b>DNR Facility Well No.</b>                                                                | <b>WI Unique Well No.</b> | <b>Common Well Name</b>            | <b>Final Static Water Level</b><br>Feet MSL      | <b>Surface Elevation</b><br>Feet MSL                                                                                                                         | <b>Borehole Diameter</b><br>2.0 inches     |
| <b>Boring Location</b><br>State Plane                                                       |                           | <b>Feet N</b><br><br><b>Feet E</b> | <b>Lat</b><br><br><b>Long</b>                    | <b>Local Grid Location (if applicable)</b><br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                            |
| <b>County</b><br>Manitowoc                                                                  |                           | <b>DNR County Code</b><br>36       | <b>Civil Town/City/ or Village</b><br>Two Rivers |                                                                                                                                                              |                                            |

| Sample             |                                 | Blow Counts | DEPTH-INCHES                                          | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                         | USCS     | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       |                                 | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|-------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|---------------------------------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |                                                       |                                                                                                                                                             |          |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                                 |                  |
|                    |                                 |             | 1<br>2<br>3<br>4<br>5<br>6<br>7<br>8<br>9<br>10<br>11 | CLAY, SILT, SAND: Dark brown/black, loose, clay/silt/fine sand, with organic material/broken sheels - no sign of impacts - gray silt at bottom of the core. | CL<br>SM |                |                 |         |                         |                     |                 |                     |       | Collect sample 265' from shore. |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                  |                                         |
|----------------------------------|-----------------------------------------|
| Signature <i>Eric P. Kovatch</i> | Firm <b>Natural Resource Technology</b> |
|----------------------------------|-----------------------------------------|

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**APPENDIX B**

**TEST PIT AND SOIL BORING LOGS**

Route To: Watershed/Wastewater ☐ Waste Management ☐  
Remediation/Redevelopment ☒ Other ☐

Page 1 of 2

|                                                                                                                                                                                                   |                 |                                              |                                                                                                                                                                                          |                                                  |                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------------------------------|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                                                                                   |                 | License/Permit/Monitoring Number<br><b>1</b> |                                                                                                                                                                                          | Boring Number<br><b>SB-626</b>                   |                                    |
| Boring Drilled By: Name of crew chief (first, last) and Firm<br><b>M. Mueller<br/>Boart Longyear</b>                                                                                              |                 | Date Drilling Started<br><b>8/25/2003</b>    |                                                                                                                                                                                          | Date Drilling Completed<br><b>8/25/2003</b>      |                                    |
| Drilling Method<br><b>hollow stem auger</b>                                                                                                                                                       |                 |                                              |                                                                                                                                                                                          |                                                  |                                    |
| WI Unique Well No.                                                                                                                                                                                | DNR Well ID No. | Common Well Name                             | Final Static Water Level<br><b>Feet MSL</b>                                                                                                                                              | Surface Elevation<br><b>Feet MSL</b>             | Borehole Diameter<br><b>inches</b> |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/><br>State Plane <b>N, E S/C/N</b><br>1/4 of <b>T N, R</b> |                 |                                              | Local Grid Location<br>Lat <b>° ' "</b><br>Long <b>° ' "</b><br>Feet <input type="checkbox"/> N <input type="checkbox"/> E<br>Feet <input type="checkbox"/> S <input type="checkbox"/> W |                                                  |                                    |
| Facility ID                                                                                                                                                                                       |                 | County<br><b>Manitowoc</b>                   | County Code<br><b>36</b>                                                                                                                                                                 | Civil Town/City/ or Village<br><b>Two Rivers</b> |                                    |

| Sample             |                                 | Blow Counts         | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                      | U S C S | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       |  | RQD/<br>Comments |
|--------------------|---------------------------------|---------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|--|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |                     |               |                                                                                                                                                                          |         |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |  |                  |
| 1<br>SS            | 24<br>24                        | 1<br>1<br>1<br>1    | 1             | 0'-4.5' <u>PEAT</u> , Brown, moist                                                                                                                                       |         |                |                 |         |                         |                     |                 |                     |       |  |                  |
| 2<br>SS            | 24<br>24                        | 1<br>1<br>1<br>1    | 2             |                                                                                                                                                                          | PEAT    |                |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |                     | 3             | 3.5'-4.5' Some emulsified coal tar in peat                                                                                                                               |         |                |                 |         |                         |                     |                 |                     |       |  |                  |
| 3<br>SS            | 24<br>24                        | 1<br>1<br>1<br>10   | 4             |                                                                                                                                                                          |         |                |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |                     | 5             | 4.5'-5' <u>PEAT WITH SILT</u> , Slow dilatency,<br>low toughness, high plasticity, very soft,<br>emulsified tar seems to be following the<br>vegetation left in the peat | PEAT    |                |                 |         |                         |                     |                 |                     |       |  |                  |
| 4<br>SS            | 24<br>24                        | 9<br>6<br>7<br>7    | 6             | 5'-8' <u>SILTY CLAY</u> , Some sand, no<br>dilatency, low toughness, high plasticity,<br>very soft, evidence of emulsified tar                                           | CH      |                |                 |         |                         |                     |                 |                     |       |  |                  |
| 5<br>SS            | 24<br>24                        | 7<br>3<br>3         | 7             | 6'-8' Sand seams in silty clay, seams have<br>oily sheen and odor                                                                                                        |         |                |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |                     | 8             | 7.75'-8' Black wood                                                                                                                                                      |         |                |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |                     | 9             | 8'-11.5' <u>SILTY SAND WITH CLAY</u> ,<br>Fine, wet, small globs of emulsified coal<br>tar                                                                               | SP-SM   |                |                 |         |                         |                     |                 |                     |       |  |                  |
| 6<br>SS            | 24<br>24                        | 4<br>4<br>4<br>4    | 10            |                                                                                                                                                                          |         |                |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |                     | 11            |                                                                                                                                                                          |         |                |                 |         |                         |                     |                 |                     |       |  |                  |
| 7<br>SS            | 24<br>24                        | 7<br>12<br>10<br>12 | 12            | 11.5'-12' <u>FAT CLAY</u> , Light brown, low<br>toughness, high plasticity, core of clay has<br>emulsified coal tar seam                                                 | CH      |                |                 |         | 2.0                     |                     |                 |                     |       |  |                  |
|                    |                                 |                     | 13            | 12'-15.5' <u>SAND</u> , Brown to light brown,<br>low toughness, no plasticity, soft, odor,<br>wet, with emulsified coal tar                                              | SP      |                |                 |         |                         |                     |                 |                     |       |  |                  |
| 8<br>SS            | 24<br>24                        | 7<br>4              | 14            |                                                                                                                                                                          |         |                |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |                     | 15            |                                                                                                                                                                          |         |                |                 |         |                         |                     |                 |                     |       |  |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *Samir M. Khan* Firm **Natural Resource Technology, Inc.** Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Template: WDNr\_SBL\_98 - Project: 1569 GINT SBLS.GPJ



[illegible]

Route To: Watershed/Wastewater ☐ Waste Management ☐  
Remediation/Redevelopment ☒ Other ☐

Page 1 of 2

|                                                                                                                                          |  |                     |                                       |                                           |                                                                                                                          |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------|---------------------------------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|--|
| Facility/Project Name<br>WPSC-Two Rivers                                                                                                 |  |                     | License/Permit/Monitoring Number<br>1 |                                           | Boring Number<br>SB-627                                                                                                  |  |
| Boring Drilled By: Name of crew chief (first, last) and Firm<br>M. Mueller<br>Boart Longyear                                             |  |                     | Date Drilling Started<br>8/25/2003    |                                           | Date Drilling Completed<br>8/25/2003                                                                                     |  |
| WI Unique Well No.                                                                                                                       |  | DNR Well ID No.     | Common Well Name                      |                                           | Drilling Method<br>hollow stem auger                                                                                     |  |
|                                                                                                                                          |  |                     | Final Static Water Level<br>Feet MSL  |                                           | Surface Elevation<br>Feet MSL                                                                                            |  |
|                                                                                                                                          |  |                     |                                       |                                           | Borehole Diameter<br>inches                                                                                              |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |  |                     | State Plane<br>N, E S/C/N             |                                           | Local Grid Location                                                                                                      |  |
| 1/4 of                                                                                                                                   |  |                     | 1/4 of Section , T N, R               |                                           | Lat _____ ' _____ "                                                                                                      |  |
|                                                                                                                                          |  |                     | Long _____ ' _____ "                  |                                           | Feet <input type="checkbox"/> N <input type="checkbox"/> E<br>Feet <input type="checkbox"/> S <input type="checkbox"/> W |  |
| Facility ID                                                                                                                              |  | County<br>Manitowoc | County Code<br>36                     | Civil Town/City/ or Village<br>Two Rivers |                                                                                                                          |  |

| Sample             |                                 | Blow Counts      | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                          | U S C S | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|------------------|---------------|------------------------------------------------------------------------------------------------------------------------------|---------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |                  |               |                                                                                                                              |         |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
| 1<br>SS            | 24<br>0                         | 1<br>1<br>1<br>1 | 1             | 0'-2' No recovery                                                                                                            |         |                |                 |         |                         |                     |                 |                     |       |                  |
| 2<br>SS            | 24<br>9                         | 1<br>1<br>1<br>1 | 2             | 2'-3' <u>ORGANIC PEAT</u> with shell layer                                                                                   | PEAT    |                |                 |         |                         |                     |                 |                     |       |                  |
| 3<br>SS            | 24<br>24                        | 1<br>1<br>1<br>1 | 4             | 3'-7' <u>SILTY CLAY</u> , Light brown to brown-grey, low toughness, high plasticity, slow dilatency, very soft, no odor, wet | CH      |                |                 |         |                         |                     |                 |                     |       |                  |
| 4<br>SS            | 24<br>24                        | 2<br>2<br>2<br>2 | 6             | 7'-9.75' <u>SAND</u> , Light brown to grey fine, no odor, wet, no visual impact                                              | SP      |                |                 |         |                         |                     |                 |                     |       |                  |
| 5<br>SS            | 24<br>24                        | 3<br>2<br>2<br>2 | 8             | 9.75'-14' <u>FAT CLAY</u> , Light brown, low toughness, high plasticity, firm, no odor, wet, no visual impact                | CH      |                |                 |         | 1.0                     |                     |                 |                     |       |                  |
| 6<br>SS            | 24<br>24                        | 2<br>5<br>2<br>3 | 10            |                                                                                                                              |         |                |                 |         | 1.5                     |                     |                 |                     |       |                  |
| 7<br>SS            | 24<br>24                        | 2<br>3<br>2<br>3 | 12            |                                                                                                                              |         |                |                 |         |                         |                     |                 |                     |       |                  |
| 8<br>SS            | 24<br>24                        | 2<br>1           | 14            | 14'-16' <u>SAND</u> , Light brown, low toughness, non-plastic, soft, saturated                                               | SP      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |                  | 15            |                                                                                                                              |         |                |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.






Signature *Jennifer M. Kuebler* Firm Natural Resource Technology Tel: \_\_\_\_\_  
Fax: \_\_\_\_\_

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Boring Number **SB-627**

Use only as an attachment to Form 4400-122.

Page **2** of **2**

| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                              | U S C S | Graphic<br>Log                                                                    | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |      |  |  |  |  |  |  |
|--------------------|---------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|------|--|--|--|--|--|--|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                                                  |         |                                                                                   |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |      |  |  |  |  |  |  |
| 9<br>SS            | 24<br>24                        | 1           | 16            |                                                                                                                                                  | SP      |  |                 |         |                         |                     |                 |                     |       |                  |      |  |  |  |  |  |  |
|                    |                                 | 2           |               |                                                                                                                                                  | SP      |  |                 |         |                         |                     |                 |                     |       |                  |      |  |  |  |  |  |  |
|                    |                                 | 3           | 17            | 16'-17' <u>SILTY CLAY</u> , low toughness,<br>high plasticity, soft, wet                                                                         | CH      |  |                 |         |                         |                     |                 |                     |       |                  | △0.5 |  |  |  |  |  |  |
|                    |                                 | 4           |               | 17'-19' <u>SAND</u> , Light brown, fine, low<br>toughness, non-plastic, soft, saturated                                                          | SP      |  |                 |         |                         |                     |                 |                     |       |                  |      |  |  |  |  |  |  |
| 10<br>SS           | 24<br>24                        | 7           |               |                                                                                                                                                  |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |      |  |  |  |  |  |  |
|                    |                                 | 4           | 18            |                                                                                                                                                  |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |      |  |  |  |  |  |  |
|                    |                                 | 3           | 19            | 19'-20' <u>FAT CLAY</u> , Light brown, low<br>toughness, high plasticity, firm, no odor,<br>wet, no visual impact<br><u>END OF BORING AT 20'</u> | CH      |  |                 |         |                         |                     |                 |                     |       |                  |      |  |  |  |  |  |  |
|                    |                                 | 3           | 20            |                                                                                                                                                  |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |      |  |  |  |  |  |  |

Route To: Watershed/Wastewater ☐ Waste Management ☐  
Remediation/Redevelopment ☒ Other ☐

Page 1 of 2

|                                                                                                                                                                                                   |                 |                                              |                                                                                                                                                                                          |                                                  |                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------------------------------|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                                                                                   |                 | License/Permit/Monitoring Number<br><b>1</b> |                                                                                                                                                                                          | Boring Number<br><b>SB-628</b>                   |                                    |
| Boring Drilled By: Name of crew chief (first, last) and Firm<br><b>M. Mueller<br/>Boart Longyear</b>                                                                                              |                 | Date Drilling Started<br><b>8/25/2003</b>    |                                                                                                                                                                                          | Date Drilling Completed<br><b>8/25/2003</b>      |                                    |
| Drilling Method<br><b>hollow stem<br/>auger</b>                                                                                                                                                   |                 |                                              |                                                                                                                                                                                          |                                                  |                                    |
| WI Unique Well No.                                                                                                                                                                                | DNR Well ID No. | Common Well Name                             | Final Static Water Level<br><b>Feet MSL</b>                                                                                                                                              | Surface Elevation<br><b>Feet MSL</b>             | Borehole Diameter<br><b>inches</b> |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/><br>State Plane <b>N, E S/C/N</b><br>1/4 of <b>T N, R</b> |                 |                                              | Local Grid Location<br>Lat <b>° ' "</b><br>Long <b>° ' "</b><br>Feet <input type="checkbox"/> N <input type="checkbox"/> E<br>Feet <input type="checkbox"/> S <input type="checkbox"/> W |                                                  |                                    |
| Facility ID                                                                                                                                                                                       |                 | County<br><b>Manitowoc</b>                   | County Code<br><b>36</b>                                                                                                                                                                 | Civil Town/City/ or Village<br><b>Two Rivers</b> |                                    |

| Sample          |                              | Blow Counts          | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                                                          | USCS  | Graphic Log | Well Diagram | PID/FID | Soil Properties      |                  |              |                  |       | RQD/<br>Comments |
|-----------------|------------------------------|----------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------|--------------|---------|----------------------|------------------|--------------|------------------|-------|------------------|
| Number and Type | Length Att. & Recovered (in) |                      |               |                                                                                                                                                                                                              |       |             |              |         | Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 |                  |
| 1<br>SS         | 24<br>0                      | 1<br>1<br>1          | 1             | 0'-4' No recovery, <u>PEAT</u> in cuttings, 4'-5' <u>PEAT</u> recovered, some rootlets, wet                                                                                                                  | PEAT  |             |              |         |                      |                  |              |                  |       |                  |
| 2<br>SS         | 24<br>0                      | 1<br>1<br>1          | 2             |                                                                                                                                                                                                              |       |             |              |         |                      |                  |              |                  |       |                  |
| 3<br>SS         | 24<br>12                     | 1<br>1<br>1          | 3             |                                                                                                                                                                                                              |       |             |              |         |                      |                  |              |                  |       |                  |
|                 |                              | 1<br>1<br>1          | 4             |                                                                                                                                                                                                              |       |             |              |         |                      |                  |              |                  |       |                  |
| 4<br>SS         | 24<br>0                      | 1<br>1<br>1          | 5             | 5'-9.75' <u>FAT CLAY</u> , Slow dilatency, soft, no strength, high plasticity, no odor, wet, no impact<br>6'-8' No recovery                                                                                  | CH    |             |              |         |                      |                  |              |                  |       |                  |
| 5<br>SS         | 24<br>24                     | 1<br>1<br>1          | 6             |                                                                                                                                                                                                              |       |             |              |         |                      |                  |              |                  |       |                  |
|                 |                              | 1<br>1<br>1          | 7             |                                                                                                                                                                                                              |       |             |              |         |                      |                  |              |                  |       |                  |
|                 |                              | 1<br>1<br>1          | 8             |                                                                                                                                                                                                              |       |             |              |         |                      |                  |              |                  |       |                  |
| 6<br>SS         | 24<br>24                     | 1<br>1<br>2          | 9             | 9.75'-10.75' <u>SAND WITH CLAY</u> , Brown, fine, some shells, slow dilatency, no strength, high plasticity, no odor, no visual impact<br>10.75'-13.5' <u>SAND</u> , Fine, no strength, non-plastic, no odor | SP-SC |             |              |         |                      |                  |              |                  |       |                  |
| 7<br>SS         | 24<br>24                     | 1<br>1<br>2          | 10            |                                                                                                                                                                                                              |       |             |              |         |                      |                  |              |                  |       |                  |
|                 |                              | 10<br>17<br>11<br>12 | 11            |                                                                                                                                                                                                              |       |             |              |         |                      |                  |              |                  |       |                  |
|                 |                              |                      | 12            |                                                                                                                                                                                                              |       |             |              |         |                      |                  |              |                  |       |                  |
| 8<br>SS         | 24<br>24                     | 4<br>6               | 13            | 13.5'-16.5' <u>FAT CLAY</u> , Light brown, low strength, high plasticity, no dilatency, wet                                                                                                                  | CH    |             |              |         |                      |                  |              |                  |       |                  |
|                 |                              |                      | 14            |                                                                                                                                                                                                              |       |             |              |         |                      |                  |              |                  |       |                  |
|                 |                              |                      | 15            |                                                                                                                                                                                                              |       |             |              |         |                      |                  |              |                  |       |                  |



I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *James M. Kuhler* Firm **Natural Resource Technology, Inc.** Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

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| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                     | U S C S | Graphic<br>Log                                                                    | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|-------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                         |         |                                                                                   |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
| 9<br>SS            | 24<br>24                        | 8           | 8             | 13.5'-16.5' <u>FAT CLAY</u> , Light brown, low strength, high plasticity, no dilatency, wet<br>At 15', trace peat layer | CH      |  |                 |         | 2.0 to 0.5              |                     |                 |                     |       |                  |
|                    |                                 | 12          | 16            |                                                                                                                         |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 14          | 17            | 16.5'-20' <u>SAND</u> , Fine, no strength, non-plastic, no odor                                                         | SP      |  |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 14          | 17            |                                                                                                                         |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
| 10<br>SS           | 24<br>24                        | 5           | 18            |                                                                                                                         |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 10          | 19            |                                                                                                                         |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 13          | 20            |                                                                                                                         |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 8           |               |                                                                                                                         |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             |               | <u>END OF BORING AT 20'</u>                                                                                             |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |

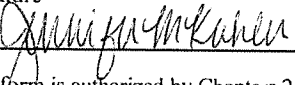
Route To: Watershed/Wastewater ☐ Waste Management ☐  
Remediation/Redevelopment ☒ Other ☐

Page 1 of 2

|                                                                                                                                                                                                   |                 |                            |                                              |                                                  |                                                                                                                                       |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------|----------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                                                                                   |                 |                            | License/Permit/Monitoring Number<br><b>1</b> |                                                  | Boring Number<br><b>SB-629</b>                                                                                                        |  |
| Boring Drilled By: Name of crew chief (first, last) and Firm<br><b>M. Mueller<br/>Boart Longyear</b>                                                                                              |                 |                            | Date Drilling Started<br><b>8/25/2003</b>    |                                                  | Date Drilling Completed<br><b>8/25/2003</b>                                                                                           |  |
| Drilling Method<br><b>hollow stem<br/>auger</b>                                                                                                                                                   |                 |                            |                                              |                                                  |                                                                                                                                       |  |
| WI Unique Well No.                                                                                                                                                                                | DNR Well ID No. | Common Well Name           | Final Static Water Level<br>Feet MSL         | Surface Elevation<br>Feet MSL                    | Borehole Diameter<br>inches                                                                                                           |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/><br>State Plane <b>N, E S/C/N</b><br>1/4 of <b>T N, R</b> |                 |                            | Lat <b>° ' "</b><br>Long <b>° ' "</b>        |                                                  | Local Grid Location<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |
| Facility ID                                                                                                                                                                                       |                 | County<br><b>Manitowoc</b> | County Code<br><b>36</b>                     | Civil Town/City/ or Village<br><b>Two Rivers</b> |                                                                                                                                       |  |

| Sample          |                              | Blow Counts          | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                           | U S C S | Graphic Log                                                                         | Well Diagram | PID/FID | Soil Properties      |                  |              |                  |       | RQD/<br>Comments |
|-----------------|------------------------------|----------------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------|--------------|---------|----------------------|------------------|--------------|------------------|-------|------------------|
| Number and Type | Length Att. & Recovered (in) |                      |               |                                                                                                                                                               |         |                                                                                     |              |         | Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 |                  |
| 1<br>SS         | 24<br>12                     | 1<br>1<br>4<br>3     | 1             | 0'-4' <u>SAND</u> , Light brown, fine, non-plastic, no odor, slightly moist to moist, no visual impact                                                        | SP      |   |              |         |                      |                  |              |                  |       |                  |
| 2<br>SS         | 24<br>6                      | 26<br>7<br>6<br>4    | 2<br>3        | 3.5'-4' Some subangular gravel                                                                                                                                |         |                                                                                     |              |         |                      |                  |              |                  |       |                  |
| 3<br>SS         | 24<br>24                     | 4<br>3<br>3<br>3     | 4<br>5        | 4'-6' <u>PEAT</u> , Dark brown to black, no strength, non-plastic, organic odor, moist, trace long fibers                                                     |         |                                                                                     |              |         |                      |                  |              |                  |       |                  |
| 4<br>SS         | 24<br>3                      | 1<br>2<br>2<br>1     | 6<br>7        | 6'-9' <u>SILTY CLAY</u> , Light brown to grey, slow dilatency, low to no strength, high plasticity, no odor, moist, trace rootlets, crushed orange brick fill | CH      |  |              |         |                      |                  |              |                  |       |                  |
| 5<br>SS         | 24<br>24                     | 6<br>3<br>3<br>3     | 8<br>9        | 9'-17.5' <u>SAND</u> , Light brown to grey, fine, rapid dilatency, low strength, non-plastic, no odor, wet                                                    | SP      |  |              |         |                      |                  |              |                  |       |                  |
| 6<br>SS         | 24<br>24                     | 10<br>10<br>10<br>10 | 10<br>11      |                                                                                                                                                               |         |                                                                                     |              |         |                      |                  |              |                  |       |                  |
| 7<br>SS         | 24<br>24                     | 7<br>1<br>1<br>3     | 12<br>13      | At 12', small <u>SILTY CLAY</u> lens                                                                                                                          |         |                                                                                     |              |         |                      |                  |              |                  |       |                  |
| 8<br>SS         | 24<br>24                     | 7<br>8               | 14            | 14'-25' Petroleum-like odor                                                                                                                                   |         |                                                                                     |              |         |                      |                  |              |                  |       |                  |
|                 |                              |                      | 15            |                                                                                                                                                               |         |                                                                                     |              |         |                      |                  |              |                  |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                                                                                  |                                                  |              |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------|
| Signature<br> | Firm<br><b>Natural Resource Technology, Inc.</b> | Tel:<br>Fax: |
|--------------------------------------------------------------------------------------------------|--------------------------------------------------|--------------|

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Route To: Watershed/Wastewater ☐ Waste Management ☐  
Remediation/Redevelopment ☒ Other ☐

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|                                                                                                                                          |                 |                                              |                          |                                                  |                               |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------|--------------------------|--------------------------------------------------|-------------------------------|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                          |                 | License/Permit/Monitoring Number<br><b>1</b> |                          | Boring Number<br><b>SB-630</b>                   |                               |
| Boring Drilled By: Name of crew chief (first, last) and Firm<br><b>M. Mueller<br/>Boart Longyear</b>                                     |                 | Date Drilling Started<br><b>8/25/2003</b>    |                          | Date Drilling Completed<br><b>8/25/2003</b>      |                               |
| Drilling Method<br><b>hollow stem<br/>auger</b>                                                                                          |                 |                                              |                          |                                                  |                               |
| WI Unique Well No.                                                                                                                       | DNR Well ID No. | Common Well Name                             |                          | Final Static Water Level<br>Feet MSL             | Surface Elevation<br>Feet MSL |
|                                                                                                                                          |                 |                                              |                          |                                                  | Borehole Diameter<br>inches   |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |                 | State Plane<br>N, E S/C/N                    |                          | Local Grid Location                              |                               |
| 1/4 of                                                                                                                                   |                 | 1/4 of Section , T N, R                      |                          | Lat _____<br>Long _____                          |                               |
| Facility ID                                                                                                                              |                 | County<br><b>Manitowoc</b>                   | County Code<br><b>36</b> | Civil Town/City/ or Village<br><b>Two Rivers</b> |                               |

| Sample          |                              | Blow Counts          | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                      | USCS | Graphic Log                                                                         | Well Diagram | PID/FID    | Soil Properties      |                  |              |                  |       | RQD/<br>Comments |
|-----------------|------------------------------|----------------------|---------------|--------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------|--------------|------------|----------------------|------------------|--------------|------------------|-------|------------------|
| Number and Type | Length Att. & Recovered (in) |                      |               |                                                                                                                          |      |                                                                                     |              |            | Compressive Strength | Moisture Content | Liquid Limit | Plasticity Index | P 200 |                  |
| 1<br>SS         | 24<br>12                     | 13<br>12<br>17<br>28 | 1.5           | 0'-6.5' <u>FILL</u> , GRAVEL, Fine to medium subangular with fines, no dilatency, no strength, non-plastic, no odor, dry | FILL |   |              |            | <0.5                 |                  |              |                  |       |                  |
| 2<br>SS         | 24<br>6                      | 38<br>47<br>37<br>42 | 3.0           | Wet at 3'                                                                                                                |      |                                                                                     |              |            |                      |                  |              |                  |       |                  |
| 3<br>SS         | 24<br>6                      | 12<br>12<br>13<br>11 | 4.5           |                                                                                                                          |      |                                                                                     |              |            |                      |                  |              |                  |       |                  |
| 4<br>SS         | 24<br>24                     | 1<br>1<br>2<br>3     | 6.0           | 6.5'-7.5' <u>SILTY CLAY</u> , Grey, slow dilatency, low strength, high plasticity, no odor, moist                        |      |                                                                                     |              |            |                      |                  |              |                  |       |                  |
| 5<br>SS         | 24<br>0                      | 6<br>7<br>8<br>7     | 9.0           | 7.5'-10.5' <u>SAND</u> , Grey, no dilatency, no strength, non-plastic, no odor, moist                                    | SP   |  |              | 2.5 to 1.0 |                      |                  |              |                  |       |                  |
| 6<br>SS         | 24<br>24                     | 4<br>4<br>6<br>8     | 10.5          | 10.5'-18' <u>SILTY CLAY</u> , Light brown to brown, slow dilatency, low strength, high plasticity, no odor, wet          | CH   |  |              |            |                      |                  |              |                  |       |                  |
| 7<br>SS         | 24<br>24                     | 3<br>3<br>4<br>3     | 12.0          |                                                                                                                          |      |                                                                                     |              |            |                      |                  |              |                  |       |                  |
| 8<br>SS         | 24<br>24                     | 1<br>1<br>1<br>1     | 15.0          |                                                                                                                          |      |                                                                                     |              |            |                      |                  |              |                  |       |                  |
| 9<br>SS         | 24<br>6                      | 4<br>3<br>6<br>4     | 16.5          |                                                                                                                          |      |                                                                                     |              |            |                      |                  |              |                  |       |                  |
|                 |                              |                      | 18.0          | END OF BORING AT 18'                                                                                                     |      |                                                                                     |              |            | <0.5                 |                  |              |                  |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *M. Mueller* Firm **Natural Resource Technology, Inc.** Tel: \_\_\_\_\_  
Fax: \_\_\_\_\_

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Route To: Watershed/Wastewater ☐ Waste Management ☐  
Remediation/Redevelopment ☒ Other ☐

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|                                                                                                                                                                                                   |                 |                                              |                                                                                                                                                                                          |                                                  |                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------------------------------------|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                                                                                   |                 | License/Permit/Monitoring Number<br><b>1</b> |                                                                                                                                                                                          | Boring Number<br><b>SB-631</b>                   |                                    |
| Boring Drilled By: Name of crew chief (first, last) and Firm<br><b>M. Mueller<br/>Boart Longyear</b>                                                                                              |                 | Date Drilling Started<br><b>8/25/2003</b>    |                                                                                                                                                                                          | Date Drilling Completed<br><b>8/25/2003</b>      |                                    |
| Drilling Method<br><b>hollow stem<br/>auger</b>                                                                                                                                                   |                 |                                              |                                                                                                                                                                                          |                                                  |                                    |
| WI Unique Well No.                                                                                                                                                                                | DNR Well ID No. | Common Well Name                             | Final Static Water Level<br><b>Feet MSL</b>                                                                                                                                              | Surface Elevation<br><b>Feet MSL</b>             | Borehole Diameter<br><b>inches</b> |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/><br>State Plane <b>N, E S/C/N</b><br>1/4 of <b>T N, R</b> |                 |                                              | Local Grid Location<br>Lat <b>° ' "</b><br>Long <b>° ' "</b><br>Feet <input type="checkbox"/> N <input type="checkbox"/> E<br>Feet <input type="checkbox"/> S <input type="checkbox"/> W |                                                  |                                    |
| Facility ID                                                                                                                                                                                       |                 | County<br><b>Manitowoc</b>                   | County Code<br><b>36</b>                                                                                                                                                                 | Civil Town/City/ or Village<br><b>Two Rivers</b> |                                    |

| Sample             |                                 | Blow Counts         | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                           | U S C S | Graphic<br>Log                                                                      | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |  |
|--------------------|---------------------------------|---------------------|---------------|-----------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|--|
| Number<br>and Type | Length Att. &<br>Recovered (in) |                     |               |                                                                                               |         |                                                                                     |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |  |
| 1<br>SS            | 24<br>18                        | 12<br>7<br>10<br>10 | 1             | 0'-5' <u>FILL</u> , 0'-1' GRAVEL, subangular, dry                                             | FILL    |   |                 |         | 1.5                     |                     |                 |                     |       |                  |  |
|                    |                                 |                     |               | 1'-3' SAND, fine, no dilatency, no strength, non-plastic, no odor, dry                        |         |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
| 2<br>SS            | 24<br>18                        | 12<br>50            | 2             | 3'-4.5' GRAVEL, medium to fine subangular, with medium sand, non-cohesive, dry                |         |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
| 3<br>SS            | 24<br>9                         | 7<br>5<br>3<br>2    | 4             | 4.5'-5' SAND, black, fine, no strength, non-plastic, no odor, dry to moist                    |         |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
|                    |                                 |                     |               | 5'-8.5' <u>PEAT</u> , Black, fine rootlets, no odor                                           | PEAT    |  |                 |         |                         |                     |                 |                     |       |                  |  |
| 4<br>SS            | 24<br>0                         | 1<br>1<br>2<br>2    | 6             |                                                                                               |         |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
| 5<br>SS            | 24<br>12                        | 3<br>2<br>2<br>2    | 8             | 8.5'-14' <u>FAT CLAY</u> , Brown, slow dilatency, low strength, high plasticity, dry to moist |         |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
|                    |                                 |                     |               | At 9', fine sand lens                                                                         | CH      |  |                 |         |                         |                     |                 |                     |       |                  |  |
| 6<br>SS            | 24<br>24                        | 5<br>8<br>4<br>5    | 10            |                                                                                               |         |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
| 7<br>SS            | 24<br>24                        | 5<br>4<br>5<br>4    | 12            |                                                                                               |         |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
|                    |                                 |                     |               |                                                                                               |         |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |
|                    |                                 |                     | 14            | <u>END OF BORING AT 14'</u>                                                                   |         |                                                                                     |                 |         |                         |                     |                 |                     |       |                  |  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *[Signature]* Firm **Natural Resource Technology, Inc.** Tel:   
Fax:

Template: WDNR\_SBL\_98 - Project: 1569 GINT SBLS.GPJ  
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Route To: Watershed/Wastewater ☐ Waste Management ☐  
Remediation/Redevelopment ☒ Other ☐

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|                                                                                                                                                                                                                                            |                 |                            |                                                       |                                                  |                                                                                                                                                 |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------|-------------------------------------------------------|--------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                                                                                                                            |                 |                            | License/Permit/Monitoring Number<br><b>1</b>          |                                                  | Boring Number<br><b>SB-632</b>                                                                                                                  |  |
| Boring Drilled By: Name of crew chief (first, last) and Firm<br><b>M. Mueller<br/>Boart Longyear</b>                                                                                                                                       |                 |                            | Date Drilling Started<br><b>8/25/2003</b>             |                                                  | Date Drilling Completed<br><b>8/25/2003</b>                                                                                                     |  |
| Drilling Method<br><b>hollow stem auger</b>                                                                                                                                                                                                |                 |                            |                                                       |                                                  |                                                                                                                                                 |  |
| WI Unique Well No.                                                                                                                                                                                                                         | DNR Well ID No. | Common Well Name           | Final Static Water Level<br>Feet MSL                  | Surface Elevation<br>Feet MSL                    | Borehole Diameter<br>inches                                                                                                                     |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/><br>State Plane <b>N, E S/C/N</b><br>1/4 of <b>1</b> of Section <b>1</b> , T <b>N</b> , R <b>R</b> |                 |                            | Lat <b>43° 00' 00" N</b><br>Long <b>88° 00' 00" W</b> |                                                  | Local Grid Location<br>Feet <input type="checkbox"/> N <input type="checkbox"/> E<br>Feet <input type="checkbox"/> S <input type="checkbox"/> W |  |
| Facility ID                                                                                                                                                                                                                                |                 | County<br><b>Manitowoc</b> | County Code<br><b>36</b>                              | Civil Town/City/ or Village<br><b>Two Rivers</b> |                                                                                                                                                 |  |

| Sample             |                                 | Blow Counts           | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                        | U S C S | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-----------------------|---------------|----------------------------------------------------------------------------------------------------------------------------|---------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |                       |               |                                                                                                                            |         |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
| 1<br>SS            | 24<br>0                         | 1<br>1<br>1<br>1<br>1 | 1             | 0'-2' <u>TOPSOIL</u>                                                                                                       |         |                |                 |         |                         |                     |                 |                     |       |                  |
| 2<br>SS            | 24<br>6                         | 1<br>1<br>1<br>1<br>3 | 2             | 2'-5.5' <u>PEAT</u> , dry to moist, small fibers                                                                           |         |                |                 |         |                         |                     |                 |                     |       |                  |
| 3<br>SS            | 24<br>12                        | 1<br>1<br>1<br>1<br>1 | 4             |                                                                                                                            | PEAT    |                |                 |         |                         |                     |                 |                     |       |                  |
| 4<br>SS            | 24<br>12                        | 3<br>5<br>3<br>1      | 6             | 5.5'-7' <u>SILTY CLAY</u> , Light brown to grey, trace roots, slow dilatency, no strength, high plasticity, no odor, moist | CH      |                |                 |         | <0.5                    |                     |                 |                     |       |                  |
| 5<br>SS            | 24<br>24                        | 1<br>1<br>1<br>1<br>1 | 8             | 7'-9.5' <u>SAND</u> , Fine, slow dilatency, no strength, no plasticity, moist                                              | SP      |                |                 |         |                         |                     |                 |                     |       |                  |
| 6<br>SS            | 24<br>24                        | 3<br>6<br>5<br>5      | 10            | 9.5'-10' <u>ORGANIC CLAY WITH SHELLS</u> , Some sand and peat, moist                                                       | OH      |                |                 |         |                         |                     |                 |                     |       |                  |
| 7<br>SS            | 24<br>24                        | 2<br>2<br>2<br>2      | 11            | 10'-13.5' <u>SAND</u> , Fine, slow dilatency, no strength, non-plastic, no odor, wet                                       | SP      |                |                 |         |                         |                     |                 |                     |       |                  |
| 8<br>SS            | 24<br>24                        | 2<br>2<br>2<br>2      | 12            |                                                                                                                            |         |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |                       | 13            |                                                                                                                            |         |                |                 |         | <0.5                    |                     |                 |                     |       |                  |
|                    |                                 |                       | 14            | 13.5'-16' <u>SILTY CLAY</u> , Grey, some sand, slow dilatency, no strength, high plasticity, no odor, moist to wet         | CH      |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |                       | 15            |                                                                                                                            |         |                |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |                       | 16            | <u>END OF BORING AT 16'</u>                                                                                                |         |                |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.






Signature *M. Mueller* Firm **Natural Resource Technology** Tel:   
Fax:

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Route To: Watershed/Wastewater ☐ Waste Management ☐  
Remediation/Redevelopment ☒ Other ☐

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|                                                                                                                                          |  |                                              |  |                                                                                                                                       |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                          |  | License/Permit/Monitoring Number<br><b>1</b> |  | Boring Number<br><b>SB-633</b>                                                                                                        |  |
| Boring Drilled By: Name of crew chief (first, last) and Firm<br><b>M. Mueller<br/>Boart Longyear</b>                                     |  | Date Drilling Started<br><b>8/25/2003</b>    |  | Date Drilling Completed<br><b>8/25/2003</b>                                                                                           |  |
| WI Unique Well No.                                                                                                                       |  | DNR Well ID No.                              |  | Common Well Name                                                                                                                      |  |
| Final Static Water Level<br><b>Feet MSL</b>                                                                                              |  | Surface Elevation<br><b>Feet MSL</b>         |  | Borehole Diameter<br><b>inches</b>                                                                                                    |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |  | State Plane<br><b>N, E S/C/N</b>             |  | Local Grid Location<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |
| 1/4 of                                                                                                                                   |  | 1/4 of Section                               |  | T N, R                                                                                                                                |  |
| Facility ID                                                                                                                              |  | County<br><b>Manitowoc</b>                   |  | County Code<br><b>36</b>                                                                                                              |  |
|                                                                                                                                          |  |                                              |  | Civil Town/City/ or Village<br><b>Two Rivers</b>                                                                                      |  |

| Sample             |                                 | Blow Counts      | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                                        | U S C S | Graphic<br>Log                                                                      | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       |  | RQD/<br>Comments |
|--------------------|---------------------------------|------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|--|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |                  |               |                                                                                                                                                                                            |         |                                                                                     |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |  |                  |
| 1<br>SS            | 24<br>0                         | 2<br>2<br>2<br>2 | 1             | 0'-5' <u>PEAT</u> , Some fibers                                                                                                                                                            | PEAT    |    |                 |         |                         |                     |                 |                     |       |  |                  |
| 2<br>SS            | 24<br>6                         | 1<br>1<br>1<br>1 | 2             |                                                                                                                                                                                            |         |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
| 3<br>SS            | 24<br>24                        | 1<br>1<br>1<br>1 | 4             |                                                                                                                                                                                            |         |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
| 4<br>SS            | 24<br>24                        | 3<br>2<br>2<br>2 | 6             | 5'-7' <u>SILTY CLAY</u> , Some rootlets, slow dilatency, low to no strength, high plasticity, no odor, moist to wet                                                                        | CH      |  |                 |         | <0.5                    |                     |                 |                     |       |  |                  |
| 5<br>SS            | 24<br>24                        | 3<br>4<br>6<br>6 | 8             | 7'-7.25' Shell layer with sand grades to 7.25'-11.5' <u>SAND</u> , Brown, fine, some organic matter, slow to no dilatency, no strength, no plasticity, slight petroleum odor, moist to wet | SP      |  |                 |         |                         |                     |                 |                     |       |  |                  |
| 6<br>SS            | 24<br>24                        | 3<br>4<br>4<br>5 | 10            | 11.5'-14.5' <u>FAT CLAY</u> , Brown, no dilatency, low strength, high plasticity, no odor, moist                                                                                           | CH      |  |                 |         | <0.5                    |                     |                 |                     |       |  |                  |
| 7<br>SS            | 24<br>24                        | 4<br>9<br>9<br>9 | 12            |                                                                                                                                                                                            |         |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
| 8<br>SS            | 24<br>24                        | 4<br>3           | 14            |                                                                                                                                                                                            |         |                                                                                     |                 |         |                         |                     |                 |                     |       |  |                  |
|                    |                                 |                  | 15            |                                                                                                                                                                                            | SP      |  |                 |         |                         |                     |                 |                     |       |  |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.



Signature *James M. Huber* Firm **Natural Resource Technology, Inc.** Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

Template: WDNR\_SBL\_98 - Project: 1569 GINT SBLS.GPJ  
This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Boring Number **SB-633**

Use only as an attachment to Form 4400-122.













Page **2** of **2**

| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                 | U S C S | Graphic<br>Log                                                                    | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|-------------------------------------------------------------------------------------------------------------------------------------|---------|-----------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                                     |         |                                                                                   |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
| 9<br>SS            | 24<br>24<br>7<br>7<br>7         | 6           | 16            | 14.5'-19.5' <u>SAND</u> , Brown to grey, fine,<br>slow to no dilatency, no strength,<br>non-plastic, slight odor, moist, no sheen   | SP      |  |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 9           |               |                                                                                                                                     |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 7           |               |                                                                                                                                     |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 7           |               |                                                                                                                                     |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 7           |               |                                                                                                                                     |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
| 10<br>SS           | 24<br>24<br>5<br>6<br>6         | 6           | 18            |                                                                                                                                     |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 5           |               |                                                                                                                                     |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 6           |               |                                                                                                                                     |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 6           |               |                                                                                                                                     |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 | 6           |               |                                                                                                                                     |         |                                                                                   |                 |         |                         |                     |                 |                     |       |                  |
|                    |                                 |             | 20            | 19.5'-20' <u>FAT CLAY</u> , Brown, no<br>dilatency, low strength, high plasticity, no<br>odor, moist<br><u>END OF BORING AT 20'</u> | CH      |  |                 |         |                         |                     |                 |                     |       |                  |

Route To: Watershed/Wastewater ☐ Waste Management ☐  
Remediation/Redevelopment ☒ Other ☐

Page 1 of 2

|                                                                                                                                                                           |                 |                                              |                                                                 |                                                  |                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------|------------------------------------|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                                                           |                 | License/Permit/Monitoring Number<br><b>1</b> |                                                                 | Boring Number<br><b>SB-634</b>                   |                                    |
| Boring Drilled By: Name of crew chief (first, last) and Firm<br><b>M. Mueller<br/>Boart Longyear</b>                                                                      |                 | Date Drilling Started<br><b>8/25/2003</b>    |                                                                 | Date Drilling Completed<br><b>8/25/2003</b>      |                                    |
| Drilling Method<br><b>hollow stem<br/>auger</b>                                                                                                                           |                 |                                              |                                                                 |                                                  |                                    |
| WI Unique Well No.                                                                                                                                                        | DNR Well ID No. | Common Well Name                             | Final Static Water Level<br><b>Feet MSL</b>                     | Surface Elevation<br><b>Feet MSL</b>             | Borehole Diameter<br><b>inches</b> |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/><br>State Plane <b>N, E S/C/N</b> |                 |                                              | Local Grid Location<br>Lat <b>° ' "</b><br>Long <b>° ' "</b>    |                                                  |                                    |
| 1/4 of <b>T</b> N, R                                                                                                                                                      |                 |                                              | Feet <input type="checkbox"/> S Feet <input type="checkbox"/> W |                                                  |                                    |
| Facility ID                                                                                                                                                               |                 | County<br><b>Manitowoc</b>                   | County Code<br><b>36</b>                                        | Civil Town/City/ or Village<br><b>Two Rivers</b> |                                    |

| Sample             |                                 | Blow Counts         | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                                            | U S C S | Graphic<br>Log                                                                      | Well<br>Diagram                                                                      | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|---------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |                     |               |                                                                                                                                                                                                |         |                                                                                     |                                                                                      |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
| 1<br>SS            | 24<br>6                         | 1<br>1<br>1<br>1    | 1             | 0'-4.25' <u>PEAT</u> , Black, small fibers                                                                                                                                                     | PEAT    |    |   |         | <0.5                    |                     |                 |                     |       |                  |
| 2<br>SS            | 24<br>0                         | 1<br>1<br>1<br>1    | 2             |                                                                                                                                                                                                |         |    |                                                                                      |         |                         |                     |                 |                     |       |                  |
|                    |                                 |                     | 3             |                                                                                                                                                                                                |         |    |                                                                                      |         |                         |                     |                 |                     |       |                  |
|                    |                                 |                     | 4             |                                                                                                                                                                                                |         |  |                                                                                      |         |                         |                     |                 |                     |       |                  |
| 3<br>SS            | 24<br>24                        | 1<br>1<br>1<br>1    | 5             | 4.25'-6.5' <u>SILTY CLAY</u> , Some rootlets and vegetation, slow dilatency, no strength, high plasticity, no odor, moist                                                                      | CH      |  |  |         |                         |                     |                 |                     |       |                  |
| 4<br>SS            | 24<br>24                        | 1<br>1<br>7<br>4    | 6             | 6.5'-7' Grades from <u>CLAY</u> to <u>SAND</u> with shell layer, no odor, 7'-8' <u>SAND</u> , Brown, low dilatency, no strength, non-plastic, no odor, moist to wet, trace emulsified coal tar | SP      |  |                                                                                      |         |                         |                     |                 |                     |       |                  |
| 5<br>SS            | 24<br>24                        | 4<br>4<br>1<br>6    | 8             | 8'-8.5' <u>SILTY CLAY</u> , Some rootlets and vegetation, slow dilatency, no strength, high plasticity, no odor, moist                                                                         | CH      |  |                                                                                      |         |                         |                     |                 |                     |       |                  |
|                    |                                 |                     | 9             | 8.5'-10' <u>SAND</u> , Brown, low dilatency, no strength, non-plastic, no odor, moist to wet, trace evidence of emulsified coal tar staining                                                   | SP      |  |                                                                                      |         |                         |                     |                 |                     |       |                  |
| 6<br>SS            | 24<br>24                        | 3<br>11<br>13<br>17 | 10            | At 9.5', Organic lens, trace wood pieces and peat                                                                                                                                              | SP      |  |  |         |                         |                     |                 |                     |       |                  |
|                    |                                 |                     | 11            | 10'-13' <u>SAND</u> , No odor or emulsified coal                                                                                                                                               |         |                                                                                     |                                                                                      |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature Firm **Natural Resource Technology, Inc.** Tel: \_\_\_\_\_ Fax: \_\_\_\_\_

Template: WDNR\_SBL\_98 - Project: 1569 GINT SBLS.GPJ  
This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

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# TEST PIT LOG

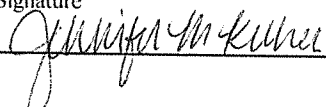
Page 1 of 1

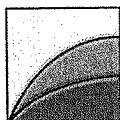
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|------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|------------------------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                          |  | License/Permit/Monitoring Number<br><b>1</b> |  | Boring Number<br><b>TP-615</b>                             |  |
| Test Pit Excavated By: Name of crew chief (first, last) and Firm                                                                         |  | Date Drilling Started<br><b>8/24/2003</b>    |  | Date Drilling Completed<br><b>8/24/2003</b>                |  |
|                                                                                                                                          |  | Drilling Method<br><b>Backhoe</b>            |  |                                                            |  |
| Final Static Water Level<br><b>Feet MSL</b>                                                                                              |  | Surface Elevation<br><b>Feet MSL</b>         |  | Test Pit Area<br><b>feet</b>                               |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |  | Local Grid Location                          |  |                                                            |  |
| State Plane<br><b>N, E S/C/N</b>                                                                                                         |  | Lat <b>° ' "</b>                             |  | Feet <input type="checkbox"/> N <input type="checkbox"/> E |  |
| 1/4 of <b>T R</b>                                                                                                                        |  | Long <b>° ' "</b>                            |  | Feet <input type="checkbox"/> S <input type="checkbox"/> W |  |
| Facility ID                                                                                                                              |  | County<br><b>Manitowoc</b>                   |  | State                                                      |  |
|                                                                                                                                          |  |                                              |  | Civil Town/City/ or Village<br><b>Two Rivers</b>           |  |

| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                | Hand Pen (tsf) | Field Moisture<br>Condition | USCS Symbol | Graphic Log | PID (ppm) | RQD/<br>Comments/<br>Lab Test |
|--------------------|---------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|-------------|-------------|-----------|-------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                                                                    |                |                             |             |             |           |                               |
|                    |                                 |             | 1             | 0'-4' <u>FILL</u> , 0'-0.5' GRAVELLY SAND, Orange-brown, fine sand, loose, non-plastic                                                                             |                |                             |             |             |           |                               |
|                    |                                 |             | 2             | 0.5'-1.5' Black Cinders                                                                                                                                            |                |                             |             |             |           |                               |
|                    |                                 |             | 3             | 1.5'-4' Variable timber fill with trace peat, black, odor                                                                                                          |                |                             | FILL        |             |           |                               |
|                    |                                 |             | 4             | 4'-9' <u>LEAN CLAY</u> , Light brown, some fine sand                                                                                                               | 1.75 to 2.75   |                             |             |             |           |                               |
|                    |                                 |             | 5             | lenses, no dilatency, low to medium toughness, slightly moist. Water entering west side of trench under concrete foundation, no sheen or tar. Grades to sandy clay |                |                             | CL          |             |           |                               |
|                    |                                 |             | 6             |                                                                                                                                                                    |                |                             |             |             |           |                               |
|                    |                                 |             | 7             |                                                                                                                                                                    |                |                             |             |             |           |                               |
|                    |                                 |             | 8             |                                                                                                                                                                    |                |                             |             |             |           |                               |
|                    |                                 |             | 9             | <u>END OF TEST PIT AT 9'</u>                                                                                                                                       |                |                             |             |             |           |                               |

Sampled at 3.5' on west side, collected a mixture of layers above clay for thermal analysis alternatives.

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                                                                                 |     |                                           |              |
|-------------------------------------------------------------------------------------------------|-----|-------------------------------------------|--------------|
| Signature<br> | PAR | Firm<br>Natural Resource Technology, Inc. | Tel:<br>Fax: |
|-------------------------------------------------------------------------------------------------|-----|-------------------------------------------|--------------|



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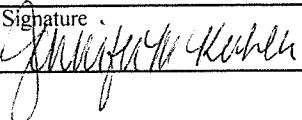
# TEST PIT LOG

Page 1 of 1

|                                                                                                                                                                                                |  |                                              |  |                                                                                                                                       |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                                                                                |  | License/Permit/Monitoring Number<br><b>1</b> |  | Boring Number<br><b>TP-616</b>                                                                                                        |  |
| Test Pit Excavated By: Name of crew chief (first, last) and Firm                                                                                                                               |  | Date Drilling Started<br><b>8/24/2003</b>    |  | Date Drilling Completed<br><b>8/24/2003</b>                                                                                           |  |
|                                                                                                                                                                                                |  | Drilling Method<br><b>Backhoe</b>            |  |                                                                                                                                       |  |
| Final Static Water Level<br><b>Feet MSL</b>                                                                                                                                                    |  | Surface Elevation<br><b>Feet MSL</b>         |  | Test Pit Area<br><b>feet</b>                                                                                                          |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/><br>State Plane <b>N, E S/C/N</b><br>1/4 of <b>T R</b> |  | Lat <b>° ' "</b><br>Long <b>° ' "</b>        |  | Local Grid Location<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |
| Facility ID                                                                                                                                                                                    |  | County<br><b>Manitowoc</b>                   |  | State<br><b>Two Rivers</b>                                                                                                            |  |

| Sample | Number and Type<br>Length Att. &<br>Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                          | Hand Pen (tsf) | Field Moisture<br>Condition | USCS Symbol | Graphic Log | PID (ppm) | RQD/<br>Comments/<br>Lab Test                                                                    |
|--------|----------------------------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|-------------|-------------|-----------|--------------------------------------------------------------------------------------------------|
|        |                                                    |             | 1             | 0'-5' <u>FILL</u> , 0'-2' SANDY TOPSOIL, light brown, fine sand, non-plastic, dry                            |                |                             |             |             |           |                                                                                                  |
|        |                                                    |             | 2             | 2'-5' Timbers with fibrous peat, black cinders, fine sand, some blue wood, odor and trace tar-like material  |                |                             | FILL        |             |           | Collected a 5 gallon pail of impacted soil at 2'-4'.<br>Sampled at 3'-4' for an impacted sample. |
|        |                                                    |             | 3             |                                                                                                              |                |                             |             |             |           |                                                                                                  |
|        |                                                    |             | 4             |                                                                                                              |                |                             |             |             |           |                                                                                                  |
|        |                                                    |             | 5             | 5'-9' <u>FAT CLAY</u> , Light brown to taupe, no dilatency, low toughness, high plasticity, very soft, moist | 1.5            |                             |             |             |           | Sampled at 5'-6' for a clean sample.                                                             |
|        |                                                    |             | 6             |                                                                                                              |                |                             | CH          |             |           |                                                                                                  |
|        |                                                    |             | 7             |                                                                                                              |                |                             |             |             |           |                                                                                                  |
|        |                                                    |             | 8             |                                                                                                              | 0.5            |                             |             |             |           |                                                                                                  |
|        |                                                    |             | 9             | <u>END OF TEST PIT AT 9'</u>                                                                                 |                |                             |             |             |           |                                                                                                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                                                                                                 |     |                                           |              |
|-------------------------------------------------------------------------------------------------|-----|-------------------------------------------|--------------|
| Signature<br> | PAR | Firm<br>Natural Resource Technology, Inc. | Tel:<br>Fax: |
|-------------------------------------------------------------------------------------------------|-----|-------------------------------------------|--------------|





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N R T

# TEST PIT LOG

Page 1 of 1

|                                                                                                                                          |  |                                              |  |                                                            |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|------------------------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                          |  | License/Permit/Monitoring Number<br><b>1</b> |  | Boring Number<br><b>TP-617</b>                             |  |
| Test Pit Excavated By: Name of crew chief (first, last) and Firm                                                                         |  | Date Drilling Started<br><b>8/24/2003</b>    |  | Date Drilling Completed<br><b>8/24/2003</b>                |  |
|                                                                                                                                          |  | Drilling Method<br><b>Backhoe</b>            |  |                                                            |  |
| Final Static Water Level<br><b>Feet MSL</b>                                                                                              |  | Surface Elevation<br><b>Feet MSL</b>         |  | Test Pit Area<br><b>feet</b>                               |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |  | Local Grid Location                          |  |                                                            |  |
| State Plane<br><b>N, E S/C/N</b>                                                                                                         |  | Lat <b>° ' "</b>                             |  | Feet <input type="checkbox"/> N <input type="checkbox"/> E |  |
| 1/4 of <b>T R</b>                                                                                                                        |  | Long <b>° ' "</b>                            |  | Feet <input type="checkbox"/> S <input type="checkbox"/> W |  |
| Facility ID                                                                                                                              |  | County<br><b>Manitowoc</b>                   |  | State                                                      |  |
|                                                                                                                                          |  |                                              |  | Civil Town/City/ or Village<br><b>Two Rivers</b>           |  |

| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                                        | Hand Pen (tsf) | Field Moisture<br>Condition | U S C S Symbol | Graphic Log | PID (ppm) | RQD/<br>Comments/<br>Lab Test |
|--------------------|---------------------------------|-------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|----------------|-------------|-----------|-------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                                                                            |                |                             |                |             |           |                               |
|                    |                                 |             | 1             | 0'-2' <u>SAND</u> , Orange, moist                                                                                                                                          |                |                             | SP             |             |           |                               |
|                    |                                 |             | 2             | 2'-6' <u>PEAT</u> , Black, some rootlets and fine sand, odor, flowing/emulsified coal tar seeping out of south edge of excavation                                          |                |                             |                |             |           |                               |
|                    |                                 |             | 3             |                                                                                                                                                                            |                |                             |                |             |           |                               |
|                    |                                 |             | 4             |                                                                                                                                                                            |                |                             | PEAT           |             |           |                               |
|                    |                                 |             | 5             | Evidence of coal tar impacts (staining) from 4 to 6 feet                                                                                                                   |                |                             |                |             | 250       | Sampled at 4'-6'.             |
|                    |                                 |             | 6             |                                                                                                                                                                            |                |                             |                |             |           |                               |
|                    |                                 |             | 7             | 6'-10' <u>SILTY CLAY</u> , Light brown, some peat, no dilatency, low toughness, high plasticity, very soft, wet with flowing/emulsified coal tar in west end of pit, sheen | 1.0            |                             |                |             | 15        |                               |
|                    |                                 |             | 8             |                                                                                                                                                                            |                |                             | CH             |             |           |                               |
|                    |                                 |             | 9             |                                                                                                                                                                            |                |                             |                |             |           |                               |
|                    |                                 |             | 10            | <u>END OF TEST PIT AT 10'</u>                                                                                                                                              |                |                             |                |             |           | Sampled at 9'-10'.            |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|               |     |                                           |              |
|---------------|-----|-------------------------------------------|--------------|
| Signature<br> | PAR | Firm<br>Natural Resource Technology, Inc. | Tel:<br>Fax: |
|---------------|-----|-------------------------------------------|--------------|



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N R T

# TEST PIT LOG

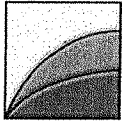
Page 1 of 1

|                                                                                                                                          |  |                                                                           |                                             |                                                                                                                |                                   |
|------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                          |  | License/Permit/Monitoring Number<br><b>1</b>                              |                                             | Boring Number<br><b>TP-618</b>                                                                                 |                                   |
| Test Pit Excavated By: Name of crew chief (first, last) and Firm                                                                         |  | Date Drilling Started<br><b>8/24/2003</b>                                 | Date Drilling Completed<br><b>8/24/2003</b> |                                                                                                                | Drilling Method<br><b>Backhoe</b> |
|                                                                                                                                          |  | Final Static Water Level<br><b>Feet MSL</b>                               | Surface Elevation<br><b>Feet MSL</b>        |                                                                                                                | Test Pit Area<br><b>feet</b>      |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |  | Lat <input type="text"/> ° <input type="text"/> ' <input type="text"/> "  |                                             | Local Grid Location                                                                                            |                                   |
| State Plane<br><b>N, E S/C/N</b>                                                                                                         |  | Long <input type="text"/> ° <input type="text"/> ' <input type="text"/> " |                                             | <input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |                                   |
| 1/4 of <input type="text"/> 1/4 of Section <input type="text"/> T <input type="text"/> R <input type="text"/>                            |  |                                                                           |                                             |                                                                                                                |                                   |
| Facility ID                                                                                                                              |  | County<br><b>Manitowoc</b>                                                | State                                       | Civil Town/City/ or Village<br><b>Two Rivers</b>                                                               |                                   |

| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                        | Hand Pen (tsf) | Field Moisture<br>Condition | U S C S Symbol | Graphic Log | PID (ppm) | RQD/<br>Comments/<br>Lab Test |
|--------------------|---------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|----------------|-------------|-----------|-------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                                            |                |                             |                |             |           |                               |
|                    |                                 |             | 1             | Surface coverage of cattails, wet at surface. 0'-3' <u>PEAT</u> , black, wet to saturated, water seepage at 1'-3'                          |                |                             | PEAT           |             |           |                               |
|                    |                                 |             | 2             |                                                                                                                                            |                |                             |                |             |           |                               |
|                    |                                 |             | 3             | 3'-3.5' <u>CLAY</u>                                                                                                                        |                |                             | CH             |             |           |                               |
|                    |                                 |             | 4             | 3.5'-6.5' <u>SAND</u> , Fine, saturated                                                                                                    |                |                             | SP             |             |           |                               |
|                    |                                 |             | 5             |                                                                                                                                            |                |                             |                |             |           |                               |
|                    |                                 |             | 6             |                                                                                                                                            |                |                             |                |             |           |                               |
|                    |                                 |             | 7             | 6.5'-7' <u>FAT CLAY</u> , Light brown to grey, no dilatency, low toughness, high plasticity, soft, no odor<br><u>END OF TEST PIT AT 7'</u> | 2.5 to 3.0     |                             | CH             |             |           |                               |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|                      |                                                  |              |
|----------------------|--------------------------------------------------|--------------|
| Signature<br><br>PAR | Firm<br><b>Natural Resource Technology, Inc.</b> | Tel:<br>Fax: |
|----------------------|--------------------------------------------------|--------------|



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# TEST PIT LOG

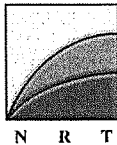
Page 1 of 1

|                                                                                                                                          |  |                                              |  |                                                            |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|------------------------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                          |  | License/Permit/Monitoring Number<br><b>1</b> |  | Boring Number<br><b>TP-619</b>                             |  |
| Test Pit Excavated By: Name of crew chief (first, last) and Firm                                                                         |  | Date Drilling Started<br><b>8/24/2003</b>    |  | Date Drilling Completed<br><b>8/24/2003</b>                |  |
|                                                                                                                                          |  | Drilling Method<br><b>Backhoe</b>            |  |                                                            |  |
| Final Static Water Level<br><b>Feet MSL</b>                                                                                              |  | Surface Elevation<br><b>Feet MSL</b>         |  | Test Pit Area<br><b>feet</b>                               |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |  | Local Grid Location                          |  |                                                            |  |
| State Plane<br><b>N, E S/C/N</b>                                                                                                         |  | Lat <b>° ' "</b>                             |  | Feet <input type="checkbox"/> N <input type="checkbox"/> E |  |
| 1/4 of <b>T R</b>                                                                                                                        |  | Long <b>° ' "</b>                            |  | Feet <input type="checkbox"/> S <input type="checkbox"/> W |  |
| Facility ID                                                                                                                              |  | County<br><b>Manitowoc</b>                   |  | State<br><b>WI</b>                                         |  |
|                                                                                                                                          |  |                                              |  | Civil Town/City/ or Village<br><b>Two Rivers</b>           |  |

| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit          | Hand Pen (tsf) | Field Moisture<br>Condition | U S C S Symbol | Graphic Log | PID (ppm) | RQD/<br>Comments/<br>Lab Test |
|--------------------|---------------------------------|-------------|---------------|------------------------------------------------------------------------------|----------------|-----------------------------|----------------|-------------|-----------|-------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                              |                |                             |                |             |           |                               |
|                    |                                 |             | 1             | 0'-2' <u>TOPSOIL</u> , Orange to light brown, fine-grained sandy soil, dry   |                |                             |                |             |           |                               |
|                    |                                 |             | 2             | 2'-5' <u>PEAT</u> , intermixed with fine grained soil, fibers, some blue     |                |                             |                |             |           |                               |
|                    |                                 |             | 3             |                                                                              |                |                             |                |             |           |                               |
|                    |                                 |             | 4             |                                                                              |                |                             |                |             |           |                               |
|                    |                                 |             | 5             | 5'-14' <u>SAND</u> , Fine, soft , moist sand, which sloughs in blocky pieces |                |                             |                |             |           |                               |
|                    |                                 |             | 6             |                                                                              |                |                             |                |             |           |                               |
|                    |                                 |             | 7             |                                                                              |                |                             |                |             |           |                               |
|                    |                                 |             | 8             | Evidence of emulsified coal tar seams from 11 to 14 feet                     |                |                             |                |             |           |                               |
|                    |                                 |             | 9             |                                                                              |                |                             |                |             |           |                               |
|                    |                                 |             | 10            |                                                                              |                |                             |                |             |           |                               |
|                    |                                 |             | 11            | <u>END OF TEST PIT AT 14'</u>                                                |                |                             |                |             |           |                               |
|                    |                                 |             | 12            |                                                                              |                |                             |                |             |           |                               |
|                    |                                 |             | 13            |                                                                              |                |                             |                |             |           |                               |
|                    |                                 |             | 14            |                                                                              |                |                             |                |             |           |                               |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|               |  |                                                  |  |              |
|---------------|--|--------------------------------------------------|--|--------------|
| Signature<br> |  | Firm<br><b>Natural Resource Technology, Inc.</b> |  | Tel:<br>Fax: |
| PAR           |  |                                                  |  |              |



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# TEST PIT LOG

Page 1 of 1

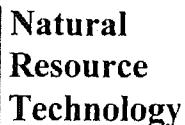
|                                                                                                                                          |  |                                                  |  |                                                                                                                                       |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                          |  | License/Permit/Monitoring Number<br><b>1</b>     |  | Boring Number<br><b>TP-620</b>                                                                                                        |  |
| Test Pit Excavated By: Name of crew chief (first, last) and Firm                                                                         |  | Date Drilling Started<br><b>8/24/2003</b>        |  | Date Drilling Completed<br><b>8/24/2003</b>                                                                                           |  |
|                                                                                                                                          |  | Drilling Method<br><b>Backhoe</b>                |  |                                                                                                                                       |  |
| Final Static Water Level<br><b>Feet MSL</b>                                                                                              |  | Surface Elevation<br><b>Feet MSL</b>             |  | Test Pit Area<br><b>feet</b>                                                                                                          |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |  | State Plane<br><b>N, E S/C/N</b>                 |  | Local Grid Location<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |
| 1/4 of <b>T</b> Section <b>R</b>                                                                                                         |  | Lat <b>° ' "</b>                                 |  | Long <b>° ' "</b>                                                                                                                     |  |
| Facility ID                                                                                                                              |  | County<br><b>Manitowoc</b>                       |  | State<br><b>WI</b>                                                                                                                    |  |
|                                                                                                                                          |  | Civil Town/City/ or Village<br><b>Two Rivers</b> |  |                                                                                                                                       |  |

| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                     | Hand Pen (tsf) | Field Moisture<br>Condition | U S C S Symbol | Graphic Log | PID (ppm) | RQD/<br>Comments/<br>Lab Test |
|--------------------|---------------------------------|-------------|---------------|-------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|----------------|-------------|-----------|-------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                         |                |                             |                |             |           |                               |
|                    |                                 |             | 1             | 0'-5' <u>PEAT</u> , Black, non-plastic, no odor, moist                                                                  |                |                             |                |             |           |                               |
|                    |                                 |             | 2             |                                                                                                                         |                |                             |                |             |           |                               |
|                    |                                 |             | 3             |                                                                                                                         |                |                             |                |             |           |                               |
|                    |                                 |             | 4             | Water dripping in at 4', not much groundwater flow                                                                      |                |                             |                |             |           |                               |
|                    |                                 |             | 5             | 5'-12' <u>SILTY CLAY</u> , Light grey, very fine silt, slow dilatency, low to medium toughness, low plasticity, no odor | 1.5            |                             |                |             | 0.0       | Sampled 4'-5'.                |
|                    |                                 |             | 6             |                                                                                                                         |                |                             |                |             |           |                               |
|                    |                                 |             | 7             |                                                                                                                         |                |                             |                |             |           |                               |
|                    |                                 |             | 8             |                                                                                                                         |                |                             |                |             |           |                               |
|                    |                                 |             | 9             |                                                                                                                         |                |                             |                |             |           |                               |
|                    |                                 |             | 10            |                                                                                                                         |                |                             |                |             |           |                               |
|                    |                                 |             | 11            |                                                                                                                         |                |                             |                |             | 4.0       | Sampled 11'-12'.              |
|                    |                                 |             | 12            | <u>END OF TEST PIT AT 12'</u>                                                                                           |                |                             |                |             |           |                               |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|               |     |                                           |              |
|---------------|-----|-------------------------------------------|--------------|
| Signature<br> | PAR | Firm<br>Natural Resource Technology, Inc. | Tel:<br>Fax: |
|---------------|-----|-------------------------------------------|--------------|

Template: NRT TEST PIT LOG - Project: 1569 GINT SBLS.GPJ



## TEST PIT LOG

Page 1 of 1

| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                  | Hand Pen (tsf) | Field Moisture<br>Condition | U S C S Symbol | Graphic Log | PID (ppm) | RQD/<br>Comments/<br>Lab Test |
|--------------------|---------------------------------|-------------|---------------|----------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|----------------|-------------|-----------|-------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                      |                |                             |                |             |           |                               |
|                    |                                 |             | 1             | 0'-3.5' <u>PEAT</u> , Black                                                                                          |                |                             | PEAT           |             |           |                               |
|                    |                                 |             | 2             |                                                                                                                      |                |                             |                |             |           |                               |
|                    |                                 |             | 3             |                                                                                                                      |                |                             |                |             |           |                               |
|                    |                                 |             | 4             | 3.5'-3.75' Shell layer                                                                                               |                |                             |                |             |           |                               |
|                    |                                 |             | 5             | 3.75'-8.5' <u>CLAY</u> , Light grey to brown, sand seams,<br>moist. Wet at 7 to 8.5 feet                             |                |                             | CH             |             | 0.0       | Sampled at 7'.                |
|                    |                                 |             | 6             |                                                                                                                      |                |                             |                |             |           |                               |
|                    |                                 |             | 7             |                                                                                                                      |                |                             |                |             |           |                               |
|                    |                                 |             | 8             |                                                                                                                      |                |                             |                |             |           |                               |
|                    |                                 |             | 9             | 8.5'-9' <u>SAND</u> , also have some emulsified coal tar with<br>odor and sheen, wet<br><u>END OF TEST PIT AT 9'</u> |                |                             | SP             |             | 15        | Sampled at 8.5'-9'.           |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|      |                                   |
|------|-----------------------------------|
| Firm | Natural Resource Technology, Inc. |
|------|-----------------------------------|

Fax:



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N R T

# TEST PIT LOG

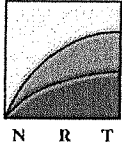
Page 1 of 1

|                                                                                                                                          |  |                                              |  |                                                                                                                                       |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                          |  | License/Permit/Monitoring Number<br><b>1</b> |  | Boring Number<br><b>TP-622</b>                                                                                                        |  |
| Test Pit Excavated By: Name of crew chief (first, last) and Firm                                                                         |  | Date Drilling Started<br><b>8/24/2003</b>    |  | Date Drilling Completed<br><b>8/24/2003</b>                                                                                           |  |
|                                                                                                                                          |  | Drilling Method<br><b>Backhoe</b>            |  |                                                                                                                                       |  |
| Final Static Water Level<br><b>Feet MSL</b>                                                                                              |  | Surface Elevation<br><b>Feet MSL</b>         |  | Test Pit Area<br><b>feet</b>                                                                                                          |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |  | State Plane<br><b>N, E S/C/N</b>             |  | Local Grid Location<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |
| 1/4 of <b>T</b> of Section <b>R</b>                                                                                                      |  | Lat <b>° ' "</b>                             |  | Long <b>° ' "</b>                                                                                                                     |  |
| Facility ID                                                                                                                              |  | County<br><b>Manitowoc</b>                   |  | State<br><b>WI</b>                                                                                                                    |  |
|                                                                                                                                          |  |                                              |  | Civil Town/City/ or Village<br><b>Two Rivers</b>                                                                                      |  |

| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit | Hand Pen (tsf) | Field Moisture<br>Condition | U S C S Symbol | Graphic Log | PID (ppm) | RQD/<br>Comments/<br>Lab Test |
|--------------------|---------------------------------|-------------|---------------|---------------------------------------------------------------------|----------------|-----------------------------|----------------|-------------|-----------|-------------------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                     |                |                             |                |             |           |                               |
|                    |                                 |             | 1             | 0'-3' <u>FILL</u> , Fines with coarse gravel and debris             |                |                             | FILL           |             |           |                               |
|                    |                                 |             | 2             |                                                                     |                |                             |                |             |           |                               |
|                    |                                 |             | 3             | 3'-5' <u>PEAT</u> , Black                                           |                |                             | PEAT           |             |           |                               |
|                    |                                 |             | 4             |                                                                     |                |                             |                |             |           |                               |
|                    |                                 |             | 5             | 5'-8' <u>SAND</u> , Light brown                                     |                |                             | SP             |             |           |                               |
|                    |                                 |             | 6             |                                                                     |                |                             |                |             |           |                               |
|                    |                                 |             | 7             | At 7' water entering test pit                                       |                |                             |                |             |           |                               |
|                    |                                 |             | 8             | 8'-11' <u>LEAN CLAY</u> , no dilatency, medium to high              | <0.5 to 2.25   |                             | CL             |             | 21        | Sampled 10.5'-11'.            |
|                    |                                 |             | 9             | toughness, low plasticity, slight odor                              |                |                             |                |             |           |                               |
|                    |                                 |             | 10            |                                                                     |                |                             |                |             |           |                               |
|                    |                                 |             | 11            | <u>END OF TEST PIT AT 11'</u>                                       |                |                             |                |             |           |                               |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|               |     |                                           |              |
|---------------|-----|-------------------------------------------|--------------|
| Signature<br> | PAR | Firm<br>Natural Resource Technology, Inc. | Tel:<br>Fax: |
|---------------|-----|-------------------------------------------|--------------|



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# TEST PIT LOG

Page 1 of 1

|                                                                                                                                          |  |                                              |  |                                                                                                                                       |  |
|------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                          |  | License/Permit/Monitoring Number<br><b>1</b> |  | Boring Number<br><b>TP-623</b>                                                                                                        |  |
| Test Pit Excavated By: Name of crew chief (first, last) and Firm                                                                         |  | Date Drilling Started<br><b>8/24/2003</b>    |  | Date Drilling Completed<br><b>8/24/2003</b>                                                                                           |  |
|                                                                                                                                          |  | Drilling Method<br><b>Backhoe</b>            |  |                                                                                                                                       |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |  | Final Static Water Level<br><b>Feet MSL</b>  |  | Surface Elevation<br><b>Feet MSL</b>                                                                                                  |  |
| State Plane<br><b>N, E S/C/N</b>                                                                                                         |  | Lat <b>° ' "</b>                             |  | Local Grid Location<br><input type="checkbox"/> N <input type="checkbox"/> E<br><input type="checkbox"/> S <input type="checkbox"/> W |  |
| 1/4 of <b>T R</b>                                                                                                                        |  | 1/4 of Section <b>T R</b>                    |  | Long <b>° ' "</b>                                                                                                                     |  |
| Facility ID                                                                                                                              |  | County<br><b>Manitowoc</b>                   |  | State<br><b>WI</b>                                                                                                                    |  |
|                                                                                                                                          |  |                                              |  | Civil Town/City/ or Village<br><b>Two Rivers</b>                                                                                      |  |

| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                           | Hand Pen (tsf) | Field Moisture<br>Condition | U S C S Symbol | Graphic Log | PID (ppm) | RQD/<br>Comments/<br>Lab Test |
|--------------------|---------------------------------|-------------|---------------|-----------------------------------------------------------------------------------------------|----------------|-----------------------------|----------------|-------------|-----------|-------------------------------|
| Number<br>and Type | Length Alt. &<br>Recovered (in) |             |               |                                                                                               |                |                             |                |             |           |                               |
|                    |                                 |             | 1             | 0'-1.5' <u>FILL</u> , 0'-0.5' SAND, orange, fine<br>0.5'-1.5' fine cinders, dry               |                |                             | FILL           |             |           |                               |
|                    |                                 |             | 2             | 1.5'-4' <u>PEAT</u> , Black with odor and blue impact                                         |                |                             | PEAT           |             |           |                               |
|                    |                                 |             | 3             | Water at 3'-3.5' at east end of test pit                                                      |                |                             |                |             |           |                               |
|                    |                                 |             | 4             | 4'-9' <u>FAT CLAY</u> , Light brown to brown, no dilatency,<br>low toughness, high plasticity | 0.5 to 1.0     |                             | CH             |             |           |                               |
|                    |                                 |             | 5             |                                                                                               |                |                             |                |             |           |                               |
|                    |                                 |             | 6             |                                                                                               |                |                             |                |             |           |                               |
|                    |                                 |             | 7             |                                                                                               |                |                             |                |             |           |                               |
|                    |                                 |             | 8             |                                                                                               |                |                             |                |             |           |                               |
|                    |                                 |             | 9             | <u>END OF TEST PIT AT 9'</u>                                                                  |                |                             |                |             |           |                               |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

|               |     |                                           |              |
|---------------|-----|-------------------------------------------|--------------|
| Signature<br> | PAR | Firm<br>Natural Resource Technology, Inc. | Tel:<br>Fax: |
|---------------|-----|-------------------------------------------|--------------|

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

(1) GENERAL INFORMATION

|                                                                                                                                                       |                     |                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------|
| Well/Drillhole/Borehole Location<br>SB-626                                                                                                            | County<br>Manitowoc | (2) FACILITY NAME<br>MGP Site                           |
| Original Well Owner (If Known)                                                                                                                        |                     | Present Well Owner<br>MGP Site - W PSC                  |
| NW 1/4 of NW 1/4 of Sec. 182 : T. 19 N. R. 24 <input checked="" type="checkbox"/> E <input type="checkbox"/> W<br>(If Applicable)                     |                     | Street or Route<br>21st & SCHOOL STREETS                |
| Gov't Lot _____ Grid Number _____                                                                                                                     |                     | City, State, Zip Code<br>Two Rivers, WI                 |
| Grid Location<br>_____ ft. <input type="checkbox"/> N. <input type="checkbox"/> S., _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> W. |                     | Facility Well No. and/or Name (If Applicable)<br>SB-626 |
| Civil Town Name                                                                                                                                       |                     | WI Unique Well No.                                      |
| Street Address of Well                                                                                                                                |                     | Reason For Abandonment<br>Test Boring                   |
| City, Village<br>Two Rivers                                                                                                                           |                     | Date of Abandonment<br>08/26/03                         |

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On  
(Date) \_\_\_\_\_

- ☐ Monitoring Well  
☐ Water Well  
☒ Drillhole  
☐ Borehole

Construction Report Available?  
☒ Yes ☐ No

Construction Type:

- ☒ Drilled ☐ Driven (Sandpoint) ☐ Dug  
☐ Other (Specify) \_\_\_\_\_

Formation Type:

- ☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) \_\_\_\_\_ Casing Diameter (in.) \_\_\_\_\_  
(From ground surface) Casing Depth (ft.) \_\_\_\_\_

Lower Drillhole Diameter (in.) \_\_\_\_\_

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown  
If Yes, To What Depth? \_\_\_\_\_ Feet

(4) Depth to Water (Feet) \_\_\_\_\_

- Pump & Piping Removed? ☐ Yes ☐ No ☒ Not Applicable  
Liner(s) Removed? ☐ Yes ☐ No ☒ Not Applicable  
Screen Removed? ☐ Yes ☐ No ☒ Not Applicable  
Casing Left in Place? ☐ Yes ☒ No  
If No, Explain NA

- Was Casing Cut Off Below Surface? ☐ Yes ☐ No  
Did Sealing Material Rise to Surface? ☒ Yes ☐ No  
Did Material Settle After 24 Hours? ☐ Yes ☒ No  
If Yes, Was Hole Retopped? ☐ Yes ☐ No

(5) Required Method of Placing Sealing Material

- ☒ Conductor Pipe - Gravity ☐ Conductor Pipe - Pumped  
☐ Dump Bailer ☐ Other (Explain) \_\_\_\_\_

(6) Sealing Materials

- ☐ Neat Cement Grout  
☐ Sand-Cement (Concrete) Grout  
☐ Concrete  
☐ Clay-Sand Slurry  
☐ Bentonite-Sand Slurry  
☒ Chipped Bentonite
- For monitoring wells and monitoring well boreholes only:  
☐ Bentonite Pellets  
☐ Granular Bentonite  
☐ Bentonite-Cement Grout

(7)

| Sealing Material Used | From (Ft.) | To (Ft.) |        | Mix Ratio or Mud Weight |
|-----------------------|------------|----------|--------|-------------------------|
| Bentonite Chips       | Surface    | 20.0     | 5 Bags |                         |
|                       |            |          |        |                         |
|                       |            |          |        |                         |
|                       |            |          |        |                         |

(8) Comments \_\_\_\_\_

(9) Name of Person or Firm Doing Sealing Work

Boart Longyear Company

Signature of Person Doing Work

\_\_\_\_\_ Date Signed 09-04-03

Street or Route

101 Alderson Street

City, State, Zip Code

Schofield, WI 54476

Telephone Number  
715-359-7090

(10) FOR DNR OR COUNTY USE ONLY

|                         |                                                                                       |
|-------------------------|---------------------------------------------------------------------------------------|
| Date Received/Inspected | District/County                                                                       |
| Reviewer/Inspector      | <input type="checkbox"/> Complying Work<br><input type="checkbox"/> Noncomplying Work |
| Follow-up Necessary     |                                                                                       |



All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

|                                                                                                                                                      |                     |                                                         |                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------|--------------------------|
| (1) GENERAL INFORMATION                                                                                                                              |                     | (2) FACILITY NAME MGP Site                              |                          |
| Well/Drillhole/Borehole Location<br>SB-627                                                                                                           | County<br>Manitowoc | Original Well Owner (If Known)                          |                          |
| NW 1/4 of NW 1/4 of Sec. 1+2 : T. 19 N. R. 24 <input checked="" type="checkbox"/> E <input type="checkbox"/> W<br>(If Applicable)                    |                     | Present Well Owner<br>MGP Site - WPSC                   |                          |
| Gov't Lot _____ Grid Number _____                                                                                                                    |                     | Street or Route<br>21 <sup>st</sup> & SCHOOL STREETS    |                          |
| Grid Location<br>_____ ft. <input type="checkbox"/> N. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> W. |                     | City, State, Zip Code<br>Two Rivers, WI                 |                          |
| Civil Town Name _____                                                                                                                                |                     | Facility Well No. and/or Name (If Applicable)<br>SB-627 | WI Unique Well No. _____ |
| Street Address of Well _____                                                                                                                         |                     | Reason For Abandonment<br>Test Boring                   |                          |
| City, Village<br>Two Rivers                                                                                                                          |                     | Date of Abandonment<br>08/26/03                         |                          |

WELL/DRILLHOLE/BOREHOLE INFORMATION

|                                                                                                                                                                                              |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (3) Original Well/Drillhole/Borehole Construction Completed On<br>(Date) _____                                                                                                               |                                                                                                       | (4) Depth to Water (Feet) _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| <input type="checkbox"/> Monitoring Well<br><input type="checkbox"/> Water Well<br><input checked="" type="checkbox"/> Drillhole<br><input type="checkbox"/> Borehole                        | Construction Report Available?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If No, Explain NA |  |
| Construction Type:<br><input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug<br><input type="checkbox"/> Other (Specify) _____ |                                                                                                       | Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                            |  |
| Formation Type:<br><input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock                                                                             |                                                                                                       | (5) Required Method of Placing Sealing Material<br><input checked="" type="checkbox"/> Conductor Pipe - Gravity <input type="checkbox"/> Conductor Pipe - Pumped<br><input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)                                                                                                                                                                                                                                                                    |  |
| Total Well Depth (ft) _____ Casing Diameter (in.) _____<br>(From ground surface) Casing Depth (ft.) _____<br><br>Lower Drillhole Diameter (in.) _____                                        |                                                                                                       | (6) Sealing Materials For monitoring wells and monitoring well boreholes only<br><input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Bentonite Pellets<br><input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Granular Bentonite<br><input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite-Sand Slurry <input type="checkbox"/> Bentonite-Cement Grout<br><input type="checkbox"/> Clay-Sand Slurry <input checked="" type="checkbox"/> Chipped Bentonite   |  |
| Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown<br>If Yes, To What Depth? _____ Feet                               |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |

| (7) | Sealing Material Used | From (Ft.) | To (Ft.) | Mix Ratio or Mud Weight |
|-----|-----------------------|------------|----------|-------------------------|
|     | Bentonite Chips       | Surface    | 20.0     | 5 Bags                  |
|     |                       |            |          |                         |
|     |                       |            |          |                         |
|     |                       |            |          |                         |

(8) Comments \_\_\_\_\_

|                                                                                                                                                                                                                                |  |                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| (9) Name of Person or Firm Doing Sealing Work<br>Boart Longyear Company<br>Signature of Person Doing Work _____ Date Signed 09-04-03<br>Street or Route<br>101 Alderson Street<br>City, State, Zip Code<br>Schofield, WI 54476 |  | (10) FOR DNR OR COUNTY USE ONLY<br>Date Received/Inspected _____ District/County _____<br>Reviewer/Inspector _____ <input type="checkbox"/> Complying Work <input type="checkbox"/> Noncomplying Work<br>Follow-up Necessary _____ |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.


|                                                                                                                                                       |                     |                                                         |                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------|--------------------------|
| (1) GENERAL INFORMATION                                                                                                                               |                     | (2) FACILITY NAME MGP Site                              |                          |
| Well/Drillhole/Borehole Location<br>SB-628                                                                                                            | County<br>Manitowoc | Original Well Owner (If Known)                          |                          |
| NW 1/4 of NW 1/4 of Sec. 142 : T. 19 N: R. 24 <input checked="" type="checkbox"/> E <input type="checkbox"/> W<br>(If Applicable)                     |                     | Present Well Owner<br>MGP Site                          |                          |
| Gov't Lot _____ Grid Number _____                                                                                                                     |                     | Street or Route<br>21st + SCHOOL STREETS                |                          |
| Grid Location<br>_____ ft. <input type="checkbox"/> N. <input type="checkbox"/> S., _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> W. |                     | City, State, Zip Code<br>Two Rivers, WI                 |                          |
| Civil Town Name _____                                                                                                                                 |                     | Facility Well No. and/or Name (If Applicable)<br>SB-628 | WI Unique Well No. _____ |
| Street Address of Well _____                                                                                                                          |                     | Reason For Abandonment<br>Test Boring                   |                          |
| City, Village<br>Two Rivers                                                                                                                           |                     | Date of Abandonment<br>08/26/03                         |                          |

WELL/DRILLHOLE/BOREHOLE INFORMATION

|                                                                                                                                                                                              |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (3) Original Well/Drillhole/Borehole Construction Completed On<br>(Date) _____                                                                                                               |                                                                                                       | (4) Depth to Water (Feet) _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| <input type="checkbox"/> Monitoring Well<br><input type="checkbox"/> Water Well<br><input checked="" type="checkbox"/> Drillhole<br><input type="checkbox"/> Borehole                        | Construction Report Available?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If No, Explain NA     |  |
| Construction Type:<br><input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug<br><input type="checkbox"/> Other (Specify) _____ |                                                                                                       | Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                |  |
| Formation Type:<br><input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock                                                                             |                                                                                                       | (5) Required Method of Placing Sealing Material<br><input checked="" type="checkbox"/> Conductor Pipe - Gravity <input type="checkbox"/> Conductor Pipe - Pumped<br><input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain) _____                                                                                                                                                                                                                                                                  |  |
| Total Well Depth (ft) _____ Casing Diameter (in.) _____<br>(From ground surface) Casing Depth (ft.) _____                                                                                    |                                                                                                       | (6) Sealing Materials For monitoring wells and monitoring well boreholes only<br><input type="checkbox"/> Neat Cement Grout<br><input type="checkbox"/> Sand-Cement (Concrete) Grout<br><input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite Pellets<br><input type="checkbox"/> Clay-Sand Slurry <input type="checkbox"/> Granular Bentonite<br><input type="checkbox"/> Bentonite-Sand Slurry <input type="checkbox"/> Bentonite-Cement Grout<br><input checked="" type="checkbox"/> Chipped Bentonite |  |
| Lower Drillhole Diameter (in.) _____                                                                                                                                                         |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown<br>If Yes, To What Depth? _____ Feet                               |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |

| (7) Sealing Material Used | From (Ft.) | To (Ft.) |        | Mix Ratio or Mud Weight |
|---------------------------|------------|----------|--------|-------------------------|
| Bentonite Chips           | Surface    | 20.0     | 5 Bags |                         |
|                           |            |          |        |                         |
|                           |            |          |        |                         |
|                           |            |          |        |                         |

(8) Comments \_\_\_\_\_

|                                                                                                                      |                                  |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------|
| (9) Name of Person or Firm Doing Sealing Work<br>Boart Longyear Company                                              |                                  |
| Signature of Person Doing Work<br> | Date Signed<br>09-05-03          |
| Street or Route<br>101 Alderson Street                                                                               | Telephone Number<br>715-359-7090 |
| City, State, Zip Code<br>Schofield, WI 54476                                                                         |                                  |

|                                 |                                                                                       |
|---------------------------------|---------------------------------------------------------------------------------------|
| (10) FOR DNR OR COUNTY USE ONLY |                                                                                       |
| Date Received/Inspected _____   | District/County _____                                                                 |
| Reviewer/Inspector _____        | <input type="checkbox"/> Complying Work<br><input type="checkbox"/> Noncomplying Work |
| Follow-up Necessary _____       |                                                                                       |

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

|                                                                                                                                                       |                     |                                                         |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------|--------------------|
| (1) GENERAL INFORMATION                                                                                                                               |                     | (2) FACILITY NAME MGP Site                              |                    |
| Well/Drillhole/Borehole Location<br>SB-629                                                                                                            | County<br>Manitowoc | Original Well Owner (If Known)                          |                    |
| NW 1/4 of NW 1/4 of Sec. 142 : T. 19 N. R. 24 <input checked="" type="checkbox"/> E <input type="checkbox"/> W<br>(If Applicable)                     |                     | Present Well Owner<br>MGP Site                          |                    |
| Gov't Lot _____ Grid Number _____                                                                                                                     |                     | Street or Route<br>21 <sup>st</sup> + SCHOOL STREETS    |                    |
| Grid Location<br>_____ ft. <input type="checkbox"/> N. <input type="checkbox"/> S., _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> W. |                     | City, State, Zip Code<br>Two Rivers, WI                 |                    |
| Civil Town Name                                                                                                                                       |                     | Facility Well No. and/or Name (If Applicable)<br>SB-629 | WI Unique Well No. |
| Street Address of Well                                                                                                                                |                     | Reason For Abandonment<br>Test Boring                   |                    |
| City, Village<br>Two Rivers                                                                                                                           |                     | Date of Abandonment<br>08/27/03                         |                    |

WELL/DRILLHOLE/BOREHOLE INFORMATION

|                                                                                                                                                                                              |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (3) Original Well/Drillhole/Borehole Construction Completed On<br>(Date) _____                                                                                                               |                                                                                                       | (4) Depth to Water (Feet) _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| <input type="checkbox"/> Monitoring Well<br><input type="checkbox"/> Water Well<br><input checked="" type="checkbox"/> Drillhole<br><input type="checkbox"/> Borehole                        | Construction Report Available?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If No, Explain NA     |  |
| Construction Type:<br><input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug<br><input type="checkbox"/> Other (Specify) _____ |                                                                                                       | Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                |  |
| Formation Type:<br><input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock                                                                             |                                                                                                       | (5) Required Method of Placing Sealing Material<br><input checked="" type="checkbox"/> Conductor Pipe - Gravity <input type="checkbox"/> Conductor Pipe - Pumped<br><input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)                                                                                                                                                                                                                                                                        |  |
| Total Well Depth (ft.) _____ Casing Diameter (in.) _____<br>(From ground surface) Casing Depth (ft.) _____                                                                                   |                                                                                                       | (6) Sealing Materials For monitoring wells and monitoring well boreholes only<br><input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Bentonite Pellets<br><input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Granular Bentonite<br><input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite-Cement Grout<br><input type="checkbox"/> Clay-Sand Slurry<br><input type="checkbox"/> Bentonite-Sand Slurry<br><input checked="" type="checkbox"/> Chipped Bentonite |  |
| Lower Drillhole Diameter (in.) _____                                                                                                                                                         |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown<br>If Yes, To What Depth? _____ Feet                               |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |

| (7) | Sealing Material Used | From (Ft.) | To (Ft.) | Mix Ratio or Mud Weight |
|-----|-----------------------|------------|----------|-------------------------|
|     | Bentonite Chips       | Surface    | 26.0     | 5 Bags                  |
|     |                       |            |          |                         |
|     |                       |            |          |                         |
|     |                       |            |          |                         |

(8) Comments \_\_\_\_\_

(9) Name of Person or Firm Doing Sealing Work

Boart Longyear Company

Signature of Person Doing Work

Date Signed

Street or Route

Telephone Number

101 Alderson Street

715-359-7090

City, State, Zip Code

Schofield, WI 54476

(10) FOR DNR OR COUNTY USE ONLY


|                         |                                                                                       |
|-------------------------|---------------------------------------------------------------------------------------|
| Date Received/Inspected | District/County                                                                       |
| Reviewer/Inspector      | <input type="checkbox"/> Complying Work<br><input type="checkbox"/> Noncomplying Work |
| Follow-up Necessary     |                                                                                       |

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

|                                                                                                                                                       |                     |                                                         |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------|--------------------|
| (1) GENERAL INFORMATION                                                                                                                               |                     | (2) FACILITY NAME MGP Site                              |                    |
| Well/Drillhole/Borehole Location<br>SB-630                                                                                                            | County<br>Manitowoc | Original Well Owner (If Known)                          |                    |
| NW 1/4 of NW 1/4 of Sec. 142 : T. 19 N. R. 24 <input checked="" type="checkbox"/> E <input type="checkbox"/> W<br>(If Applicable)                     |                     | Present Well Owner<br>MGP Site                          |                    |
| Gov't Lot _____ Grid Number _____                                                                                                                     |                     | Street or Route<br>21 <sup>st</sup> & SCHOOL STREETS    |                    |
| Grid Location<br>_____ ft. <input type="checkbox"/> N. <input type="checkbox"/> S., _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> W. |                     | City, State, Zip Code<br>Two Rivers, WI                 |                    |
| Civil Town Name                                                                                                                                       |                     | Facility Well No. and/or Name (If Applicable)<br>SB-630 | WI Unique Well No. |
| Street Address of Well                                                                                                                                |                     | Reason For Abandonment<br>Test Boring                   |                    |
| City, Village<br>Two Rivers                                                                                                                           |                     | Date of Abandonment<br>08/27/03                         |                    |

WELL/DRILLHOLE/BOREHOLE INFORMATION

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------|
| (3) Original Well/Drillhole/Borehole Construction Completed On<br>(Date) _____<br><br><input type="checkbox"/> Monitoring Well<br><input type="checkbox"/> Water Well<br><input checked="" type="checkbox"/> Drillhole<br><input type="checkbox"/> Borehole<br><br>Construction Report Available?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br><br>Construction Type:<br><input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug<br><input type="checkbox"/> Other (Specify) _____<br><br>Formation Type:<br><input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock<br><br>Total Well Depth (ft) _____ Casing Diameter (in.) _____<br>(From ground surface) Casing Depth (ft.) _____<br><br>Lower Drillhole Diameter (in.) _____<br><br>Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown<br>If Yes, To What Depth? _____ Feet |  | (4) Depth to Water (Feet) _____<br>Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If No, Explain NA<br><br>Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No |          |                         |
| (5) Required Method of Placing Sealing Material<br><input checked="" type="checkbox"/> Conductor Pipe - Gravity <input type="checkbox"/> Conductor Pipe - Pumped<br><input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  | (6) Sealing Materials For monitoring wells and monitoring well boreholes only<br><input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Bentonite Pellets<br><input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Granular Bentonite<br><input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite-Cement Grout<br><input type="checkbox"/> Clay-Sand Slurry<br><input type="checkbox"/> Bentonite-Sand Slurry<br><input checked="" type="checkbox"/> Chipped Bentonite                                                                                                                                                                                                                                                                                                                                                                                                                                                 |          |                         |
| (7) Sealing Material Used                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  | From (Ft.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | To (Ft.) | Mix Ratio or Mud Weight |
| Bentonite Chips                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | Surface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 18.0     | 2 Bags                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |          |                         |

|                                                                                                                                                                                                                                                                                                                                     |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (8) Comments                                                                                                                                                                                                                                                                                                                        |  |
| (9) Name of Person or Firm Doing Sealing Work<br>Boart Longyear Company<br>Signature of Person Doing Work  Date Signed 09-05-03<br>Street or Route 101 Alderson Street Telephone Number 715-359-7090<br>City, State, Zip Code Schofield, WI 54476 |  |
| (10) FOR DNR OR COUNTY USE ONLY<br>Date Received/Inspected _____ District/County _____<br>Reviewer/Inspector <input type="checkbox"/> Complying Work <input type="checkbox"/> Noncomplying Work<br>Follow-up Necessary _____                                                                                                        |  |

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.


|                                                                                                                                                      |                     |                                                         |                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------|--------------------|
| (1) GENERAL INFORMATION                                                                                                                              |                     | (2) FACILITY NAME MGP Site                              |                    |
| Well/Drillhole/Borehole Location<br>SB-631                                                                                                           | County<br>Manitowoc | Original Well Owner (If Known)                          |                    |
| NW 1/4 of NW 1/4 of Sec. 142 : T. 19 N. R. 24 <input checked="" type="checkbox"/> E <input type="checkbox"/> W                                       |                     | Present Well Owner<br>MGP Site                          |                    |
| (If Applicable) Gov't Lot _____ Grid Number _____                                                                                                    |                     | Street or Route<br>21 <sup>st</sup> + SCHOOL STREETS    |                    |
| Grid Location<br>_____ ft. <input type="checkbox"/> N. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> W. |                     | City, State, Zip Code<br>Two Rivers, WI                 |                    |
| Civil Town Name                                                                                                                                      |                     | Facility Well No. and/or Name (If Applicable)<br>SB-631 | WI Unique Well No. |
| Street Address of Well                                                                                                                               |                     | Reason For Abandonment<br>Test Boring                   |                    |
| City, Village<br>Two Rivers                                                                                                                          |                     | Date of Abandonment<br>08/27/03                         |                    |

WELL/DRILLHOLE/BOREHOLE INFORMATION

|                                                                                                                                                                                              |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (3) Original Well/Drillhole/Borehole Construction Completed On<br>(Date) _____                                                                                                               |                                                                                                       | (4) Depth to Water (Feet) _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| <input type="checkbox"/> Monitoring Well<br><input type="checkbox"/> Water Well<br><input checked="" type="checkbox"/> Drillhole<br><input type="checkbox"/> Borehole                        | Construction Report Available?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If No, Explain NA     |  |
| Construction Type:<br><input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug<br><input type="checkbox"/> Other (Specify) _____ |                                                                                                       | Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                |  |
| Formation Type:<br><input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock                                                                             |                                                                                                       | (5) Required Method of Placing Sealing Material<br><input checked="" type="checkbox"/> Conductor Pipe - Gravity <input type="checkbox"/> Conductor Pipe - Pumped<br><input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)                                                                                                                                                                                                                                                                        |  |
| Total Well Depth (ft) _____ Casing Diameter (in.) _____<br>(From ground surface) Casing Depth (ft.) _____<br><br>Lower Drillhole Diameter (in.) _____                                        |                                                                                                       | (6) Sealing Materials For monitoring wells and monitoring well boreholes only<br><input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Bentonite Pellets<br><input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Granular Bentonite<br><input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite-Cement Grout<br><input type="checkbox"/> Clay-Sand Slurry<br><input type="checkbox"/> Bentonite-Sand Slurry<br><input checked="" type="checkbox"/> Chipped Bentonite |  |
| Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown<br>If Yes, To What Depth? _____ Feet                               |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |

| (7) Sealing Material Used | From (Ft.) | To (Ft.) |       | Mix Ratio or Mud Weight |
|---------------------------|------------|----------|-------|-------------------------|
| Bentonite Chips           | Surface    | 14.0     | 1 Bag |                         |
|                           |            |          |       |                         |
|                           |            |          |       |                         |
|                           |            |          |       |                         |

(8) Comments \_\_\_\_\_

|                                                                                                                      |                                  |
|----------------------------------------------------------------------------------------------------------------------|----------------------------------|
| (9) Name of Person or Firm Doing Sealing Work<br>Boart Longyear Company                                              |                                  |
| Signature of Person Doing Work<br> | Date Signed<br>09-05-03          |
| Street or Route<br>101 Alderson Street                                                                               | Telephone Number<br>715-359-7090 |
| City, State, Zip Code<br>Schofield, WI 54476                                                                         |                                  |

| (10) FOR DNR OR COUNTY USE ONLY |                                                                                       |
|---------------------------------|---------------------------------------------------------------------------------------|
| Date Received/Inspected         | District/County                                                                       |
| Reviewer/Inspector              | <input type="checkbox"/> Complying Work<br><input type="checkbox"/> Noncomplying Work |
| Follow-up Necessary             |                                                                                       |

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

(1) GENERAL INFORMATION

|                                                                                                                                   |                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Well/Drillhole/Borehole Location<br>SB-632                                                                                        | County<br>Manitowoc                                                                                                           |
| NW 1/4 of NW 1/4 of Sec. 1+2 : T. 19 N: R. 24 <input checked="" type="checkbox"/> E <input type="checkbox"/> W<br>(If Applicable) |                                                                                                                               |
| Grid Location<br>Gov't Lot _____ Grid Number _____                                                                                | ft. <input type="checkbox"/> N. <input type="checkbox"/> S. _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> W. |
| Civil Town Name _____                                                                                                             |                                                                                                                               |
| Street Address of Well _____                                                                                                      |                                                                                                                               |
| City, Village<br>Two Rivers                                                                                                       |                                                                                                                               |

|                                                         |                          |
|---------------------------------------------------------|--------------------------|
| (2) FACILITY NAME MGP Site                              |                          |
| Original Well Owner (If Known) _____                    |                          |
| Present Well Owner<br>MGP Site                          |                          |
| Street or Route<br>21st & SCHOOL STREETS                |                          |
| City, State, Zip Code<br>Two Rivers, WI                 |                          |
| Facility Well No. and/or Name (If Applicable)<br>SB-632 | WI Unique Well No. _____ |
| Reason For Abandonment<br>Test Boring                   |                          |
| Date of Abandonment<br>08/27/03                         |                          |

WELL/DRILLHOLE/BOREHOLE INFORMATION

(3) Original Well/Drillhole/Borehole Construction Completed On  
(Date) \_\_\_\_\_

- ☐ Monitoring Well  
☐ Water Well  
☒ Drillhole  
☐ Borehole

Construction Report Available?  
☒ Yes ☐ No

Construction Type:

- ☒ Drilled ☐ Driven (Sandpoint) ☐ Dug  
☐ Other (Specify) \_\_\_\_\_

Formation Type:

- ☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft) \_\_\_\_\_ Casing Diameter (in.) \_\_\_\_\_  
(From ground surface) Casing Depth (ft.) \_\_\_\_\_

Lower Drillhole Diameter (in.) \_\_\_\_\_

Was Well Annular Space Grouted? ☐ Yes ☐ No ☐ Unknown  
If Yes, To What Depth? \_\_\_\_\_ Feet

- (4) Depth to Water (Feet) \_\_\_\_\_
- |                        |                                                                                                             |
|------------------------|-------------------------------------------------------------------------------------------------------------|
| Pump & Piping Removed? | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable |
| Liner(s) Removed?      | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable |
| Screen Removed?        | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable |
| Casing Left in Place?  | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No                                         |
- If No, Explain NA

- Was Casing Cut Off Below Surface? ☐ Yes ☐ No  
Did Sealing Material Rise to Surface? ☒ Yes ☐ No  
Did Material Settle After 24 Hours? ☐ Yes ☒ No  
If Yes, Was Hole Retopped? ☐ Yes ☐ No

- (5) Required Method of Placing Sealing Material
- |                                                              |                                                  |
|--------------------------------------------------------------|--------------------------------------------------|
| <input checked="" type="checkbox"/> Conductor Pipe - Gravity | <input type="checkbox"/> Conductor Pipe - Pumped |
| <input type="checkbox"/> Dump Bailer                         | <input type="checkbox"/> Other (Explain) _____   |

- (6) Sealing Materials
- |                                                       |                                                         |
|-------------------------------------------------------|---------------------------------------------------------|
| <input type="checkbox"/> Neat Cement Grout            | For monitoring wells and monitoring well boreholes only |
| <input type="checkbox"/> Sand-Cement (Concrete) Grout |                                                         |
| <input type="checkbox"/> Concrete                     |                                                         |
| <input type="checkbox"/> Clay-Sand Slurry             |                                                         |
| <input type="checkbox"/> Bentonite-Sand Slurry        |                                                         |
| <input checked="" type="checkbox"/> Chipped Bentonite |                                                         |
- |                                                 |
|-------------------------------------------------|
| <input type="checkbox"/> Bentonite Pellets      |
| <input type="checkbox"/> Granular Bentonite     |
| <input type="checkbox"/> Bentonite-Cement Grout |

| (7) Sealing Material Used | From (Ft.) | To (Ft.) |        | Mix Ratio or Mud Weight |
|---------------------------|------------|----------|--------|-------------------------|
| Bentonite Chips           | Surface    | 16.0     | 3 Bags |                         |
|                           |            |          |        |                         |
|                           |            |          |        |                         |
|                           |            |          |        |                         |

(8) Comments \_\_\_\_\_

(9) Name of Person or Firm Doing Sealing Work

Boart Longyear Company

Signature of Person Doing Work \_\_\_\_\_

Date Signed

09-05-03

Telephone Number

715-359-7090

Street or Route

101 Alderson Street

City, State, Zip Code

Schofield, WI 54476

(10) FOR DNR OR COUNTY USE ONLY

Date Received/Inspected

District/County

Reviewer/Inspector

- ☐ Complying Work  
☐ Noncomplying Work

Follow-up Necessary

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

|                                                                                                                                                       |                     |                                                         |                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------|--------------------|
| (1) GENERAL INFORMATION                                                                                                                               |                     | (2) FACILITY NAME MGP Site                              |                    |
| Well/Drillhole/Borehole Location<br>SB-633                                                                                                            | County<br>Manitowoc | Original Well Owner (If Known)                          |                    |
| NW 1/4 of NW 1/4 of Sec. 142 ; T. 19 N. R. 24 <input checked="" type="checkbox"/> E <input type="checkbox"/> W                                        |                     | Present Well Owner<br>MGP Site                          |                    |
| (If Applicable) Gov't Lot _____ Grid Number _____                                                                                                     |                     | Street or Route<br>21 <sup>st</sup> + SCHOOL STREETS    |                    |
| Grid Location<br>_____ ft. <input type="checkbox"/> N. <input type="checkbox"/> S., _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> W. |                     | City, State, Zip Code<br>Two Rivers, WI                 |                    |
| Civil Town Name                                                                                                                                       |                     | Facility Well No. and/or Name (If Applicable)<br>SB-633 | WI Unique Well No. |
| Street Address of Well                                                                                                                                |                     | Reason For Abandonment<br>Test Boring                   |                    |
| City, Village<br>Two Rivers                                                                                                                           |                     | Date of Abandonment<br>08/27/03                         |                    |

WELL/DRILLHOLE/BOREHOLE INFORMATION

|                                                                                                                                                                                              |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (3) Original Well/Drillhole/Borehole Construction Completed On<br>(Date) _____                                                                                                               |                                                                                                       | (4) Depth to Water (Feet) _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
| <input type="checkbox"/> Monitoring Well<br><input type="checkbox"/> Water Well<br><input checked="" type="checkbox"/> Drillhole<br><input type="checkbox"/> Borehole                        | Construction Report Available?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If No, Explain NA |  |
| Construction Type:<br><input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug<br><input type="checkbox"/> Other (Specify) _____ |                                                                                                       | Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                            |  |
| Formation Type:<br><input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock                                                                             |                                                                                                       | (5) Required Method of Placing Sealing Material<br><input checked="" type="checkbox"/> Conductor Pipe - Gravity <input type="checkbox"/> Conductor Pipe - Pumped<br><input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain)                                                                                                                                                                                                                                                                    |  |
| Total Well Depth (ft) _____ Casing Diameter (in.) _____<br>(From ground surface) Casing Depth (ft.) _____                                                                                    |                                                                                                       | (6) Sealing Materials For monitoring wells and monitoring well boreholes only                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
| Lower Drillhole Diameter (in.) _____                                                                                                                                                         |                                                                                                       | <input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Concrete <input type="checkbox"/> Clay-Sand Slurry <input type="checkbox"/> Bentonite-Sand Slurry <input checked="" type="checkbox"/> Chipped Bentonite                                                                                                                                                                                                                                    |  |
| Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown<br>If Yes, To What Depth? _____ Feet                               |                                                                                                       | <input type="checkbox"/> Bentonite Pellets <input type="checkbox"/> Granular Bentonite <input type="checkbox"/> Bentonite-Cement Grout                                                                                                                                                                                                                                                                                                                                                                               |  |

| (7) Sealing Material Used | From (Ft.) | To (Ft.) | Mix Ratio or Mud Weight |
|---------------------------|------------|----------|-------------------------|
| Bentonite Chips           | Surface    | 20.0     | 4 Bags                  |
|                           |            |          |                         |
|                           |            |          |                         |
|                           |            |          |                         |

(8) Comments

(9) Name of Person or Firm Doing Sealing Work

|                                |                      |
|--------------------------------|----------------------|
| Boart Longyear Company         |                      |
| Signature of Person Doing Work | Date Signed 09-05-03 |
| Street or Route                | Telephone Number     |
| 101 Alderson Street            | 715-359-7090         |
| City, State, Zip Code          |                      |
| Schofield, WI 54476            |                      |

(10) FOR DNR OR COUNTY USE ONLY

|                         |                                                                                       |
|-------------------------|---------------------------------------------------------------------------------------|
| Date Received/Inspected | District/County                                                                       |
| Reviewer/Inspector      | <input type="checkbox"/> Complying Work<br><input type="checkbox"/> Noncomplying Work |
| Follow-up Necessary     |                                                                                       |

All abandonment work shall be performed in accordance with the provisions of Chapters NR 811, NR 812 or 141, Wis. Admin. Code, whichever is applicable.

|                                                                                                                                                       |                     |                                                         |                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------------------------------------------|--------------------------|
| (1) GENERAL INFORMATION                                                                                                                               |                     | (2) FACILITY NAME MGP Site                              |                          |
| Well/Drillhole/Borehole Location<br>SB-634                                                                                                            | County<br>Manitowoc | Original Well Owner (If Known)                          |                          |
| NW 1/4 of NW 1/4 of Sec. 142 : T. 19 N; R. 24 <input checked="" type="checkbox"/> E <input type="checkbox"/> W<br>(If Applicable)                     |                     | Present Well Owner<br>MGP Site                          |                          |
| Gov't Lot _____ Grid Number _____                                                                                                                     |                     | Street or Route<br>21 <sup>st</sup> + SCHOOL STREETS    |                          |
| Grid Location<br>_____ ft. <input type="checkbox"/> N. <input type="checkbox"/> S., _____ ft. <input type="checkbox"/> E. <input type="checkbox"/> W. |                     | City, State, Zip Code<br>Two Rivers, WI                 |                          |
| Civil Town Name _____                                                                                                                                 |                     | Facility Well No. and/or Name (If Applicable)<br>SB-634 | WI Unique Well No. _____ |
| Street Address of Well _____                                                                                                                          |                     | Reason For Abandonment<br>Test Boring                   |                          |
| City, Village<br>Two Rivers                                                                                                                           |                     | Date of Abandonment<br>08/27/03                         |                          |

WELL/DRILLHOLE/BOREHOLE INFORMATION

|                                                                                                                                                                                              |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (3) Original Well/Drillhole/Borehole Construction Completed On<br>(Date) _____                                                                                                               |                                                                                                       | (4) Depth to Water (Feet) _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
| <input type="checkbox"/> Monitoring Well<br><input type="checkbox"/> Water Well<br><input checked="" type="checkbox"/> Drillhole<br><input type="checkbox"/> Borehole                        | Construction Report Available?<br><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | Pump & Piping Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Liner(s) Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Screen Removed? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Applicable<br>Casing Left in Place? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If No, Explain NA     |  |
| Construction Type:<br><input checked="" type="checkbox"/> Drilled <input type="checkbox"/> Driven (Sandpoint) <input type="checkbox"/> Dug<br><input type="checkbox"/> Other (Specify) _____ |                                                                                                       | Was Casing Cut Off Below Surface? <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Sealing Material Rise to Surface? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No<br>Did Material Settle After 24 Hours? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No<br>If Yes, Was Hole Retopped? <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                |  |
| Formation Type:<br><input checked="" type="checkbox"/> Unconsolidated Formation <input type="checkbox"/> Bedrock                                                                             |                                                                                                       | (5) Required Method of Placing Sealing Material<br><input checked="" type="checkbox"/> Conductor Pipe - Gravity <input type="checkbox"/> Conductor Pipe - Pumped<br><input type="checkbox"/> Dump Bailer <input type="checkbox"/> Other (Explain) _____                                                                                                                                                                                                                                                                  |  |
| Total Well Depth (ft) _____ Casing Diameter (in.) _____<br>(From ground surface) Casing Depth (ft.) _____<br><br>Lower Drillhole Diameter (in.) _____                                        |                                                                                                       | (6) Sealing Materials For monitoring wells and monitoring well boreholes only<br><input type="checkbox"/> Neat Cement Grout <input type="checkbox"/> Bentonite Pellets<br><input type="checkbox"/> Sand-Cement (Concrete) Grout <input type="checkbox"/> Granular Bentonite<br><input type="checkbox"/> Concrete <input type="checkbox"/> Bentonite-Cement Grout<br><input type="checkbox"/> Clay-Sand Slurry<br><input type="checkbox"/> Bentonite-Sand Slurry<br><input checked="" type="checkbox"/> Chipped Bentonite |  |
| Was Well Annular Space Grouted? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown<br>If Yes, To What Depth? _____ Feet                               |                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |

| (7) Sealing Material Used | From (Ft.) | To (Ft.) |        | Mix Ratio or Mud Weight |
|---------------------------|------------|----------|--------|-------------------------|
| Bentonite Chips           | Surface    | 20.0     | 5 Bags |                         |
|                           |            |          |        |                         |
|                           |            |          |        |                         |
|                           |            |          |        |                         |

(8) Comments \_\_\_\_\_

(9) Name of Person or Firm Doing Sealing Work

Boart Longyear Company

Signature of Person Doing Work

Date Signed

Street or Route \_\_\_\_\_ Telephone Number

101 Alderson Street 715-359-7090

City, State, Zip Code

Schofield, WI 54476

(10) FOR DNR OR COUNTY USE ONLY



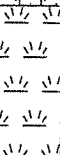


|                         |                                                                                       |
|-------------------------|---------------------------------------------------------------------------------------|
| Date Received/Inspected | District/County                                                                       |
| Reviewer/Inspector      | <input type="checkbox"/> Complying Work<br><input type="checkbox"/> Noncomplying Work |
| Follow-up Necessary     |                                                                                       |



Route To: Watershed/Wastewater ☐ Waste Management ☐  
Remediation/Redevelopment ☒ Other ☐

Page 1 of 1

|                                                                                                                                          |                 |                            |                                              |                                                  |                                             |  |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------|----------------------------|----------------------------------------------|--------------------------------------------------|---------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                          |                 |                            | License/Permit/Monitoring Number<br><b>1</b> |                                                  | Boring Number<br><b>SB-615</b>              |  |
| Boring Drilled By: Name of crew chief (first, last) and Firm<br><b>Jeff Flaminio<br/>Boart Longyear</b>                                  |                 |                            | Date Drilling Started<br><b>3/25/1996</b>    |                                                  | Date Drilling Completed<br><b>3/25/1996</b> |  |
| Drilling Method<br><b>Geoprobe</b>                                                                                                       |                 |                            |                                              |                                                  |                                             |  |
| WI Unique Well No.                                                                                                                       | DNR Well ID No. | Common Well Name           | Final Static Water Level<br>Feet MSL         | Surface Elevation<br>Feet MSL                    | Borehole Diameter<br><b>2.5 inches</b>      |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |                 |                            | Local Grid Location                          |                                                  |                                             |  |
| State Plane<br><b>N, E S/C/N</b>                                                                                                         |                 |                            | Lat <b>° ' "</b>                             |                                                  |                                             |  |
| 1/4 of <b>T 19 N, R 24 E</b>                                                                                                             |                 |                            | Long <b>° ' "</b>                            |                                                  |                                             |  |
| Facility ID                                                                                                                              |                 | County<br><b>Manitowoc</b> | County Code<br><b>36</b>                     | Civil Town/City/ or Village<br><b>Two Rivers</b> |                                             |  |

| Sample             |                                 | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                                                                                    | U S C S | Graphic<br>Log                                                                       | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|--------------------|---------------------------------|-------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------------------------------------------------------------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
| Number<br>and Type | Length Att. &<br>Recovered (in) |             |               |                                                                                                                                                        |         |                                                                                      |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
| 1<br>CS            | 24<br>9                         |             |               | 0'-0.5' <u>SANDY ORGANIC SOIL</u>                                                                                                                      | OL      |    |                 | 0       |                         |                     |                 |                     |       |                  |
| 2<br>CS            | 24<br>12                        |             | 1<br>2        | 0.5'-4' <u>SILTY SAND WITH GRAVEL</u> ,<br>very dark grayish brown (10 YR 3/2), no<br>odor, slightly moist                                             | SM      |   |                 | 0       |                         |                     |                 |                     |       |                  |
| 3<br>CS            | 24<br>16                        |             | 3<br>4<br>5   | 4'-6' <u>PEAT</u> , black, no odor, slightly moist                                                                                                     |         |  |                 | 1152    |                         |                     |                 |                     |       |                  |
| 4<br>CS            | 24<br>18                        |             | 6<br>7        | 6'-8' <u>PEAT WITH CLAY</u> , black, no odor,<br>slightly moist                                                                                        | Peat    |  |                 | 1673    |                         |                     |                 |                     |       |                  |
| 5<br>CS            | 24<br>15                        |             | 8<br>9<br>10  | 8'-10' <u>CLAYEY SAND</u> , yellowish brown<br>(10YR 5/6), poorly graded, predominantly<br>fine, trace silt, 5% fine gravel, soft, slight<br>odor, wet | SC      |  |                 | 1947    |                         |                     |                 |                     |       |                  |
|                    |                                 |             |               | <u>END OF BORING AT 10'</u>                                                                                                                            |         |                                                                                      |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *John A. Cawell* Firm **Natural Resource Technology, Inc.**

Tel:  
Fax:

This form is authorized by Chapters 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats. Completion of this form is mandatory. Failure to file this form may result in forfeiture of between \$10 and \$25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See instructions for more information, including where the completed form should be sent.

Template: WDNR\_SBL\_98 - Project: 1569 GINT SBLS.GPJ

Route To: Watershed/Wastewater ☐ Waste Management ☐  
Remediation/Redevelopment ☒ Other ☐

Page 1 of 1

|                                                                                                                                          |                 |                  |                                                  |                               |                                             |  |
|------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------------|--------------------------------------------------|-------------------------------|---------------------------------------------|--|
| Facility/Project Name<br><b>WPSC-Two Rivers</b>                                                                                          |                 |                  | License/Permit/Monitoring Number<br><b>1</b>     |                               | Boring Number<br><b>SB-616</b>              |  |
| Boring Drilled By: Name of crew chief (first, last) and Firm<br><b>Jeff Flaminio<br/>Boart Longyear</b>                                  |                 |                  | Date Drilling Started<br><b>3/25/1996</b>        |                               | Date Drilling Completed<br><b>3/25/1996</b> |  |
| Drilling Method<br><b>Geoprobe</b>                                                                                                       |                 |                  |                                                  |                               |                                             |  |
| WI Unique Well No.                                                                                                                       | DNR Well ID No. | Common Well Name | Final Static Water Level<br>Feet MSL             | Surface Elevation<br>Feet MSL | Borehole Diameter<br><b>2.5 inches</b>      |  |
| Local Grid Origin <input type="checkbox"/> (estimated: <input type="checkbox"/> ) or Boring Location <input checked="" type="checkbox"/> |                 |                  | Local Grid Location                              |                               |                                             |  |
| State Plane<br>N, E S/C/N                                                                                                                |                 |                  | Lat _____"                                       |                               |                                             |  |
| 1/4 of _____                                                                                                                             |                 |                  | Long _____"                                      |                               |                                             |  |
| County<br><b>Manitowoc</b>                                                                                                               |                 |                  | County Code<br><b>36</b>                         |                               |                                             |  |
| Facility ID                                                                                                                              |                 |                  | Civil Town/City/ or Village<br><b>Two Rivers</b> |                               |                                             |  |

| Sample<br>Number<br>and Type | Length Att. &<br>Recovered (in) | Blow Counts | Depth In Feet | Soil/Rock Description<br>And Geologic Origin For<br>Each Major Unit                           | USCS | Graphic<br>Log | Well<br>Diagram | PID/FID | Soil Properties         |                     |                 |                     |       | RQD/<br>Comments |
|------------------------------|---------------------------------|-------------|---------------|-----------------------------------------------------------------------------------------------|------|----------------|-----------------|---------|-------------------------|---------------------|-----------------|---------------------|-------|------------------|
|                              |                                 |             |               |                                                                                               |      |                |                 |         | Compressive<br>Strength | Moisture<br>Content | Liquid<br>Limit | Plasticity<br>Index | P 200 |                  |
| 1<br>CS                      | 24<br>16                        |             | 1             | 0'-4' <u>SILTY SAND</u> , dark olive brown (2.5 Y 3/3), fine, subrounded, loose, no odor, wet |      |                |                 | 0       |                         |                     |                 |                     |       |                  |
| 2<br>CS                      | 24<br>12                        |             | 2             | 2'-4' organics in silty sand                                                                  | SM   |                |                 | 0       |                         |                     |                 |                     |       |                  |
| 3<br>CS                      | 24<br>2                         |             | 4             | 4'-10' <u>CLAY</u> , light yellowish brown (2.5 Y 6/3), trace sand, soft, no odor, moist      |      |                |                 | 0       |                         |                     |                 |                     |       |                  |
| 4<br>CS                      | 24<br>22                        |             | 6             | 6'-10' brown (7.5 YR 5/3), very moist                                                         | CL   |                |                 | 0       |                         |                     |                 |                     |       |                  |
| 5<br>CS                      | 24<br>23                        |             | 8             |                                                                                               |      |                |                 | 0       |                         |                     |                 |                     |       |                  |
|                              |                                 |             | 10            | <u>END OF BORING AT 10"</u>                                                                   |      |                |                 |         |                         |                     |                 |                     |       |                  |

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature *Debra J. Cavall* Firm **Natural Resource Technology, Inc.**

Tel:  
Fax:

Template: WDNR\_SBL\_98 - Project: 1569 GINT SBL5.GPJ

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**APPENDIX C**

**GROUNDWATER SAMPLING LOGS**

Page 1 of 1

| PURGE PHASE        |        |      |                     |                         |                          |                |                      |                         |                                 |                                                         |
|--------------------|--------|------|---------------------|-------------------------|--------------------------|----------------|----------------------|-------------------------|---------------------------------|---------------------------------------------------------|
| Sample Location ID | Date   | Time | Depth to SWL (feet) | Total Well Depth (feet) | 4 Well Volumes (gallons) | Purging Device | Purge Time (minutes) | Volume Purged (gallons) | Depth to SWL after Purge (feet) | Comments: analysis field filtered, well condition, etc. |
| MW-603A            | 7/2/03 | 14   | 4.44                | 14.50                   | 6.3                      | Bailer         |                      | 6                       |                                 |                                                         |
| MW-603B            | 7/2/03 |      | 4.14                | 31.99                   | 19.5                     | Bailer         |                      | 20                      |                                 |                                                         |
| MW-604             | 7/2/03 |      | 5.25                | 14.22                   | 9                        | Bailer         |                      | 9                       |                                 |                                                         |
| MW-606             | 7/2/03 |      | 4.06                | 14.59                   | 7.37                     | Bailer         |                      | 7.5                     |                                 |                                                         |
| MW-601             | 7/2/03 |      | 4.95                | 13.54                   | 6                        | Bailer         |                      | 5/dry                   |                                 |                                                         |
| MW-602             | 7/2/03 |      | 4.85                | 14.18                   | 6.5                      | Bailer         |                      | 5/dry                   |                                 |                                                         |
| MW-611             | 7/2/03 |      | 4.49                | 34.71                   | 21.15                    | Bailer         |                      | 21                      |                                 | QC2 = MW 611                                            |

[illegible]

Project # 1569 Task #: \_\_\_\_\_ Weather: Sunny 80°F  
Field Samplers: JTB, BGF Site: WPSC - Two Rivers  
Equipment: Water level, pedestalkr pump

# GROUNDWATER MONITORING INFORMATION FIELD FORM

| PURGE PHASE        |        |      |                     |                         |                          |                |                      |                         |                                 |                                                             |
|--------------------|--------|------|---------------------|-------------------------|--------------------------|----------------|----------------------|-------------------------|---------------------------------|-------------------------------------------------------------|
| Sample Location ID | Date   | Time | Depth to SWL (feet) | Total Well Depth (feet) | 4 Well Volumes (gallons) | Purging Device | Purge Time (minutes) | Volume Purged (gallons) | Depth to SWL after Purge (feet) | Comments: analysis field filtered, well condition, etc. ... |
| MW 610             | 7/2/03 |      | 4.72                | 14.37                   | 6.75                     | Bailer         |                      | 7                       |                                 | QC-1 = MW 610                                               |
| MW 605A            | 7/2/03 | —    |                     | obstruction             | down                     | well           | —                    |                         |                                 |                                                             |
| MW 605B            | 7/2/03 |      | 5.43                | 34.71                   | 20.5                     | Bailer         |                      | 20                      |                                 |                                                             |
| MW 608B            | 7/2/03 |      | 4.45                | 35.51                   | 21.74                    | Bailer         |                      | 10                      |                                 |                                                             |
| MW 608A            | 7/2/03 |      | 3.93                | 15.19                   | 7.8                      | Bailer         |                      | 8                       |                                 |                                                             |
| MW 607A            | 7/2/03 |      | 5.29                | 15.19                   | 6.9                      | Bailer         |                      | 7                       |                                 | Slight sheen                                                |
| MW 607B            | 7/2/03 |      | 3.32                | 35.34                   | 22.4                     | Bailer         |                      | 22                      |                                 | well bent / bailer stuck below bend.                        |

[illegible]

Project # 1569 Task #: \_\_\_\_\_ Weather: \_\_\_\_\_  
Site: WPGC - Two Rivers  
Equipment: \_\_\_\_\_  
Field Samplers: B616 JTB  
C:\W Monitoring Pre-Post Nat Allen



Page 3 of 3

| Sample Location ID | Date     | Time | Depth to SWL (feet) | Total Well Depth (feet) | 4 Well Volumes (gallons) | Purging Device     | PURGE PHASE          |                         |                                 | Comments: analysis field filtered, well condition, etc.  |
|--------------------|----------|------|---------------------|-------------------------|--------------------------|--------------------|----------------------|-------------------------|---------------------------------|----------------------------------------------------------|
|                    |          |      |                     |                         |                          |                    | Purge Time (minutes) | Volume Purged (gallons) | Depth to SWL after Purge (feet) |                                                          |
| MW 603A            | 10/16/03 |      | 5.65                | 14.50                   | 6.19                     | Bailer             |                      | 6                       |                                 | QC-1 = 603A<br>PVC higher than Pro-Top. Water grey, odor |
| MW 603B            | 10/16/03 |      | 9.57                | 31.99                   | 15.69                    | Bailer             |                      | 15                      |                                 | QC-2 = 603B<br>PVC heaved. water clear, no odor          |
| MW 604             | 10/16/03 |      | 7.80                | 14.22                   | 4.49                     | Bailer             |                      | 5                       |                                 | water grey, odor                                         |
| MW 606             | 10/16/03 |      | 5.62                | 14.59                   | 6.27                     | Bailer             |                      | 2/dry                   |                                 | water grey, odor                                         |
| MW 601             | 10/16/03 |      |                     | PVC bent below ground,  |                          | bentonite on probe |                      |                         |                                 | No Pro Top, bailer struck midway down well               |
| MW 602             | 10/16/03 |      | 4.85                | 14.18                   | 6.53                     | Bailer             |                      | 3/dry                   |                                 | Fresh break on PVC, water, tan                           |
| MW 611             | 10/16/03 |      | 5.92                | 34.71                   | 20.15                    | Bailer             |                      | 5/dry                   |                                 | Bailer struck midway down well.                          |

[illegible]

Project # 1569 Task # \_\_\_\_\_  
 Site: WPSC - Two Rivers Weather: \_\_\_\_\_  
 Equipment: water level, peristaltic pump  
 Field Samplers: BGL, JTB  
 GW Monitoring Pre-Post Nat Allen



## Page 2 of 2

| Sample Location ID | Date     | Time | Depth to SWL (feet) | Total Well Depth (feet) | 4 Well Volumes (gallons) | Purging Device | PURGE PHASE          |                         |                                 | Comments: analysis field filtered, well condition, etc. |
|--------------------|----------|------|---------------------|-------------------------|--------------------------|----------------|----------------------|-------------------------|---------------------------------|---------------------------------------------------------|
|                    |          |      |                     |                         |                          |                | Purge Time (minutes) | Volume Purged (gallons) | Depth to SWL after Purge (feet) |                                                         |
| MW 6010            | 10/16/03 |      | 6.33                | 14.37                   | 5.62                     | Bailer         | 8                    | 5                       |                                 | Water gray, no odor                                     |
| MW 605A            | 10/16/03 |      |                     |                         |                          |                |                      |                         |                                 | Obstruction in well above water table                   |
| MW 605B            | 10/16/03 |      | 6.49                | 34.71                   | 19.75                    | Bailer         |                      | 5 1/2 dry               |                                 | Low recovery water tan, no odor                         |
| MW 608A            | 10/16/03 |      | 9.77                | 15.19                   | 3.79                     | Bailer         |                      | 5                       |                                 | Frost heave, water tan, sheen, odor                     |
| MW 608B            | 10/16/03 |      | 5.43                | 35.51                   | 21.05                    | Bailer         |                      | 20                      |                                 | Open upon arrival, unlocked, cap removed                |
| MW 607A            | 10/16/03 |      | 6.10                | 15.19                   | 6.36                     | Bailer         |                      | 5                       |                                 | Water gray, sheen, odor                                 |
| MW 607B            | 10/16/03 |      | 5.65                | 35.34                   | 20.78                    | Bailer         |                      | 3/4 bailer              | total water                     | Well bent at mud point, bailer stuck                    |

[illegible]

Project # 1569 Task #: \_\_\_\_\_  
 Site: WPS - Two Rivers Weather: \_\_\_\_\_  
 Equipment: \_\_\_\_\_  
 Field Samplers: BGA, JTB



# GROUNDWATER MONITORING INFORMATION FIELD FORM

| PURGE PHASE        |          |      |                     |                         |                          |                | Comments: analysis field filtered, well condition, etc. |
|--------------------|----------|------|---------------------|-------------------------|--------------------------|----------------|---------------------------------------------------------|
| Sample Location ID | Date     | Time | Depth to SWL (feet) | Total Well Depth (feet) | 4 Well Volumes (gallons) | Purging Device |                                                         |
| MW 609A            | 10/16/03 |      | 6.53                | 14.70                   | 5.71                     | Bailer         | 5                                                       |
| MW 609B            | 10/16/03 |      | 5.94                | 33.0                    | 18.94                    | Bailer         | 20                                                      |
|                    |          |      |                     |                         |                          |                |                                                         |
|                    |          |      |                     |                         |                          |                |                                                         |
|                    |          |      |                     |                         |                          |                |                                                         |
|                    |          |      |                     |                         |                          |                |                                                         |
|                    |          |      |                     |                         |                          |                |                                                         |
|                    |          |      |                     |                         |                          |                |                                                         |
|                    |          |      |                     |                         |                          |                |                                                         |
|                    |          |      |                     |                         |                          |                |                                                         |
|                    |          |      |                     |                         |                          |                |                                                         |

| PRE-PURGE          |         |                 |                  |                      |                         |       | POST-PURGE |         |                 |                  |                      |                         |       |      |
|--------------------|---------|-----------------|------------------|----------------------|-------------------------|-------|------------|---------|-----------------|------------------|----------------------|-------------------------|-------|------|
| Sample Location ID | pH (SU) | Temperature ( ) | Conductivity ( ) | Dissolved Oxygen ( ) | Reduction Potential ( ) | Color | Odor       | pH (SU) | Temperature ( ) | Conductivity ( ) | Dissolved Oxygen ( ) | Reduction Potential ( ) | Color | Odor |
|                    |         |                 |                  |                      |                         |       |            |         |                 |                  |                      |                         |       |      |
|                    |         |                 |                  |                      |                         |       |            |         |                 |                  |                      |                         |       |      |
|                    |         |                 |                  |                      |                         |       |            |         |                 |                  |                      |                         |       |      |
|                    |         |                 |                  |                      |                         |       |            |         |                 |                  |                      |                         |       |      |
|                    |         |                 |                  |                      |                         |       |            |         |                 |                  |                      |                         |       |      |
|                    |         |                 |                  |                      |                         |       |            |         |                 |                  |                      |                         |       |      |
|                    |         |                 |                  |                      |                         |       |            |         |                 |                  |                      |                         |       |      |
|                    |         |                 |                  |                      |                         |       |            |         |                 |                  |                      |                         |       |      |
|                    |         |                 |                  |                      |                         |       |            |         |                 |                  |                      |                         |       |      |

Project # 1569 Task #  

Field Samplers: JTB, Bhatt Site: WPBC - Two Rivers Weather:  

Equipment:

**APPENDIX D**

**WETLAND DELINEATION REPORT**



**STS CONSULTANTS, LTD.**

**Wetland Boundary Delineation**

Wisconsin Public Service Corporation  
Two Rivers Gas Plant Remediation Project  
Two Rivers, Wisconsin

STS Project No. 4-28353



STS CONSULTANTS

STS Consultants, Ltd.  
1035 Kepler Drive  
Green Bay, Wisconsin 54311-8320

voice 920-468-1978  
fax 920-468-3312  
web www.stsconsultants.com

July 31, 2003

Mr. Rick Moser  
Wisconsin Public Service Corporation  
P.O. Box 19000  
Green Bay, Wisconsin 54307-9002

Re: Wetland Boundary Delineation, Wisconsin Public Service Corporation Two Rivers Gas Plant  
Remediation Project, Two Rivers, Wisconsin -- STS Project No. 4-28353

Dear Mr. Moser:

STS Consultants, Ltd. (STS) has completed delineation of the boundary of a wetland occurring on the Wisconsin Public Service Corporation (WPS) Two Rivers Gas Plant site. The wetland is located on the approximate western half of the WPS property and consists of a mixture of scrub/shrub and emergent/wet meadow wetland types. STS utilized the US Army Corps of Engineers (COE) 1987 Routine On-site Determination Methodology to delineate boundaries of the wetlands.

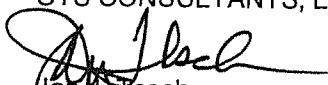
The wetland is contiguous to the West Twin River and, therefore, would fall under the regulatory jurisdiction of the COE following Section 404 of the Clean Water Act. The Wisconsin Department of Natural Resources would also have jurisdiction over the area located within 500 feet of the ordinary high water mark of the West Twin River under Wisconsin Administrative Code NR 103.

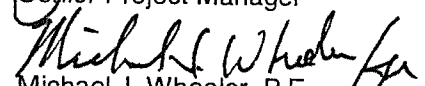
STS understands that WPS will have the location of the wetland boundary surveyed and placed on project plans for future reference. The delineation report and survey of the boundary location should be submitted to the COE for jurisdictional confirmation. A wetland boundary delineation approved by the COE is valid for a period of five years.

If you have any questions about the attached report, please call Ms. Jan Tesch at (920) 406-3112.

Sincerely,

STS CONSULTANTS, LTD.

  
Jan P. Tesch  
Senior Project Manager

  
Michael J. Wheeler, P.E.  
Principal Engineer

JJT/cdm

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## Appendix

Wetland Determination Forms  
Photo Log



Wisconsin Public Service Corporation  
STS Project No. 4-28353  
July 31, 2003

## 1.0 INTRODUCTION

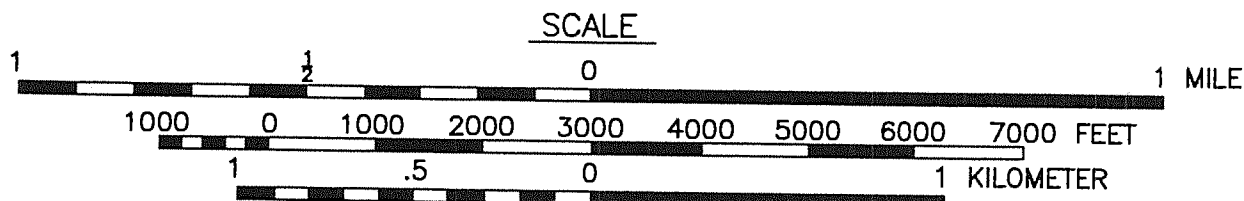
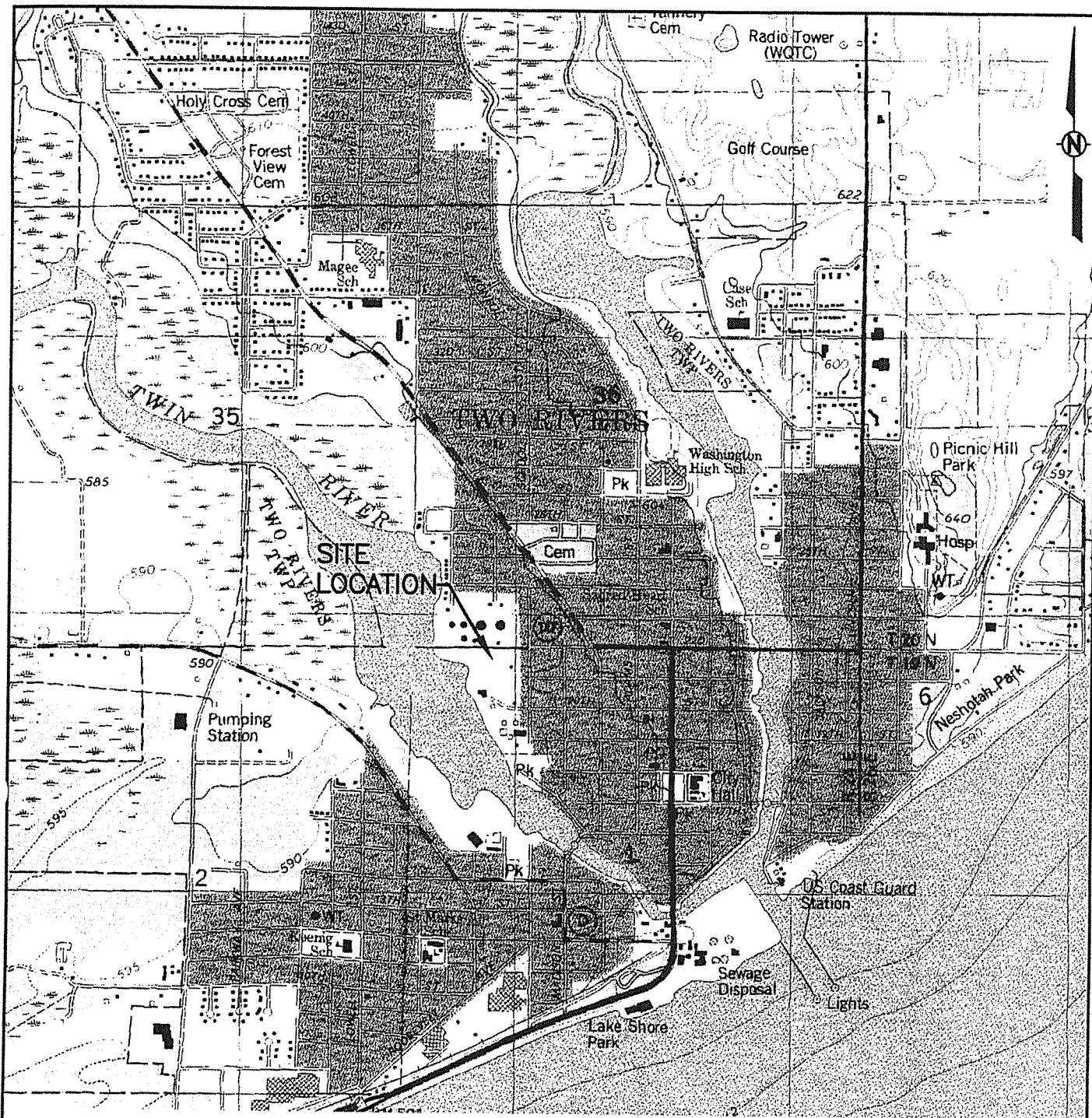
STS Consultants, Ltd. (STS) was retained by Wisconsin Public Service Corporation (WPS) to identify and delineate wetlands at the former gas plant facility in the city of Two Rivers, Manitowoc County, Wisconsin. The WPS property is located in the NE 1/4, of the NE 1/4 of Section 2, Township 19 North, Range 24 East, Manitowoc County, Wisconsin. The site location is shown in Figure 1 on a portion of the United States Geological Survey 7.5-minute topographic map entitled "Two Rivers, Wisconsin."

### 1.1 Site Topography and General Conditions

The WPS property is located west of the intersection of School Place and 21st Street, extending west and north to the east bank of the West Twin River. The property is approximately 4.11 acres in size. A brick building is located on the eastern end of the property. An approximate 100-foot-square area around the south, west, and north sides of the building is fenced. Concrete slabs from former tank and building installations and concrete piers from former aboveground storage tanks (ASTs) are located west of the building/fence area. The area site south of the fenced area has been filled and is maintained in shorter grass by mowing. A short-grass area is also present north of the fenced area. This area may at one time have been either the location of buildings or other facility installations, now removed, or a parking area.

The topography of the property is generally level on the eastern end of the property in the area formerly occupied by the gas plant, then gradually descending in elevation toward the West Twin River on the western boundary of the property.

The approximate western half of the property is a mixed scrub/shrub, wet meadow, and emergent wetland. A sketch showing the approximate location of the delineated wetland boundary is included as Figure 2. The boundary will be surveyed by WPS and included on WPS Two Rivers Gas Plant Remediation Project Plans.



MAP SOURCE: MODIFIED FROM TWO RIVERS, WISCONSIN  
USGS QUADRANGLE DATED 1978.



STS Consultants Ltd.  
Consulting Engineers  
1035 Kepler Dr.  
Green Bay, WI 54311  
920.468.1978

# SITE LOCATION MAP WETLAND BOUNDARY DELINEATION WPCSC TWO RIVERS GAS PLANT SITE TWO RIVERS, WISCONSIN

|                 |                   |          |
|-----------------|-------------------|----------|
| DESIGNED BY     | JJT               | 07/30/03 |
| DRAWN BY        | ACS               | 07/30/03 |
| APPROVED BY     |                   |          |
| CADFILE         | SCALE<br>AS SHOWN |          |
| STS PROJECT NO. | FIGURE NO.        |          |
| 28353           | 1                 |          |





Wisconsin Public Service Corporation  
STS Project No. 4-28353  
July 31, 2003

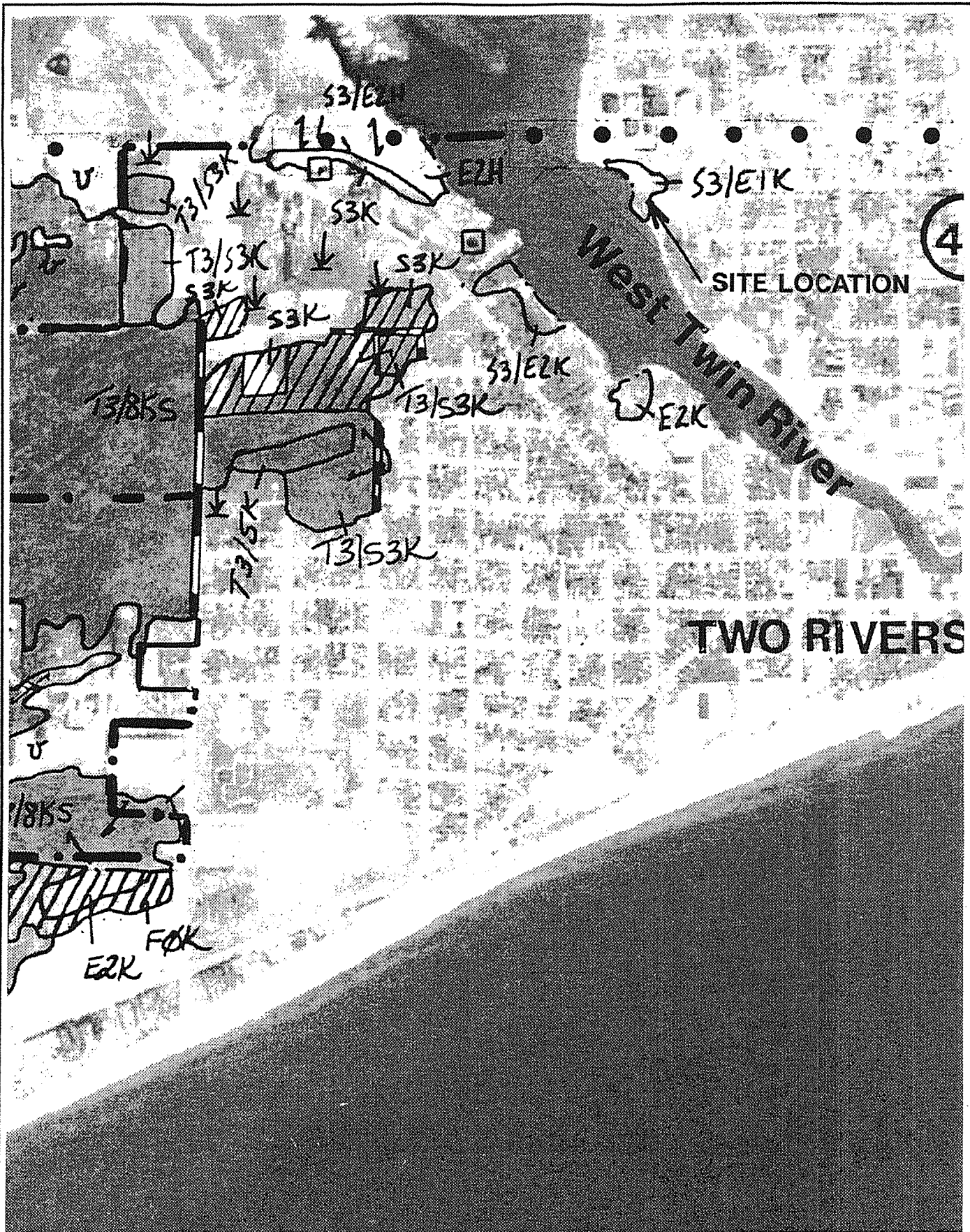
### **1.2 Wetland Map Review**

The Wisconsin Department of Natural Resources (WDNR) Wisconsin Wetland Inventory (WWI) map of the site and vicinity indicated a broad-leaved deciduous scrub/shrub and persistent emergent/wet meadow wetland with palustrine soil conditions is located on the approximate western half of the WPS property. The portion of the WWI map showing the site and vicinity appears as Figure 3.

### **1.3 Soils Map Review**

The US Department of Agriculture (USDA) Soil Conservation Service Soil Survey (SCS) of Calumet and Manitowoc Counties, Wisconsin, (1980) indicated soils in the area of the WPS property are classified as Granby fine sandy loam. Granby series soils are poorly drained, rapidly permeable soils that are found in depressions and drainageways on outwash plains and old beaches. Granby series soils have black organic silt loam topsoil over mottled sand subsoils. Granby series soils are hydric soils and are included on the Calumet/Manitowoc County Hydric Soils List.

A portion of the SCS soil survey map is included as Figure 4.

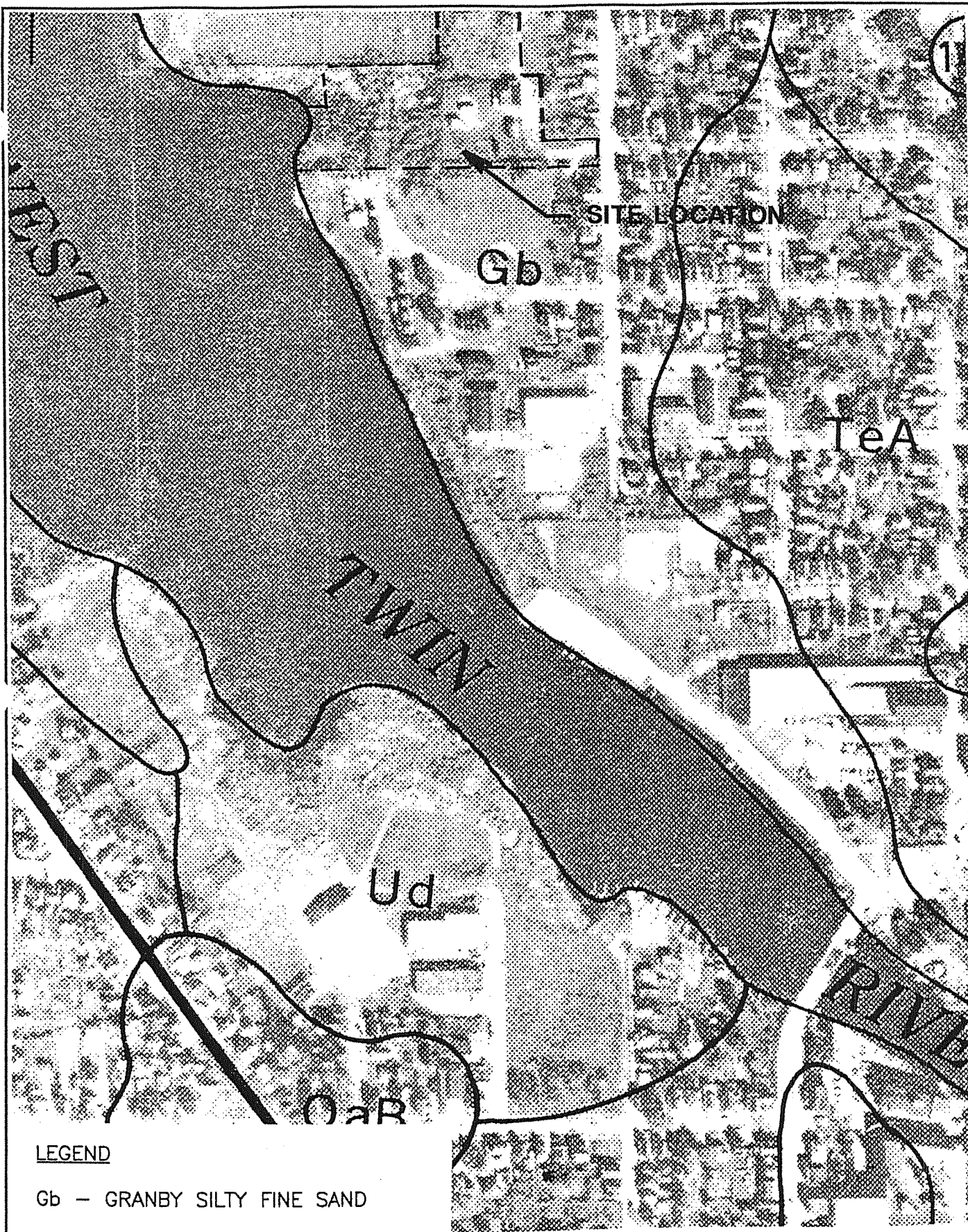


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920.468.1078

WISCONSIN WETLAND INVENTORY MAP  
WETLAND BOUNDARY DELINEATION  
WPSC TWO RIVERS GAS PLANT SITE  
TWO RIVERS, WISCONSIN

|                 |                   |          |
|-----------------|-------------------|----------|
| DESIGNED BY     | JJT               | 07/30/03 |
| DRAWN BY        | ACS               | 07/30/03 |
| APPROVED BY     |                   |          |
| CADFILE         | SCALE<br>AS SHOWN |          |
| STS PROJECT NO. | FIGURE NO.        |          |
| 28353           | 3                 |          |

PROJECT: W28353\G428353\_Fig1-Fig4.dwg, FIG 4, Schell



**LEGEND**

Gb - GRANBY SILTY FINE SAND



STS Consultants Ltd.  
Consulting Engineers  
1035 Kepler Dr.  
Green Bay, WI 54311  
920.468.1978

SCS SOIL SURVEY MAP  
WETLAND BOUNDARY DELINEATION  
WPSC TWO RIVERS GAS PLANT SITE  
TWO RIVERS, WISCONSIN

|                 |                   |          |
|-----------------|-------------------|----------|
| DESIGNED BY     | JJT               | 07/30/03 |
| DRAWN BY        | ACS               | 07/30/03 |
| APPROVED BY     |                   |          |
| CADFILE         | SCALE<br>AS SHOWN |          |
| STS PROJECT NO. | FIGURE NO.        |          |
| 28353           | 4                 |          |

Wisconsin Public Service Corporation  
STS Project No. 4-28353  
July 31, 2003

## 2.0 METHODOLOGY

STS completed a wetland boundary delineation on the project site on July 22, 2003, utilizing the US Army Corps of Engineers (COE) 1987 Wetland Delineation Methodology. This methodology requires that, under normal circumstances, hydric soils, wetland hydrology, and hydrophytic vegetation must be present for an area to be defined as a wetland. A near record low water level in Lake Michigan has likely influenced water levels in wetlands adjacent to streams and rivers contiguous to Lake Michigan. Normal hydrologic conditions were likely not present in the delineated wetland at the time of the site work. Therefore, STS relied on vegetation, soil indicators, topography, and any hydrology indicators still remaining after the prolonged dry spell to delineate the wetland boundary. STS also considered the definition of wetlands as interpreted by the WDNR, which leans heavily toward the presence of a dominance of hydrophytic and supportive hydrology for the wetland.

Data points, representing assumed wetland areas and upland areas, were established for the purposes of characterizing wetland and upland communities and to facilitate border detection. At each data point, the following procedure was employed:

- A soil pit was excavated to a minimum depth of 16 inches to determine soil horizon depth and color. Soil horizons were identified and the depth was determined by measuring the depth from the soil surface. Soil color was characterized using a Munsell Soil Color Chart (Kollmorgen Instrument Corporation, New Windsor, New York, 1994). Soil texture was determined by the "Texture by Feel" method. The observed soil characteristics were compared to the characteristics described in the USDA Soil Survey of Calumet and Manitowoc Counties, Wisconsin (1980).
- The dominant plant species in the vicinity of the chosen plot location were determined for four strata: (1) trees, (2) saplings/shrubs, (3) herbaceous, and (4) woody vines using the 50/20 dominance rule as described in the 1989 Manual (COE 1989) and suggested for use by the memorandum "Clarification and Interpretation of the 1987 Manual" (COE 1992). Dominant trees were determined by estimating the percent cover. A 10-foot radius plot was used to measure stem counts for saplings/shrubs, and a 3-foot radius plot was used to estimate percent relative cover for herbaceous species.

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The indicator status<sup>1</sup> of the predominant vegetation was identified for the dominant plants and determined using Reed (Region 3, 1988).

- Hydrological indicators, as described in the 1987 Manual, were observed and noted on field data sheets. Hydrologic features, such as surface water drainage, hydrologic positioning of the area, and possible interconnection with groundwater or surface water were observed. Depth to the water table, where applicable, was determined to the nearest inch from the soil surface.

Following completion of each data point, pertinent information was recorded on field data sheets. The wetland boundaries were then flagged/staked. Figure 2 depicts the location of the delineated wetlands and data points determined by STS.

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<sup>1</sup> Indicator Status Definition - A national interagency panel has ranked individual vegetative species according to their affinity of occurrence in wetlands. The ranking system is:  
 Obligate - OBL - Plants that occur almost always in wetlands.  
 Facultative Wet - FACW - Plants that usually occur in wetlands.  
 Facultative - FAC - Plants with similar likelihood of occurring in both wetlands and non-wetlands.  
 Facultative Upland - FACU - Plants that occur sometimes in wetlands, but occur more often in non-wetlands.  
 Upland - Plants that usually occur in uplands.

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### 3.0 WETLAND DELINEATION RESULTS

#### 3.1 Overview

STS determined the boundaries of a riverine wetland on the western half of the WPS Two Rivers Gas Plant site. The wetland area on the property is depicted on Figure 2. The following sections present the details regarding the observations made during the delineation process. Additional soil, hydrology, and vegetation information can be found on Routine Wetland Determination Data Forms included in the Appendix. Representative photographs of the wetland are also included in the Appendix.

#### 3.2 Soils

Soils in the wetland are generally consistent with the SCS soil map indicating Granby silty fine sand as the native soil in the area. Shovel probes excavated at determination plot locations found very dark brown to black organic loam topsoil over fine sands. Common, distinct redox features (mottles) were observed in the sandy soil, which indicate long-term soil saturation. Old fill, consisting of cinders, sand, and various concrete and asphalt rubble, was encountered in some areas near the wetland boundary in the vicinity of the former gas plant. Areas where fill soils had been placed that continued to be saturated within 18 inches of the ground surface, as indicated by the presence of redox features or topographic setting, were included in the wetland. Fill areas that elevated the ground surface more than 18 inches above saturated soil indicators were considered uplands.

Soils in the upland area on the eastern end of the property consist of fill, including gravel, sand, concrete, asphalt rubble, and concrete slabs. The area to the north of the fenced portion of the facility may have been paved or the site of former facility structures, etc. Shovel probes in the area did not easily penetrate the soil. Scattered hydric vegetation in the area suggests that runoff water accumulates in the area due to an impermeable barrier beneath a thin layer of topsoil fill. This area would not meet the soil criteria of a wetland and was considered upland, as well as other areas on the site where gravel paved areas are now sprouting invasive hydric vegetation (purple loosestrife and reed canary grass).

#### 3.3 Vegetation

Vegetation in the wetland consists of a fringe of scrub/shrub on the eastern edge of the wetland dominated by red osier dogwood and gray dogwood (*Cornus stolonifera*, *Cornus racemosa*)

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willows (*Salix spp.*) and green ash (*Fraxinus pensylvanica*). Emergent and wet meadow species present from the scrub/shrub fringe to the west bank of the West Twin River include canary reed grass (*Phalaris arundinacea*), cattail (*Typha latifolia*), willow (*Salix spp.*), joe-pye weed (*Eupatoriadelphus maculatus*), green bulrush (*Scirpus atrovirens*), smartweed (*Polygonum amphibium*), spotted touch-me-not (*Impatiens capensis*), and sedges (*Carex lacustris*, *Carex stricta*, *Carex spp.*)

Upland areas were generally vegetated by fescue and bluegrass grasses and other weedy species such as dandelion (*Taraxacum officinale*), wood sorrel (*Oxalis spp.*), and yarrow (*Achillea millefolium*).

### 3.4 Hydrology

Hydrologic support of the wetland is likely from a combination of runoff from residential neighborhoods on uplands to the east of the WPS property and groundwater and/or fluctuating water levels of the West Twin River and Lake Michigan. Currently, water levels in the wetland are depressed due to a prolonged dry period, which has also decreased the water levels of Lake Michigan to near-record lows. Precipitation events of the growing season have not contributed enough water to counteract the long-term dry spell. The decreased water level is evident in the wetland, as reflected in observations that areas which normally would be inundated at this time of the year are currently dry, and water levels in the soil, as indicated by the presence of obligate hydric species, are also not at typical levels needed to support the vegetation growing there.

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#### 4.0 SUMMARY

Based on our observations of July 22, 2003, and utilizing the COE wetland delineation methodology and with regard to the WDNR wetland definition, it is our opinion that jurisdictional wetlands exist on the WPS Two Rivers Gas Plant property.

Any impact to contiguous wetlands would require a Section 404 Fill Permit from the COE and Chapter NR 103 Water Quality Certification of the Section 404 Permit by the WDNR. Please note that, as with all wetland delineations, the COE and WDNR have final jurisdiction regarding wetland boundaries. Wetland boundaries delineated by STS and shown on Figure 2 should be confirmed during an on-site meeting with representatives of the COE and WDNR if your intended project may impact wetlands.





THE  
INFRASTRUCTURE  
IMPERATIVE



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Appendix A

Wetland Determination Forms

Photo Log



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

|                                                                                                                                                                                             |                          |                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 1up |
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| <b>Do Normal Circumstances exist on the site?</b> <span style="margin-left: 20px;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span><br><b>Is the site significantly disturbed (Atypical Situation:)?</b> <span style="margin-left: 20px;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span><br><b>Is the area a potential Problem Area?</b> <span style="margin-left: 20px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span><br>(If needed, explain on the reverse side) | <b>Community ID:</b> Lawn area<br><b>Transect ID:</b> 1<br><b>Field Location:</b> Northwest of building and fence area |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|

**VEGETATION** (USFWS Region No. 3)

| Dominant Plant Species(Latin/Common)             | Stratum | Indicator | Plant Species(Latin/Common)        | Stratum | Indicator |
|--------------------------------------------------|---------|-----------|------------------------------------|---------|-----------|
| <i>Potentilla anserina</i><br>Silverweed         | Herb    | FACW+     | <i>Cyperus esculentus</i><br>Chufa | Herb    | FACW      |
| <i>Taraxacum officinale</i><br>Dandelion, Common | Herb    | FACU      |                                    |         |           |
|                                                  |         |           |                                    |         |           |
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|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| <b>Percent of Dominant Species that are OBL, FACW or FAC:</b><br>(excluding FAC-) 2/3 = 66.67% | <b>FAC Neutral:</b> 2/3 = 66.67%<br><b>Numeric Index:</b> 8/3 = 2.67 |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|

**Remarks:**  
 Sedge appeared to be nut grass. Grass growing in area may be Festuca rubra or Agrostis spp, or another common lawn species. Reed canary grass also present.

**HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><u>YES</u> Recorded Data(Describe in Remarks):</b><br><u>NO</u> Stream, Lake or Tide Gauge<br><u>YES</u> Aerial Photographs<br><u>NO</u> Other<br><br><u>NO</u> No Recorded Data<br><br><b>Field Observations</b><br><br>Depth of Surface Water:                      None (in.)<br>Depth to Free Water in Pit:                      > 6 (in.)<br>Depth to Saturated Soil:                      > 6 (in.) | <b>Wetland Hydrology Indicators</b><br><b>Primary Indicators</b><br><u>NO</u> Inundated<br><u>YES</u> Saturated in Upper 12 Inches<br><u>NO</u> Water Marks<br><u>NO</u> Drift Lines<br><u>NO</u> Sediment Deposits<br><u>NO</u> Drainage Patterns in Wetlands<br><b>Secondary Indicators</b><br><u>NO</u> Oxidized Root Channels in Upper 12 Inches<br><u>NO</u> Water-Stained Leaves<br><u>NO</u> Local Soil Survey Data<br><u>YES</u> FAC-Neutral Test<br><u>NO</u> Other(Explain in Remarks) |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Remarks:**  
 Could not penetrate surface in most places due to fill. Soil probe in wetland area approximately 40 feet southwest of this testplot had no water or saturated soil to 18 inches, and this plot is slightly higher in elevation.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

|                                                                                                                                                                                             |                          |                                                                                                        |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------|
| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 1up |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------------------------------------------------------------------------------|

**SOILS**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |                                     |                                     |                                  |                                                                                                              |                                             |
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| <b>Map Unit Name (Series and Phase):</b> Granby fine sandy loam                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |                                     |                                     |                                  | <b>Mapped Hydric Inclusion?</b>                                                                              |                                             |
| <b>Map Symbol:</b> Gb <b>Drainage Class:</b> poorly drained                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |                                     |                                     |                                  | <b>Field Observations Confirm Mapped Type?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> |                                             |
| <b>Taxonomy (Subgroup):</b> Typic Haplaquolls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |                                     |                                     |                                  |                                                                                                              |                                             |
| <b>Profile Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |                                     |                                     |                                  |                                                                                                              |                                             |
| <b>Depth (inches)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <b>Horizon</b> | <b>Matrix Color (Munsell Moist)</b> | <b>Mottle Color (Munsell Moist)</b> | <b>Mottle Abundance/Contrast</b> |                                                                                                              | <b>Texture, Concretions, Structure, etc</b> |
| 0-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Fill           | N/A                                 | N/A                                 | N/A    N/A                       |                                                                                                              | Loam, loam fill over gravel                 |
| <b>Hydric Soil Indicators:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |                                     |                                     |                                  |                                                                                                              |                                             |
| <div style="display: flex; justify-content: space-between;"><div><u>NO</u> Histosol<br/><u>NO</u> Histic Epipedon<br/><u>NO</u> Sulfidic Odor<br/><u>NO</u> Aquic Moisture Regime<br/><u>NO</u> Reducing Conditions<br/><u>NO</u> Gleyed or Low Chroma Colors</div><div><u>NO</u> Concretions<br/><u>NO</u> High Organic Content in Surface Layer in Sandy Soils<br/><u>NO</u> Organic Streaking in Sandy Soils<br/><u>UNK</u> Listed on Local Hydric Soils List<br/><u>NO</u> Listed on National Hydric Soils List<br/><u>NO</u> Other (Explain in Remarks)</div></div> |                |                                     |                                     |                                  |                                                                                                              |                                             |
| <b>Remarks:</b><br>Shovel could only be advanced to approximately 4 to 6 inches in several holes attempted around plot. The area appears to have been a former developed area of the gas plant and was either a parking area or a filled over paved area.                                                                                                                                                                                                                                                                                                                |                |                                     |                                     |                                  |                                                                                                              |                                             |

**WETLAND DETERMINATION**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/><br><b>Wetland Hydrology Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/><br><b>Hydric Soils Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>                                                                                                                                                                                                                                                                                                       | <b>Is the Sampling Point within the Wetland?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> |
| <b>Remarks:</b><br>The area is the same elevation of the gas plant building, and the ground surface has been filled or paved over either for parking or some other purposed associated with past use of the property. A layer of loamy topsoil was placed over the area, which in turn retains runoff from the east and north to allow some hydric vegetation to invade the area.                                                                                                                                                                                                                           |                                                                                                                |
| <b>Explanation for response to:</b> Normal Circumstances?    Atypical Situation ?    Potential Problem Area ?<br>This plot is in a maintained lawn area north and northwest of the old gas plant building. The area is somewhat lower in elevation than ground surface to the east and north, and equal in elevation to the building area. A mix of FAC and FACW vegetation is growing in the lawn. Shovel probes could not penetrate into the ground in this area, and it appeared that runoff is being retained by either a buried pavement or other compacted fill material from the sites previous use. |                                                                                                                |

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

|                                                                                                                                                                                             |                          |                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 1A Wet |
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| <b>Do Normal Circumstances exist on the site?</b> <span style="margin-left: 20px;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span><br><b>Is the site significantly disturbed (Atypical Situation:)?</b> <span style="margin-left: 20px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span><br><b>Is the area a potential Problem Area?</b> <span style="margin-left: 20px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span><br>(If needed, explain on the reverse side) | <b>Community ID:</b> wet meadow/scrub-shrub fringe<br><b>Transect ID:</b> 1<br><b>Field Location:</b> northwest of building and fenced area |
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**VEGETATION**

(USFWS Region No. 3)

| Dominant Plant Species(Latin/Common) | Stratum | Indicator | Plant Species(Latin/Common) | Stratum | Indicator |
|--------------------------------------|---------|-----------|-----------------------------|---------|-----------|
| <i>Phalaris arundinacea</i>          | Herb    | FACW+     | <i>Cornus stolonifera</i>   | Shrub   | FACW      |
| Grass, Reed Canary                   |         |           | Dogwood, Red-Osier          |         |           |
| <i>Scirpus atrovirens</i>            | Herb    | OBL       |                             |         |           |
| Bulrush, Green                       |         |           |                             |         |           |
|                                      |         |           |                             |         |           |
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|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| <b>Percent of Dominant Species that are OBL, FACW or FAC:</b><br>(excluding FAC-) 3/3 = 100.00% | <b>FAC Neutral:</b> 3/3 = 100.00%<br><b>Numeric Index:</b> 5/3 = 1.67 |
|-------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|

**Remarks:**

Edge of riverine floodplain vegetated by thick growth of reed canary, with some small pockets of other hydric species.

**HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><u>YES</u> Recorded Data(Describe in Remarks):<br/> <u>NO</u> Stream, Lake or Tide Gauge<br/> <u>YES</u> Aerial Photographs<br/> <u>NO</u> Other<br/> <u>NO</u> No Recorded Data</p> <p><b>Field Observations</b></p> <p>Depth of Surface Water: None (in.)</p> <p>Depth to Free Water in Pit: &gt; 18 (in.)</p> <p>Depth to Saturated Soil: &gt; 18 (in.)</p>                                                                                                                                                       | <p><b>Wetland Hydrology Indicators</b></p> <p><b>Primary Indicators</b></p> <p><u>NO</u> Inundated<br/> <u>NO</u> Saturated in Upper 12 Inches<br/> <u>NO</u> Water Marks<br/> <u>NO</u> Drift Lines<br/> <u>NO</u> Sediment Deposits<br/> <u>NO</u> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators</b></p> <p><u>YES</u> Oxidized Root Channels in Upper 12 Inches<br/> <u>NO</u> Water-Stained Leaves<br/> <u>NO</u> Local Soil Survey Data<br/> <u>YES</u> FAC-Neutral Test<br/> <u>NO</u> Other(Explain in Remarks)</p> |
| <p><b>Remarks:</b></p> <p>Soil water level is most likely directly related to the water elevation in the West Twin River, which the riverine wetland abuts to the west. The water level in the river, and Lake Michigan, is near an all time low elevation, making normal water levels within the wetland non-observable. Therefore, hydrology could only be based on soil indicators, and observation of the general hydrology in the area of the wetland. Observed mottles and oxidized rhizospheres in the soil.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

|                                                                                                                                                                                             |                          |                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 1A Wet |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------|

**SOILS**

| <b>Map Unit Name (Series and Phase):</b> Granby fine sandy loam<br><b>Map Symbol:</b> Gb <b>Drainage Class:</b> poorly drained<br><b>Taxonomy (Subgroup):</b> Typic Haplaquolls<br><b>Profile Description</b> |         |                              |                              | <b>Mapped Hydric Inclusion?</b><br><b>Field Observations Confirm Mapped Type?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> |                                      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------------------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Depth (Inches)                                                                                                                                                                                                | Horizon | Matrix Color (Munsell Moist) | Mottle Color (Munsell Moist) | Mottle Abundance/Contrast                                                                                                                       | Texture, Concretions, Structure, etc |
| 0-8                                                                                                                                                                                                           | A       | 10YR3/2                      | N/A                          | N/A    N/A                                                                                                                                      | Sandy loam, Cinders?                 |
| 8-16                                                                                                                                                                                                          | B       | 10YR5/3                      | 10YR5/6                      | N/A    N/A                                                                                                                                      | Silt loam, Cinders?                  |

**Hydric Soil Indicators:**

|                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>NO</u> Histosol<br><u>NO</u> Histic Epipedon<br><u>NO</u> Sulfidic Odor<br><u>NO</u> Aquic Moisture Regime<br><u>YES</u> Reducing Conditions<br><u>NO</u> Gleyed or Low Chroma Colors | <u>NO</u> Concretions<br><u>NO</u> High Organic Content in Surface Layer in Sandy Soils<br><u>NO</u> Organic Streaking in Sandy Soils<br><u>YES</u> Listed on Local Hydric Soils List<br><u>NO</u> Listed on National Hydric Soils List<br><u>NO</u> Other (Explain in Remarks) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Remarks:**  
 Organic surface layer with dense root mat of reed canary grass may be partially cinder fill. Mottles were evident at approximately 10 inches from surface in sand subsoil.

**WETLAND DETERMINATION**

|                                                                                                                                                                                                                                                                                                       |                                                                                                                |
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| <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Wetland Hydrology Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Hydric Soils Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No | <b>Is the Sampling Point within the Wetland?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|

**Remarks:**  
 Plot is located on the edge of the riverine wetland. Some old fill may be in the plot area, but it was not placed to a depth which would affect the hydrology.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

|                                                                                                                                                                                             |                          |                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 1B Wet |
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| <b>Do Normal Circumstances exist on the site?</b> <span style="margin-left: 20px;"><input checked="" type="radio"/> Yes</span> <span style="margin-left: 20px;"><input type="radio"/> No</span><br><b>Is the site significantly disturbed (Atypical Situation:)?</b> <span style="margin-left: 20px;"><input type="radio"/> Yes</span> <span style="margin-left: 20px;"><input checked="" type="radio"/> No</span><br><b>Is the area a potential Problem Area?</b> <span style="margin-left: 20px;"><input type="radio"/> Yes</span> <span style="margin-left: 20px;"><input checked="" type="radio"/> No</span><br>(If needed, explain on the reverse side) | <b>Community ID:</b> wet meadow/scrub shrub<br><b>Transect ID:</b> 1<br><b>Field Location:</b> Northwest of building and fenced area |
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**VEGETATION** (USFWS Region No. 3)

| Dominant Plant Species(Latin/Common) | Stratum | Indicator | Plant Species(Latin/Common) | Stratum | Indicator |
|--------------------------------------|---------|-----------|-----------------------------|---------|-----------|
| <i>Cornus stolonifera</i>            | Shrub   | FACW      | <i>Rubus strigosus</i>      | Shrub   | FACW-     |
| Dogwood, Red-Osier                   |         |           | Raspberry, Red              |         |           |
| <i>Phalaris arundinacea</i>          | Herb    | FACW+     |                             |         |           |
| Grass, Reed Canary                   |         |           |                             |         |           |
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| <b>Percent of Dominant Species that are OBL, FACW or FAC:</b><br>(excluding FAC-) 3/3 = 100.00% | <b>FAC Neutral:</b> 3/3 = 100.00%<br><b>Numeric Index:</b> 6/3 = 2.00 |
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**Remarks:**  
 Thick reed canary grass with scatter raspberry and dogwood shrubs.

**HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| <b><u>YES</u> Recorded Data(Describe in Remarks):</b><br><u>NO</u> Stream, Lake or Tide Gauge<br><u>YES</u> Aerial Photographs<br><u>NO</u> Other<br><br><u>NO</u> No Recorded Data<br><br><b>Field Observations</b><br><br>Depth of Surface Water: None (in.)<br>Depth to Free Water in Pit: > 18 (in.)<br>Depth to Saturated Soil: > 18 (in.) | <b>Wetland Hydrology Indicators</b><br><b>Primary Indicators</b><br><u>NO</u> Inundated<br><u>NO</u> Saturated in Upper 12 Inches<br><u>NO</u> Water Marks<br><u>NO</u> Drift Lines<br><u>NO</u> Sediment Deposits<br><u>YES</u> Drainage Patterns in Wetlands<br><b>Secondary Indicators</b><br><u>YES</u> Oxidized Root Channels in Upper 12 Inches<br><u>NO</u> Water-Stained Leaves<br><u>NO</u> Local Soil Survey Data<br><u>YES</u> FAC-Neutral Test<br><u>NO</u> Other(Explain in Remarks) |
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**Remarks:**  
 Water level in wetland is directly related to water level in West Twin River and Lake Michigan, which is near an all time low. Therefore, usually water levels in the wetland cannot be observed and soil indicators were used to indicate usual water levels within the wetland.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

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| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 1B Wet |
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**SOILS**

| <b>Map Unit Name (Series and Phase):</b> Granby fine sandy loam<br><b>Map Symbol:</b> Gb <b>Drainage Class:</b> poorly drained<br><b>Taxonomy (Subgroup):</b> Typic Haplaquolls<br><b>Profile Description</b> |         |                              |                              |                           |                                      | <b>Mapped Hydric Inclusion?</b><br><b>Field Observations Confirm Mapped Type?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------------------------|------------------------------|---------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Depth (inches)                                                                                                                                                                                                | Horizon | Matrix Color (Munsell Moist) | Mottle Color (Munsell Moist) | Mottle Abundance/Contrast | Texture, Concretions, Structure, etc |                                                                                                                                                 |
| 0-8                                                                                                                                                                                                           | A       | 10YR3/2                      | N/A                          | N/A    N/A                | Loam, poss. fill?                    |                                                                                                                                                 |
| 8-16                                                                                                                                                                                                          | B       | 10YR5/3                      | 10YR5/6                      | N/A    N/A                | Sand, with silt                      |                                                                                                                                                 |

**Hydric Soil Indicators:**

|                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                 |
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| <u>NO</u> Histosol<br><u>NO</u> Histic Epipedon<br><u>NO</u> Sulfidic Odor<br><u>NO</u> Aquic Moisture Regime<br><u>YES</u> Reducing Conditions<br><u>NO</u> Gleyed or Low Chroma Colors | <u>NO</u> Concretions<br><u>NO</u> High Organic Content in Surface Layer in Sandy Soils<br><u>NO</u> Organic Streaking in Sandy Soils<br><u>YES</u> Listed on Local Hydric Soils List<br><u>NO</u> Listed on National Hydric Soils List<br><u>NO</u> Other (Explain in Remarks) |
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**Remarks:**  
 Oxidized rhizospheres at 10", silty sand subsoil beneath topsoil is not low chroma, but is mottled. The plot may be near a gas line, which would have disturbed soils during installation, But

**WETLAND DETERMINATION**

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| <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Wetland Hydrology Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Hydric Soils Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No | <b>Is the Sampling Point within the Wetland?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No |
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**Remarks:**  
 Plot on edge of riverine wetland in a wet meadow/shrub-scrub area. Hydrology of area based on water levels of the West Twin River and Lake Michigan, which is currently low, and therefore water levels on the site are not typical..



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

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| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 1C WET |
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| <b>Do Normal Circumstances exist on the site?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Is the site significantly disturbed (Atypical Situation:)?</b> Yes <input checked="" type="radio"/> No<br><b>Is the area a potential Problem Area?</b> Yes <input checked="" type="radio"/> No<br>(If needed, explain on the reverse side) | <b>Community ID:</b> Wet meadow/shrub-scrub<br><b>Transect ID:</b> 1<br><b>Field Location:</b><br>Northwest of building and fenced area |
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**VEGETATION**

(USFWS Region No. 3)

| Dominant Plant Species(Latin/Common) | Stratum | Indicator | Plant Species(Latin/Common) | Stratum | Indicator |
|--------------------------------------|---------|-----------|-----------------------------|---------|-----------|
| <i>Polygonum amphibium</i>           | Herb    | OBL       | <i>Carex stricta</i>        | Herb    | OBL       |
| Smartweed, Water                     |         |           | Sedge, Uptight              |         |           |
| <i>Phalaris arundinacea</i>          | Herb    | FACW+     |                             |         |           |
| Grass, Reed Canary                   |         |           |                             |         |           |
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**Percent of Dominant Species that are OBL, FACW or FAC:**  
 (excluding FAC-) 3/3 = 100.00%

**FAC Neutral:** 3/3 = 100.00%  
**Numeric Index:** 4/3 = 1.33

**Remarks:**

Edge of wet meadow wetland. Reed canary thick, with scattered species of other hydric vegetation in spots.

**HYDROLOGY**

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| <p><u>YES</u> Recorded Data(Describe in Remarks):<br/> <u>NO</u> Stream, Lake or Tide Gauge<br/> <u>YES</u> Aerial Photographs<br/> <u>NO</u> Other<br/> <u>NO</u> No Recorded Data</p> <p><b>Field Observations</b></p> <p style="margin-left: 40px;">Depth of Surface Water:      None (in.)</p> <p style="margin-left: 40px;">Depth to Free Water in Pit:      &gt; 18 (in.)</p> <p style="margin-left: 40px;">Depth to Saturated Soil:      &gt; 18 (in.)</p> | <p><b>Wetland Hydrology Indicators</b></p> <p><b>Primary Indicators</b></p> <p><u>NO</u> Inundated<br/> <u>NO</u> Saturated in Upper 12 Inches<br/> <u>NO</u> Water Marks<br/> <u>NO</u> Drift Lines<br/> <u>NO</u> Sediment Deposits<br/> <u>YES</u> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators</b></p> <p><u>YES</u> Oxidized Root Channels in Upper 12 Inches<br/> <u>NO</u> Water-Stained Leaves<br/> <u>NO</u> Local Soil Survey Data<br/> <u>YES</u> FAC-Neutral Test<br/> <u>NO</u> Other(Explain in Remarks)</p> |
| <p><b>Remarks:</b></p> <p>Water levels in the wetland based on water levels in the West Twin River and Lake Michigan, which are nearly at an all time low elevation. Therefore, normal water levels in the wetland could not be observed, and soil and vegetation indicators were more heavily relied on to determine where the usual water level in the wetland would be.</p>                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

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| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 1C WET |
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**SOILS**

| <b>Map Unit Name (Series and Phase):</b> Granby fine sandy loam<br><b>Map Symbol:</b> Gb <b>Drainage Class:</b> poorly drained<br><b>Taxonomy (Subgroup):</b> Typic Haplaquolls<br><b>Profile Description</b> |         |                              |                              |                                      |                                      | <b>Mapped Hydric Inclusion?</b><br><b>Field Observations Confirm Mapped Type?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------------------------|------------------------------|--------------------------------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Depth (inches)                                                                                                                                                                                                | Horizon | Matrix Color (Munsell Moist) | Mottle Color (Munsell Moist) | Mottle Abundance/Contrast            | Texture, Concretions, Structure, etc |                                                                                                                                                 |
| 0-12                                                                                                                                                                                                          | A       | 10YR2/2                      | N/A                          | N/A     N/A                          | Loam, Black organic                  |                                                                                                                                                 |
| 12-18                                                                                                                                                                                                         | B       | 10YR5/3                      | 10R5/6<br>10R5/8             | Common     Faint<br>Few     Distinct | Sandy clay                           |                                                                                                                                                 |

**Hydric Soil Indicators:**

|                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                 |
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| <u>NO</u> Histosol<br><u>NO</u> Histic Epipedon<br><u>NO</u> Sulfidic Odor<br><u>NO</u> Aquic Moisture Regime<br><u>YES</u> Reducing Conditions<br><u>NO</u> Gleyed or Low Chroma Colors | <u>NO</u> Concretions<br><u>NO</u> High Organic Content in Surface Layer in Sandy Soils<br><u>NO</u> Organic Streaking in Sandy Soils<br><u>YES</u> Listed on Local Hydric Soils List<br><u>NO</u> Listed on National Hydric Soils List<br><u>NO</u> Other (Explain in Remarks) |
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**Remarks:**  
 Deep organic topsoil layer over a light brown sandy clay subsoil. Subsoil was mottled throughout. Soil located near a pathway to the river, which may be a gas line installation.

**WETLAND DETERMINATION**

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| <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Wetland Hydrology Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Hydric Soils Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No | <b>Is the Sampling Point within the Wetland?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No |
| <b>Remarks:</b>                                                                                                                                                                                                                                                                                       |                                                                                                                |

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

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| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 2 UP |
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| <b>Do Normal Circumstances exist on the site?</b> <span style="margin-left: 20px;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span><br><b>Is the site significantly disturbed (Atypical Situation:)?</b> <span style="margin-left: 20px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span><br><b>Is the area a potential Problem Area?</b> <span style="margin-left: 20px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span><br>(If needed, explain on the reverse side) | <b>Community ID:</b> Scrub/Shrub<br><b>Transect ID:</b> 2<br><b>Field Location:</b><br>West of old slab, west of fenced area |
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**VEGETATION** (USFWS Region No. 3)

| Dominant Plant Species(Latin/Common) | Stratum | Indicator | Plant Species(Latin/Common) | Stratum | Indicator |
|--------------------------------------|---------|-----------|-----------------------------|---------|-----------|
| <i>Populus tremula</i>               | Tree    | FAC       | <i>Fragaria virginiana</i>  | Herb    | FAC-      |
| Aspen, Quaking                       |         |           | Strawberry, Virginia        |         |           |
| <i>Achillea millefolium</i>          | Herb    | FACU      | <i>Oxalis europaea</i>      | Herb    | FACU      |
| Yarrow, Common                       |         |           | Woodsorrel, Upright Yellow  |         |           |
| <i>Solidago canadensis</i>           | Herb    | FACU      | <i>Cornus stolonifera</i>   | Shrub   | FACW      |
| Golden-Rod, Canada                   |         |           | Dogwood, Red-Osier          |         |           |
|                                      |         |           |                             |         |           |
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| <b>Percent of Dominant Species that are OBL, FACW or FAC:</b><br>(excluding FAC-) 2/6 = 33.33% | <b>FAC Neutral:</b> 1/4 = 25.00%<br><b>Numeric Index:</b> 20/6 = 3.33 |
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**Remarks:**  
 Plot in area of fill west of concrete slab. Fill elevated above groundsurface of the wetland to the west by approximately 1.5 feet.

**HYDROLOGY**

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| <b><u>YES</u> Recorded Data(Describe in Remarks):</b><br><u>NO</u> Stream, Lake or Tide Gauge<br><u>YES</u> Aerial Photographs<br><u>NO</u> Other<br><br><u>NO</u> No Recorded Data<br><br><b>Field Observations</b><br><br>Depth of Surface Water:           None (in.)<br>Depth to Free Water in Pit:       > 18 (in.)<br>Depth to Saturated Soil:           > 18 (in.) | <b>Wetland Hydrology Indicators</b><br><b>Primary Indicators</b><br><u>NO</u> Inundated<br><u>NO</u> Saturated in Upper 12 Inches<br><u>NO</u> Water Marks<br><u>NO</u> Drift Lines<br><u>NO</u> Sediment Deposits<br><u>NO</u> Drainage Patterns in Wetlands<br><b>Secondary Indicators</b><br><u>NO</u> Oxidized Root Channels in Upper 12 Inches<br><u>NO</u> Water-Stained Leaves<br><u>NO</u> Local Soil Survey Data<br><u>NO</u> FAC-Neutral Test<br><u>NO</u> Other(Explain in Remarks) |
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**Remarks:**  
 The fill placed in this area is elevated approximately 1.5 to 2 feet above the groundsurface of the wetland to the west. The fill is well drained.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

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| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 2 UP |
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**SOILS**

| <b>Map Unit Name (Series and Phase):</b> Granby fine sandy loam<br><b>Map Symbol:</b> Gb <b>Drainage Class:</b> poorly drained<br><b>Taxonomy (Subgroup):</b> Typic Haplaquolls<br><b>Profile Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |         |                              |                              |                           | <b>Mapped Hydric Inclusion?</b><br><b>Field Observations Confirm Mapped Type?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------------------------|------------------------------|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Depth (inches)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Horizon | Matrix Color (Munsell Moist) | Mottle Color (Munsell Moist) | Mottle Abundance/Contrast | Texture, Concretions, Structure, etc                                                                                                            |  |
| 0-18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Fill    | N/A                          | N/A                          | N/A    N/A                | Sandy clay loam                                                                                                                                 |  |
| <b>Hydric Soil Indicators:</b><br><div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <u>NO</u> Histosol<br/> <u>NO</u> Histic Epipedon<br/> <u>NO</u> Sulfidic Odor<br/> <u>NO</u> Aquic Moisture Regime<br/> <u>NO</u> Reducing Conditions<br/> <u>NO</u> Gleyed or Low Chroma Colors         </div> <div style="width: 48%;"> <u>NO</u> Concretions<br/> <u>NO</u> High Organic Content in Surface Layer in Sandy Soils<br/> <u>NO</u> Organic Streaking in Sandy Soils<br/> <u>UNK</u> Listed on Local Hydric Soils List<br/> <u>NO</u> Listed on National Hydric Soils List<br/> <u>NO</u> Other (Explain in Remarks)         </div> </div> |         |                              |                              |                           |                                                                                                                                                 |  |
| <b>Remarks:</b><br>Fill soils, including stone and asphalt chunks, placed into wetland some time ago. The fill is overgrown with trembling aspen.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |         |                              |                              |                           |                                                                                                                                                 |  |

**WETLAND DETERMINATION**

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| <b>Hydrophytic Vegetation Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/><br><b>Wetland Hydrology Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/><br><b>Hydric Soils Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> | <b>Is the Sampling Point within the Wetland?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> |
| <b>Remarks:</b><br>Fill - groundsurface in fill area is elevated approximately 1.5 to 2 feet above ground surface of wetland.                                                                                                                                                                         |                                                                                                                |

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

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| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 2 WET |
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| <b>Do Normal Circumstances exist on the site?</b> <span style="margin-left: 20px;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span><br><b>Is the site significantly disturbed (Atypical Situation:)?</b> <span style="margin-left: 20px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span><br><b>Is the area a potential Problem Area?</b> <span style="margin-left: 20px;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span><br>(If needed, explain on the reverse side) | <b>Community ID:</b> Scrub/Shrub<br><b>Transect ID:</b> 2<br><b>Field Location:</b><br>West of old slab, west of fenced area. |
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**VEGETATION** (USFWS Region No. 3)

| Dominant Plant Species(Latin/Common) | Stratum | Indicator | Plant Species(Latin/Common) | Stratum | Indicator |
|--------------------------------------|---------|-----------|-----------------------------|---------|-----------|
| <i>Cornus stolonifera</i>            | Shrub   | FACW      | <i>Polygonum amphibium</i>  | Herb    | OBL       |
| Dogwood, Red-Osier                   |         |           | Smartweed, Water            |         |           |
| <i>Salix, spp.</i>                   | Shrub   | NI        | <i>Carex spp.</i>           | Herb    | NI        |
| Willow, unknown species              |         |           | unknown sedge               |         |           |
| <i>Calamagrostis canadensis</i>      | Herb    | OBL       | <i>Impatiens capensis</i>   | Herb    | FACW      |
| Reedgrass, Blue-Joint                |         |           | Touch-Me-Not, Spotted       |         |           |
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**Percent of Dominant Species that are OBL, FACW or FAC:**  
 (excluding FAC-) 4/4 = 100.00%

**FAC Neutral:** 4/4 = 100.00%  
**Numeric Index:** 6/4 = 1.50

**Remarks:**

Area where standing water has recently receded from. Surface is muddy. Areas of the surface also do not have vegetation.

**HYDROLOGY**

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| <p><u>YES</u> Recorded Data(Describe in Remarks):<br/> <u>NO</u> Stream, Lake or Tide Gauge<br/> <u>YES</u> Aerial Photographs<br/> <u>NO</u> Other<br/> <u>NO</u> No Recorded Data</p> <p><b>Field Observations</b></p> <p>Depth of Surface Water: None (in.)</p> <p>Depth to Free Water in Pit: +/- 6 (in.)</p> <p>Depth to Saturated Soil: +/- surface (in.)</p> | <p><b>Wetland Hydrology Indicators</b></p> <p><b>Primary Indicators</b></p> <p><u>NO</u> Inundated<br/> <u>YES</u> Saturated in Upper 12 Inches<br/> <u>YES</u> Water Marks<br/> <u>NO</u> Drift Lines<br/> <u>NO</u> Sediment Deposits<br/> <u>NO</u> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators</b></p> <p><u>YES</u> Oxidized Root Channels in Upper 12 Inches<br/> <u>YES</u> Water-Stained Leaves<br/> <u>NO</u> Local Soil Survey Data<br/> <u>YES</u> FAC-Neutral Test<br/> <u>NO</u> Other(Explain in Remarks)</p> |
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**Remarks:**

This is a pocket of low elevation that appears to usually have sustained inundation. Water levels in the wetland are related to water levels in the West Twin River and Lake Michigan, which are near an all time low elevation. The surface of the area has large voids of vegetation typical of standing water areas.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

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| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 2 WET |
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**SOILS**

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| <b>Map Unit Name (Series and Phase):</b> Granby fine sandy loam                                         |                |                                       |                                                                | <b>Mapped Hydric Inclusion?</b>                                                                              |                                             |
| <b>Map Symbol:</b> Gb                                                                                   |                | <b>Drainage Class:</b> poorly drained |                                                                | <b>Field Observations Confirm Mapped Type?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> |                                             |
| <b>Taxonomy (Subgroup):</b> Typic Haplaquolls                                                           |                |                                       |                                                                |                                                                                                              |                                             |
| <b>Profile Description</b>                                                                              |                |                                       |                                                                |                                                                                                              |                                             |
| <b>Depth (inches)</b>                                                                                   | <b>Horizon</b> | <b>Matrix Color (Munsell Moist)</b>   | <b>Mottle Color (Munsell Moist)</b>                            | <b>Mottle Abundance/Contrast</b>                                                                             | <b>Texture, Concretions, Structure, etc</b> |
| 0-2                                                                                                     | A              | N/A                                   | N/A                                                            | N/A N/A                                                                                                      | Silt, black, organic                        |
| 2-16                                                                                                    | A/B            | 10YR3/2                               | 10YR4/6                                                        | Common Distinct                                                                                              | Sand                                        |
| <b>Hydric Soil Indicators:</b>                                                                          |                |                                       |                                                                |                                                                                                              |                                             |
| <u>NO</u> Histosol                                                                                      |                |                                       | <u>NO</u> Concretions                                          |                                                                                                              |                                             |
| <u>NO</u> Histic Epipedon                                                                               |                |                                       | <u>NO</u> High Organic Content in Surface Layer in Sandy Soils |                                                                                                              |                                             |
| <u>NO</u> Sulfidic Odor                                                                                 |                |                                       | <u>NO</u> Organic Streaking in Sandy Soils                     |                                                                                                              |                                             |
| <u>NO</u> Aquic Moisture Regime                                                                         |                |                                       | <u>YES</u> Listed on Local Hydric Soils List                   |                                                                                                              |                                             |
| <u>YES</u> Reducing Conditions                                                                          |                |                                       | <u>NO</u> Listed on National Hydric Soils List                 |                                                                                                              |                                             |
| <u>YES</u> Gleyed or Low Chroma Colors                                                                  |                |                                       | <u>NO</u> Other (Explain in Remarks)                           |                                                                                                              |                                             |
| <b>Remarks:</b><br>Organic silt and peat over saturated sand. Sand was highly mottled from the surface. |                |                                       |                                                                |                                                                                                              |                                             |

**WETLAND DETERMINATION**

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| <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Wetland Hydrology Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Hydric Soils Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No | <b>Is the Sampling Point within the Wetland?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No |
| <b>Remarks:</b><br>Pocket of low elevation on site that usually has standing water present, but currently low due to low elevations of the West Twin River and Lake Michigan.                                                                                                                         |                                                                                                                |

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

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| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 3 UP |
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| <b>Do Normal Circumstances exist on the site?</b> Yes <input type="radio"/> No <input checked="" type="radio"/><br><b>Is the site significantly disturbed (Atypical Situation:)?</b> Yes <input type="radio"/> No <input checked="" type="radio"/><br><b>Is the area a potential Problem Area?</b> Yes <input type="radio"/> No <input checked="" type="radio"/><br>(If needed, explain on the reverse side) | <b>Community ID:</b> Shrub/Scrub<br><b>Transect ID:</b> 3<br><b>Field Location:</b> South of fill area, southwest of fence |
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**VEGETATION** (USFWS Region No. 3)

| Dominant Plant Species(Latin/Common) | Stratum | Indicator | Plant Species(Latin/Common)    | Stratum | Indicator |
|--------------------------------------|---------|-----------|--------------------------------|---------|-----------|
| <i>Taraxacum officinale</i>          | Herb    | FACU      | <i>Rubus idaeus</i>            | Herb    | FACU+     |
| Dandelion, Common                    |         |           | Raspberry, Common Red          |         |           |
| <i>Viola spp.</i>                    | Herb    | NI        | <i>Festuca rubra</i>           | Herb    | FAC-      |
| unknown violet                       |         |           | Fescue, Red                    |         |           |
| <i>Solidago canadensis</i>           | Herb    | FACU      | <i>Cornus stolonifera</i>      | Shrub   | FACW      |
| Golden-Rod, Canada                   |         |           | Dogwood, Red-Osier             |         |           |
| <i>Potentilla anserina</i>           | Herb    | FACW+     | <i>Poa angustifolia</i>        | Herb    | FACU      |
| Silverweed                           |         |           | Bluegrass, Broad-Leaf Kentucky |         |           |
|                                      |         |           |                                |         |           |
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| <b>Percent of Dominant Species that are OBL, FACW or FAC:</b><br>(excluding FAC-) 2/7 = 28.57% | <b>FAC Neutral:</b> 2/6 = 33.33%<br><b>Numeric Index:</b> 23/7 = 3.29 |
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**Remarks:**  
 Edge of mowed grass on fill soils.

**HYDROLOGY**

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| <b>YES Recorded Data(Describe in Remarks):</b><br><u>NO</u> Stream, Lake or Tide Gauge<br><u>YES</u> Aerial Photographs<br><u>NO</u> Other<br><br><u>NO</u> No Recorded Data<br><br><b>Field Observations</b><br><br>Depth of Surface Water: None (in.)<br>Depth to Free Water in Pit: > 18 (in.)<br>Depth to Saturated Soil: > 18 (in.) | <b>Wetland Hydrology Indicators</b><br><b>Primary Indicators</b><br><u>NO</u> Inundated<br><u>NO</u> Saturated in Upper 12 Inches<br><u>NO</u> Water Marks<br><u>NO</u> Drift Lines<br><u>NO</u> Sediment Deposits<br><u>NO</u> Drainage Patterns in Wetlands<br><b>Secondary Indicators</b><br><u>NO</u> Oxidized Root Channels in Upper 12 Inches<br><u>NO</u> Water-Stained Leaves<br><u>NO</u> Local Soil Survey Data<br><u>NO</u> FAC-Neutral Test<br><u>NO</u> Other(Explain in Remarks) |
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**Remarks:**  
 Ground surface in plot area is elevated above the wetland to the west and south by approximately 2 to 3 feet. The plot is located in an area that has been filled. Water drains east and south off the fill.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

|                                                                                                                                                                                             |                          |                                                                                                         |
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| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 3 UP |
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**SOILS**

| <b>Map Unit Name (Series and Phase):</b> Fill<br><b>Map Symbol:</b> fill <b>Drainage Class:</b> well drained<br><b>Taxonomy (Subgroup):</b> _____<br><b>Profile Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |         |                              |                              |                           |                                      | <b>Mapped Hydric Inclusion?</b><br>Field Observations Confirm Mapped Type? Yes <input type="radio"/> No <input checked="" type="radio"/> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------------------------|------------------------------|---------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Depth (inches)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Horizon | Matrix Color (Munsell Moist) | Mottle Color (Munsell Moist) | Mottle Abundance/Contrast | Texture, Concretions, Structure, etc |                                                                                                                                          |
| 0-18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Fill    | 10YR5/3                      | N/A                          | N/A    N/A                | Sand                                 |                                                                                                                                          |
| <b>Hydric Soil Indicators:</b><br><div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <u>NO</u> Histosol<br/> <u>NO</u> Histic Epipedon<br/> <u>NO</u> Sulfidic Odor<br/> <u>NO</u> Aquic Moisture Regime<br/> <u>NO</u> Reducing Conditions<br/> <u>NO</u> Gleyed or Low Chroma Colors         </div> <div style="width: 48%;"> <u>NO</u> Concretions<br/> <u>NO</u> High Organic Content in Surface Layer in Sandy Soils<br/> <u>NO</u> Organic Streaking in Sandy Soils<br/> <u>NO</u> Listed on Local Hydric Soils List<br/> <u>NO</u> Listed on National Hydric Soils List<br/> <u>NO</u> Other (Explain in Remarks)         </div> </div> |         |                              |                              |                           |                                      |                                                                                                                                          |
| <b>Remarks:</b><br>Sand fill varies from 10YR 5/2 to 10YR 5/4. Fill also had some metal pieces in it and small gravel. No indication that fill has been saturated for any extended time period to at least 18 inches.                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |                              |                              |                           |                                      |                                                                                                                                          |

**WETLAND DETERMINATION**

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| <b>Hydrophytic Vegetation Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/><br><b>Wetland Hydrology Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/><br><b>Hydric Soils Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>                                                                                                               | <b>Is the Sampling Point within the Wetland?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> |
| <b>Remarks:</b><br>Filled upland lawn area.                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                |
| <b>Explanation for response to:</b> Normal Circumstances?    Atypical Situation ?    Potential Problem Area ?<br>This plot is in area that has been filled over some time in the past. The fill is elevated above the ground surface around the former gas plant facility by approximately 2 to 3 feet, and drains to the east and south, to a drainage swale between the WPS property and the adjoining property.. |                                                                                                                |



**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

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| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 3A WET |
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| <b>Do Normal Circumstances exist on the site?</b> <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span><br><b>Is the site significantly disturbed (Atypical Situation:)?</b> <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span><br><b>Is the area a potential Problem Area?</b> <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span><br>(If needed, explain on the reverse side) | <b>Community ID:</b> Scrub/shrub wetland<br><b>Transect ID:</b> 3<br><b>Field Location:</b><br>Adjac. to filled lawn area south of slab |
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**VEGETATION** (USFWS Region No. 3)

| Dominant Plant Species(Latin/Common) | Stratum | Indicator | Plant Species(Latin/Common)   | Stratum | Indicator |
|--------------------------------------|---------|-----------|-------------------------------|---------|-----------|
| <i>Impatiens capensis</i>            | Herb    | FACW      | <i>Rubus strigosus</i>        | Shrub   | FACW-     |
| Touch-Me-Not, Spotted                |         |           | Raspberry, Red                |         |           |
| <i>Cornus stolonifera</i>            | Shrub   | FACW      | <i>Fraxinus pennsylvanica</i> | Tree    | FACW      |
| Dogwood, Red-Osier                   |         |           | Ash, Green                    |         |           |
| <i>Carex spp.</i>                    | Herb    | NI        |                               |         |           |
| Sedge - unknown                      |         |           |                               |         |           |
|                                      |         |           |                               |         |           |
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| <b>Percent of Dominant Species that are OBL, FACW or FAC:</b><br>(excluding FAC-) 4/4 = 100.00% | <b>FAC Neutral:</b> 4/4 = 100.00%<br><b>Numeric Index:</b> 8/4 = 2.00 |
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**Remarks:**  
 Sedge may be Carex lacustris, but lacks robust appearance.

**HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
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| <u>YES</u> Recorded Data(Describe in Remarks):<br><u>NO</u> Stream, Lake or Tide Gauge<br><u>YES</u> Aerial Photographs<br><u>NO</u> Other<br><br><u>NO</u> No Recorded Data<br><br><b>Field Observations</b><br><br>Depth of Surface Water: None (in.)<br>Depth to Free Water in Pit: > 18 (in.)<br>Depth to Saturated Soil: > 18 (in.) | <b>Wetland Hydrology Indicators</b><br><b>Primary Indicators</b><br><u>NO</u> Inundated<br><u>NO</u> Saturated in Upper 12 Inches<br><u>NO</u> Water Marks<br><u>NO</u> Drift Lines<br><u>NO</u> Sediment Deposits<br><u>NO</u> Drainage Patterns in Wetlands<br><b>Secondary Indicators</b><br><u>NO</u> Oxidized Root Channels in Upper 12 Inches<br><u>NO</u> Water-Stained Leaves<br><u>YES</u> Local Soil Survey Data<br><u>YES</u> FAC-Neutral Test<br><u>NO</u> Other(Explain in Remarks) |
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**Remarks:**  
 The water level in the wetlands are based on water levels in the West Twin River and Lake Michigan, which are near an all time low. Therefore, normal hydrology was not present in the wetland at the time of the site survey. Soil and vegetation indicators were more heavily relied on to determine the presence of the wetland.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

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| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 3A WET |
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**SOILS**

| <b>Map Unit Name (Series and Phase):</b> Granby fine sandy loam<br><b>Map Symbol:</b> Gb <b>Drainage Class:</b> poorly drained<br><b>Taxonomy (Subgroup):</b> Typic Haplaquolls                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |         |                              |                              | <b>Mapped Hydric Inclusion?</b><br>Field Observations Confirm Mapped Type? <input checked="" type="radio"/> Yes   No |                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|------------------------------|------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| <b>Profile Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |         |                              |                              |                                                                                                                      |                                      |
| Depth (inches)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Horizon | Matrix Color (Munsell Moist) | Mottle Color (Munsell Moist) | Mottle Abundance/Contrast                                                                                            | Texture, Concretions, Structure, etc |
| 0-9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | A       | 10YR2/1                      | N/A                          | N/A   N/A                                                                                                            | Loam, Black organic                  |
| 9-18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | B       | 10YR4/6                      | 10YR5/6                      | Common   Faint                                                                                                       | Sand                                 |
| <b>Hydric Soil Indicators:</b><br><div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <u>NO</u> Histosol<br/> <u>NO</u> Histic Epipedon<br/> <u>NO</u> Sulfidic Odor<br/> <u>NO</u> Aquic Moisture Regime<br/> <u>YES</u> Reducing Conditions<br/> <u>NO</u> Gleyed or Low Chroma Colors         </div> <div style="width: 45%;"> <u>NO</u> Concretions<br/> <u>NO</u> High Organic Content in Surface Layer in Sandy Soils<br/> <u>NO</u> Organic Streaking in Sandy Soils<br/> <u>YES</u> Listed on Local Hydric Soils List<br/> <u>NO</u> Listed on National Hydric Soils List<br/> <u>NO</u> Other (Explain in Remarks)         </div> </div> |         |                              |                              |                                                                                                                      |                                      |
| <b>Remarks:</b><br>Organic soil over sand. Sand color ranges from 10YR 4/6 to 10YR 5/4. Mottles are very apparent at approximately 9 inches - just below organic layer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |         |                              |                              |                                                                                                                      |                                      |

**WETLAND DETERMINATION**

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| Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes   No<br>Wetland Hydrology Present? <input checked="" type="radio"/> Yes   No<br>Hydric Soils Present? <input checked="" type="radio"/> Yes   No                                                                                                                                     | Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes   No |
| <b>Remarks:</b><br>Plot in wetland. Drainage from the east gets to the wetland via a ditch between the WPSC property and adjacent property to the south. The ditch was formed by placement of fill on the south side the of the WPS property some time ago. The wetland was marked where the ditch widened and became level, and overgrown with dogwood. |                                                                                     |

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

|                                                                                                                                                                                             |                          |                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 3B WET |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------|

|                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Do Normal Circumstances exist on the site?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Is the site significantly disturbed (Atypical Situation:)?</b> Yes <input checked="" type="radio"/> No<br><b>Is the area a potential Problem Area?</b> Yes <input checked="" type="radio"/> No<br>(If needed, explain on the reverse side) | <b>Community ID:</b> Wet meadow with shrub/shrub fringe<br><b>Transect ID:</b> 3<br><b>Field Location:</b> Southwest of filled are south of plant. |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|

**VEGETATION**

(USFWS Region No. 3)

| Dominant Plant Species(Latin/Common) | Stratum | Indicator | Plant Species(Latin/Common) | Stratum | Indicator |
|--------------------------------------|---------|-----------|-----------------------------|---------|-----------|
| <i>Vitis riparia</i>                 | Vine    | FACW-     | <i>Carex, spp.</i>          | Herb    | NI        |
| Grape, River-Bank                    |         |           | sedge                       |         |           |
| <i>Impatiens capensis</i>            | Herb    | FACW      | <i>Geum canadense</i>       | Herb    | FAC       |
| Touch-Me-Not, Spotted                |         |           | Avens, White                |         |           |
| <i>Eupatoriadelphus maculatus</i>    | Herb    | OBL       | <i>Cornus stolonifera</i>   | Shrub   | FACW      |
| Joe-Pye-Weed, Spotted                |         |           | Dogwood, Red-Osier          |         |           |
| <i>Rubus strigosus</i>               | Herb    | FACW-     |                             |         |           |
| Raspberry, Red                       |         |           |                             |         |           |
|                                      |         |           |                             |         |           |
|                                      |         |           |                             |         |           |
|                                      |         |           |                             |         |           |
|                                      |         |           |                             |         |           |
|                                      |         |           |                             |         |           |
|                                      |         |           |                             |         |           |
|                                      |         |           |                             |         |           |
|                                      |         |           |                             |         |           |

**Percent of Dominant Species that are OBL, FACW or FAC:**  
 (excluding FAC-) 6/6 = 100.00%

**FAC Neutral:** 5/5 = 100.00%  
**Numeric Index:** 12/6 = 2.00

**Remarks:**

Plot is off west end of fill in area that receives runoff water from a drainage ditch coming onto the property from the east.

**HYDROLOGY**

|                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><u>YES</u> Recorded Data(Describe in Remarks):<br/> <u>NO</u> Stream, Lake or Tide Gauge<br/> <u>YES</u> Aerial Photographs<br/> <u>NO</u> Other<br/> <u>NO</u> No Recorded Data</p> <p><b>Field Observations</b></p> <p>Depth of Surface Water: None (in.)</p> <p>Depth to Free Water in Pit: &gt; 18 (in.)</p> <p>Depth to Saturated Soil: &gt; 18 (in.)</p> | <p><b>Wetland Hydrology Indicators</b></p> <p><b>Primary Indicators</b></p> <p><u>NO</u> Inundated<br/> <u>NO</u> Saturated in Upper 12 Inches<br/> <u>NO</u> Water Marks<br/> <u>NO</u> Drift Lines<br/> <u>NO</u> Sediment Deposits<br/> <u>NO</u> Drainage Patterns in Wetlands</p> <p><b>Secondary Indicators</b></p> <p><u>NO</u> Oxidized Root Channels in Upper 12 Inches<br/> <u>NO</u> Water-Stained Leaves<br/> <u>NO</u> Local Soil Survey Data<br/> <u>YES</u> FAC-Neutral Test<br/> <u>NO</u> Other(Explain in Remarks)</p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Remarks:**

Water level in the wetland is likely based on water level in the West Twin River and Lake Michigan, which is near an all time low. Therefore, normal hydrology was not present in the wetland, and soil and vegetation indicators were used to determine the wetland area.

**DATA FORM**  
**ROUTINE WETLAND DETERMINATION**  
**(1987 COE Wetlands Delineation Manual)**

|                                                                                                                                                                                             |                          |                                                                                                           |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------|
| <b>Project/Site:</b> Two Rivers Gas Plant Site, City of Two Rivers<br><b>Applicant/Owner:</b> Wisconsin Public Service Corporation<br><b>Investigators:</b> J. Tesch, STS Consultants, Ltd. | <b>Project No:</b> 28353 | <b>Date:</b> 22-Jul-2003<br><b>County:</b> Manitowoc<br><b>State:</b> Wisconsin<br><b>Plot ID:</b> 3B WET |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------|

**SOILS**

|                                                                                                                                                                                                               |                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Map Unit Name (Series and Phase):</b> Granby fine sandy loam<br><b>Map Symbol:</b> Gb <b>Drainage Class:</b> poorly drained<br><b>Taxonomy (Subgroup):</b> Typic Haplaquolls<br><b>Profile Description</b> | <b>Mapped Hydric Inclusion?</b><br><b>Field Observations Confirm Mapped Type?</b> Yes <input type="radio"/> No <input checked="" type="radio"/> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|

| Depth (inches) | Horizon | Matrix Color (Munsell Moist) | Mottle Color (Munsell Moist) | Mottle Abundance/Contrast | Mottle N/A | Texture, Concretions, Structure, etc |
|----------------|---------|------------------------------|------------------------------|---------------------------|------------|--------------------------------------|
| 0-11           | A       | 10YR2/1                      | N/A                          | N/A                       | N/A        | Loam, Black organic                  |
| 11-18          | B       | 10YR4/6                      | 10YR5/6                      | Common                    | Faint      | Sand                                 |

**Hydric Soil Indicators:**

- |                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>NO</u> Histosol<br><u>NO</u> Histic Epipedon<br><u>NO</u> Sulfidic Odor<br><u>NO</u> Aquic Moisture Regime<br><u>YES</u> Reducing Conditions<br><u>NO</u> Gleyed or Low Chroma Colors | <u>NO</u> Concretions<br><u>NO</u> High Organic Content in Surface Layer in Sandy Soils<br><u>NO</u> Organic Streaking in Sandy Soils<br><u>YES</u> Listed on Local Hydric Soils List<br><u>NO</u> Listed on National Hydric Soils List<br><u>NO</u> Other (Explain in Remarks) |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Remarks:**

Black organic loam over sand. Sand is mottled starting under organic layer.

**WETLAND DETERMINATION**

|                                                                                                                                                                                                                                                                                                       |                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Hydrophytic Vegetation Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Wetland Hydrology Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No<br><b>Hydric Soils Present?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No | <b>Is the Sampling Point within the Wetland?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|

**Remarks:**

Although water is currently not within 18 inches of the ground surface, during normal water levels conditions in Lake Michigan and the West Twin River, water would likely be near the ground surface based on the vegetation and the amount of Redox features in the soil.



Photo 1: View of the wetland on the western half of the WPS Two Rivers Gas Plant property.

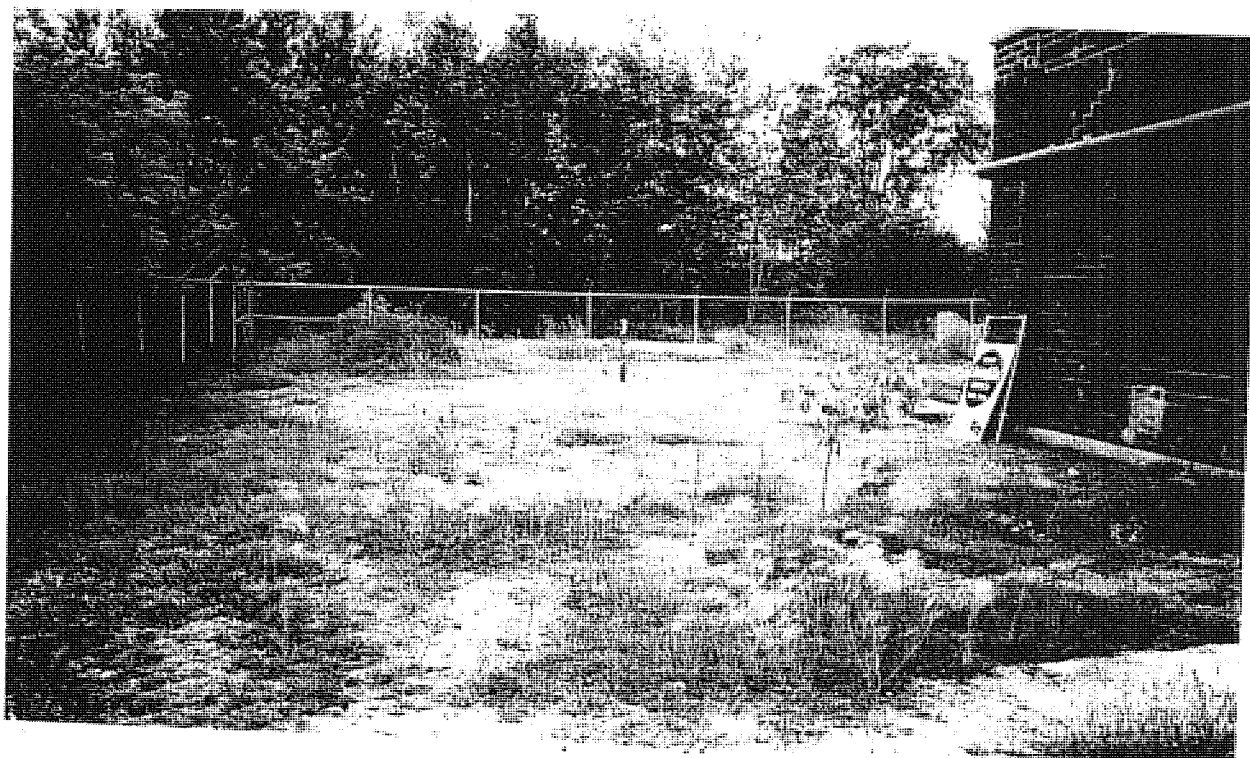


Photo 2: View of the fenced yard south of the building on the WPS property looking west.



Photo 3: View of the fenced yard area west of the building. Purple loose strife and reed canary grass growing in tire tracks depressions and puddles on north side of graveled yard area.



Photo 4: View of the filled area maintained in short grass in the southwest area of the property. A drainage ditch leading to the West Twin River is located on the south property line.



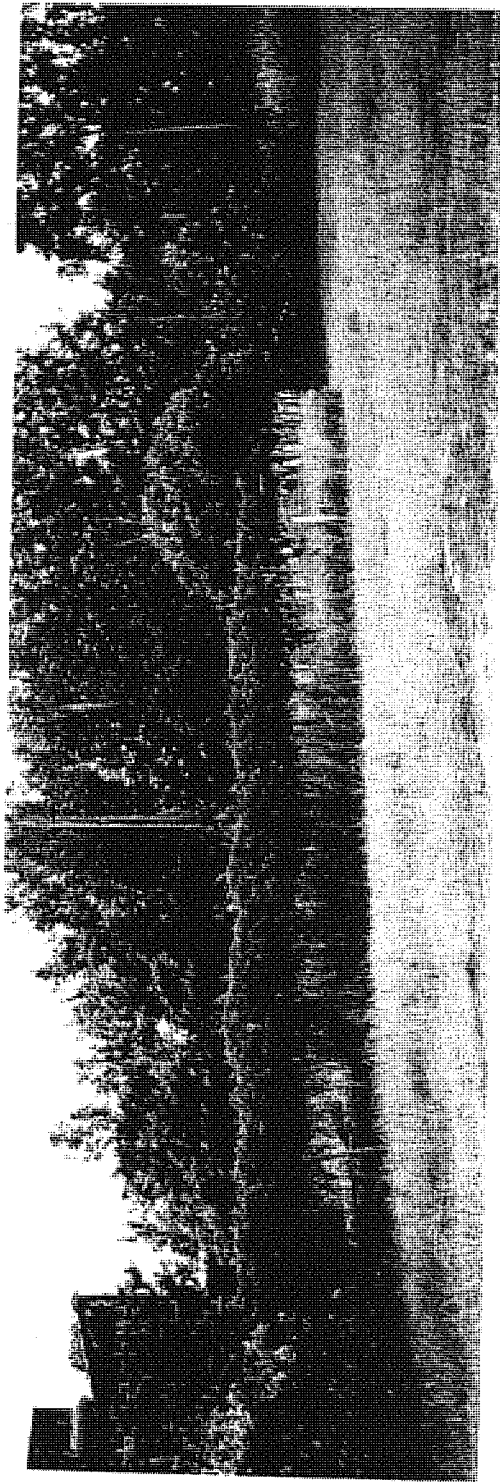


Photo 5: View of area to the north of the fenced yard. Area may have been previously paved or the site of demolished structures.

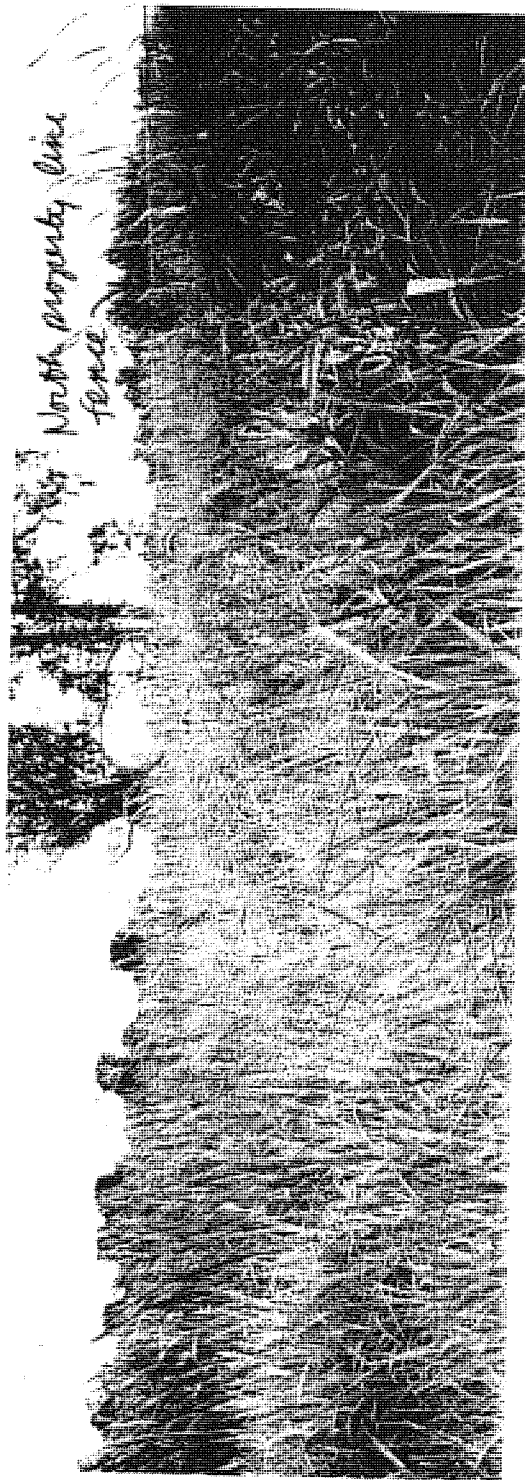


Photo 6: View of the wetland looking west along the north property line.

## **APPENDIX E**

### **SOIL ANALYTICAL RESULTS AND GRAIN SIZE DISTRIBUTION REPORTS**





Corporate Office & Laboratory  
1241 Bellevue Street, Suite 9, Green Bay, WI 54302  
920-469-2436, 800-7-ENCHEM, Fax: 920-469-8827  
[www.enchem.com](http://www.enchem.com)

## Analytical Report Number: 838082

Client : NATURAL RESOURCE TECH

Project Name : TWO RIVERS

Project Number : 1569

| Lab Sample<br>Number | Field ID         | Matrix | Collection<br>Date |
|----------------------|------------------|--------|--------------------|
| 838082-001           | TP-615 (3.5)     | SOIL   | 08/25/03           |
| 838082-002           | TP-616 (3-4)     | SOIL   | 08/25/03           |
| 838082-003           | TP-617 (4-6)     | SOIL   | 08/25/03           |
| 838082-004           | TP-617 (9-10)    | SOIL   | 08/25/03           |
| 838082-005           | TP-619 (14)      | SOIL   | 08/25/03           |
| 838082-006           | TP-620 (4-5)     | SOIL   | 08/25/03           |
| 838082-007           | TP-620 (11-12)   | SOIL   | 08/25/03           |
| 838082-008           | TP-621 (8.5-9.0) | SOIL   | 08/25/03           |
| 838082-009           | TP-622 (11)      | SOIL   | 08/25/03           |

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. Reported results shall not be reproduced, except in full, without the written approval of the lab. The sample results relate only to the analytes of interest tested.

Approval Signature

10/3/03

Date

## Analytical Report Number: 838082

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/25/03

Project Number : 1569

Report Date : 10/02/03

Field ID : TP-615 (3.5)

Lab Sample Number : 838082-001

## INORGANICS

| Test           | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Total | 4.3    | 0.15 | 0.50 |     | 1    | mg/Kg |      | 09/02/03      | SW846 9010B | SW846 9012A     |
| Percent Solids | 69.9   |      |      |     | 1    | %     |      | 08/26/03      | SM 2540G M  | SM 2540G M      |
| Sulfide        | 880    | 26   | 87   |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur         | 13000  | 100  | 330  |     | 1    | mg/kg |      | 09/04/03      |             | 9038            |

## PVOC

Prep Date: 08/28/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 50   | 50  | 120 |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 102    |     |     |     | 1    | %Recov |      | 08/28/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 08/28/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 10   | 10  | 33  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | < 11   | 11  | 36  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | < 16   | 16  | 52  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 26   | 26  | 86  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 16   | 16  | 52  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | 31     | 8.6 | 29  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | 45     | 8.6 | 29  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | 34     | 9.3 | 31  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | 23     | 17  | 57  |     | 1    | ug/kg  | Q    | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | 39     | 13  | 43  |     | 1    | ug/kg  | Q    | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | 39     | 9.9 | 33  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 11   | 11  | 35  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | 50     | 11  | 38  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 8.6  | 8.6 | 29  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | 27     | 16  | 52  |     | 1    | ug/kg  | Q    | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 16     | 11  | 36  |     | 1    | ug/kg  | Q    | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | 31     | 11  | 38  |     | 1    | ug/kg  | Q    | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | 56     | 19  | 62  |     | 1    | ug/kg  | Q    | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 55     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 50     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 63     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838082

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/25/03

Project Number : 1569

Report Date : 10/02/03

Field ID : TP-616 (3-4)

Lab Sample Number : 838082-002

## INORGANICS

| Test           | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Total | 2.1    | 0.25 | 0.83 |     | 1    | mg/Kg |      | 09/02/03      | SW846 9010B | SW846 9012A     |
| Percent Solids | 42.1   |      |      |     | 1    | %     |      | 08/26/03      | SM 2540G M  | SM 2540G M      |
| Sulfide        | < 58   | 58   | 190  |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur         | 4100   | 100  | 330  |     | 1    | mg/kg |      | 09/04/03      |             | 9038            |

## PVOC

Prep Date: 08/28/03

| Analyte                 | Result  | LOD  | LOQ   | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|---------|------|-------|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 210000  | 2400 | 5700  |     | 2000 | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 84000   | 2400 | 5700  |     | 2000 | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 130000  | 2400 | 5700  |     | 2000 | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 820000  | 2400 | 5700  |     | 2000 | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 1000  | 1000 | 2400  |     | 2000 | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 6400    | 2400 | 5700  |     | 2000 | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 400000  | 2400 | 5700  |     | 2000 | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 1.1E+06 | 4800 | 11000 |     | 2000 | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 108     |      |       |     | 1    | %Recov |      | 08/28/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 08/28/03

| Analyte                | Result | LOD  | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|------|------|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 100000 | 1100 | 3700 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 100000 | 1200 | 4000 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | 89000  | 1700 | 5800 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | 7200   | 2800 | 9500 |     | 50   | ug/kg  | Q    | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | 54000  | 1700 | 5800 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | 26000  | 950  | 3200 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | 23000  | 950  | 3200 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | 7200   | 1000 | 3400 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | 9700   | 1900 | 6300 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | 15000  | 1400 | 4700 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | 26000  | 1100 | 3600 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | 2700   | 1200 | 3900 |     | 50   | ug/kg  | Q    | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | 58000  | 1300 | 4200 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | 44000  | 950  | 3200 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | 8700   | 1700 | 5800 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 100000 | 1200 | 4000 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | 160000 | 1300 | 4200 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | 80000  | 2100 | 6900 |     | 50   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 44     |      |      |     | 1    | %Recov |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 70     |      |      |     | 1    | %Recov |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 86     |      |      |     | 1    | %Recov |      | 09/03/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838082

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/25/03

Project Number : 1569

Report Date : 10/02/03

Field ID : TP-617 (4-6)

Lab Sample Number : 838082-003

## INORGANICS

| Test           | Result | LOD    | LOQ    | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------|--------|--------|--------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic        | 1.5    | 0.13   | 0.42   |     | 5    | mg/Kg |      | 09/02/03      | SW846 3050B | SW846 6020      |
| Barium         | 26     | 0.080  | 0.27   |     | 5    | mg/Kg |      | 09/02/03      | SW846 3050B | SW846 6020      |
| Cadmium        | 0.14   | 0.045  | 0.15   |     | 5    | mg/Kg | Q    | 09/02/03      | SW846 3050B | SW846 6020      |
| Chromium       | 7.2    | 0.12   | 0.39   |     | 5    | mg/Kg |      | 09/02/03      | SW846 3050B | SW846 6020      |
| Lead           | 2.1    | 0.037  | 0.12   |     | 5    | mg/Kg |      | 09/02/03      | SW846 3050B | SW846 6020      |
| Mercury        | 0.0044 | 0.0020 | 0.0066 |     | 1    | mg/Kg | Q    | 09/04/03      | SW846 7471A | SW846 7471A     |
| Selenium       | 1.0    | 0.25   | 0.84   |     | 5    | mg/Kg |      | 09/02/03      | SW846 3050B | SW846 6020      |
| Silver         | 0.026  | 0.026  | 0.085  |     | 5    | mg/Kg | Q    | 09/02/03      | SW846 3050B | SW846 6020      |
| Cyanide, Total | 3.3    | 0.14   | 0.46   |     | 1    | mg/Kg |      | 09/02/03      | SW846 9010B | SW846 9012A     |
| Percent Solids | 75.6   |        |        |     | 1    | %     |      | 08/26/03      | SM 2540G M  | SM 2540G M      |
| Sulfide        | < 25   | 25     | 83     |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur         | 5500   | 100    | 330    |     | 1    | mg/kg |      | 09/04/03      |             | 9038            |

## PVOC

Prep Date: 08/28/03

| Analyte                 | Result | LOD  | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|------|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 29000  | 660  | 1600 |     | 1000 | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 8500   | 660  | 1600 |     | 1000 | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 2000   | 660  | 1600 |     | 1000 | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 68000  | 660  | 1600 |     | 1000 | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 500  | 500  | 1200 |     | 1000 | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 1300   | 660  | 1600 |     | 1000 | ug/kg  | QK   | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 17000  | 660  | 1600 |     | 1000 | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 21000  | 1300 | 3200 |     | 1000 | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 104    |      |      |     | 1    | %Recov |      | 08/28/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 08/28/03

| Analyte                | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 41000  | 740  | 2500 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 57000  | 790  | 2600 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | 27000  | 1200 | 3900 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | 19000  | 1900 | 6300 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | 25000  | 1200 | 3900 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | 11000  | 630  | 2100 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | 11000  | 630  | 2100 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | 3800   | 690  | 2300 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | 3500   | 1300 | 4200 |     | 80   | ug/kg | Q    | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | 7400   | 950  | 3200 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | 11000  | 730  | 2400 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | 980    | 780  | 2600 |     | 80   | ug/kg | Q    | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | 25000  | 850  | 2800 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | 21000  | 630  | 2100 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | 3700   | 1200 | 3900 |     | 80   | ug/kg | Q    | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 83000  | 790  | 2600 |     | 80   | ug/kg |      | 09/03/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838082

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/25/03

Project Number : 1569

Report Date : 10/02/03

Field ID : TP-617 (4-6)

Lab Sample Number : 838082-003

## PAH/PNA

Prep Date: 08/28/03

| Analyte          | Result | LOD  | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------|--------|------|------|-----|------|--------|------|---------------|-------------|-----------------|
| Phenanthrene     | 75000  | 850  | 2800 |     | 80   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Pyrene           | 38000  | 1400 | 4600 |     | 80   | ug/kg  |      | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5  | < NA   |      |      |     | 1    | %Recov | D    | 09/03/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl | < NA   |      |      |     | 1    | %Recov | D    | 09/03/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14    | < NA   |      |      |     | 1    | %Recov | D    | 09/03/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838082

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/25/03

Project Number : 1569

Report Date : 10/02/03

Field ID : TP-617 (9-10)

Lab Sample Number : 838082-004

## INORGANICS

| Test           | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Total | 1.4    | 0.13 | 0.44 |     | 1    | mg/Kg |      | 09/02/03      | SW846 9010B | SW846 9012A     |
| Percent Solids | 80.0   |      |      |     | 1    | %     |      | 08/26/03      | SM 2540G M  | SM 2540G M      |
| Sulfide        | < 24   | 24   | 80   |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur         | 300    | 100  | 330  |     | 1    | mg/kg | Q    | 09/04/03      |             | 9038            |

## PVOC

Prep Date: 08/28/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 250    | 31  | 75  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 59     | 31  | 75  |     | 50   | ug/kg  | Q    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 260    | 31  | 75  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 1100   | 31  | 75  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 410    | 31  | 75  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 350    | 62  | 150 |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 100    |     |     |     | 1    | %Recov |      | 08/28/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 08/28/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 160    | 47  | 160 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 74     | 50  | 170 |     | 4    | ug/kg  | Q    | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | < 73   | 73  | 240 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 120  | 120 | 400 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 73   | 73  | 240 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 40   | 40  | 130 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 40   | 40  | 130 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 43   | 43  | 140 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 80   | 80  | 270 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 60   | 60  | 200 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 46   | 46  | 150 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 49   | 49  | 160 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 53   | 53  | 180 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 40   | 40  | 130 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 73   | 73  | 240 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 3800   | 50  | 170 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | < 53   | 53  | 180 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 87   | 87  | 290 |     | 4    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 50     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 53     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 75     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838082

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/25/03

Project Number : 1569

Report Date : 10/02/03

Field ID : TP-619 (14)

Lab Sample Number : 838082-005

## INORGANICS

| Test           | Result  | LOD    | LOQ    | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------|---------|--------|--------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic        | 0.57    | 0.13   | 0.42   |     | 5    | mg/Kg |      | 09/02/03      | SW846 3050B | SW846 6020      |
| Barium         | 19      | 0.080  | 0.27   |     | 5    | mg/Kg |      | 09/02/03      | SW846 3050B | SW846 6020      |
| Cadmium        | 0.11    | 0.045  | 0.15   |     | 5    | mg/Kg | Q    | 09/02/03      | SW846 3050B | SW846 6020      |
| Chromium       | 5.2     | 0.12   | 0.39   |     | 5    | mg/Kg |      | 09/02/03      | SW846 3050B | SW846 6020      |
| Lead           | 2.2     | 0.038  | 0.13   |     | 5    | mg/Kg |      | 09/02/03      | SW846 3050B | SW846 6020      |
| Mercury        | 0.017   | 0.0020 | 0.0066 |     | 1    | mg/Kg |      | 09/04/03      | SW846 7471A | SW846 7471A     |
| Selenium       | < 0.25  | 0.25   | 0.84   |     | 5    | mg/Kg |      | 09/02/03      | SW846 3050B | SW846 6020      |
| Silver         | < 0.026 | 0.026  | 0.086  |     | 5    | mg/Kg |      | 09/02/03      | SW846 3050B | SW846 6020      |
| Cyanide, Total | 0.16    | 0.14   | 0.46   |     | 1    | mg/Kg | Q    | 09/02/03      | SW846 9010B | SW846 9012A     |
| Percent Solids | 75.9    |        |        |     | 1    | %     |      | 08/26/03      | SM 2540G M  | SM 2540G M      |
| Sulfide        | < 26    | 26     | 87     |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur         | 410     | 100    | 330    |     | 1    | mg/kg |      | 09/04/03      |             | 9038            |

## PVOC

Prep Date: 08/28/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 8000   | 130 | 320 |     | 200  | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 2300   | 130 | 320 |     | 200  | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 100  | 100 | 240 |     | 200  | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 18000  | 130 | 320 |     | 200  | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 100  | 100 | 240 |     | 200  | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 8400   | 130 | 320 |     | 200  | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 6000   | 130 | 320 |     | 200  | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 11000  | 260 | 630 |     | 200  | ug/kg  | K    | 08/28/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 99     |     |     |     | 1    | %Recov |      | 08/28/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 08/28/03

| Analyte                | Result | LOD | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 13000  | 180 | 610  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 17000  | 200 | 660  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | 2300   | 290 | 970  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | 9700   | 470 | 1600 |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | 5600   | 290 | 970  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | 2700   | 160 | 530  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | 2300   | 160 | 530  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | 820    | 170 | 570  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | 1100   | 320 | 1100 |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | 1500   | 240 | 790  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | 2700   | 180 | 610  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | 230    | 190 | 650  |     | 10   | ug/kg | Q    | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | 5400   | 210 | 700  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | 4700   | 160 | 530  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | 960    | 290 | 970  |     | 10   | ug/kg | Q    | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 28000  | 200 | 660  |     | 10   | ug/kg |      | 08/30/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838082

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/25/03

Project Number : 1569

Report Date : 10/02/03

Field ID : TP-619 (14)

Lab Sample Number : 838082-005

## PAH/PNA

Prep Date: 08/28/03

| Analyte          | Result | LOD | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------|--------|-----|------|-----|------|--------|------|---------------|-------------|-----------------|
| Phenanthrene     | 17000  | 210 | 700  |     | 10   | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Pyrene           | 7800   | 340 | 1100 |     | 10   | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5  | 55     |     |      |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl | 63     |     |      |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14    | 74     |     |      |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |



## Analytical Report Number: 838082

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/25/03

Project Number : 1569

Report Date : 10/02/03

Field ID : TP-620 (4-5)

Lab Sample Number : 838082-006

## INORGANICS

| Test           | Result | LOD  | LOQ | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------|--------|------|-----|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Total | 0.63   | 0.54 | 1.8 |     | 1    | mg/Kg | Q    | 09/02/03      | SW846 9010B | SW846 9012A     |
| Percent Solids | 19.4   |      |     |     | 1    | %     |      | 08/26/03      | SM 2540G M  | SM 2540G M      |
| Sulfide        | < 230  | 230  | 770 |     | 1    | mg/kg |      | 09/10/03      | 9034/9030B  | 9034/9030B      |
| Sulfur         | 310    | 100  | 330 |     | 1    | mg/kg | Q    | 09/04/03      |             | 9038            |

## PVOC

Prep Date: 08/28/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 50   | 50  | 120 |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 98     |     |     |     | 1    | %Recov |      | 08/28/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 08/28/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 72   | 72  | 240 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | < 77   | 77  | 260 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | < 110  | 110 | 380 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 190  | 190 | 620 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 110  | 110 | 380 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 62   | 62  | 210 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 62   | 62  | 210 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 67   | 67  | 220 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 120  | 120 | 410 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 93   | 93  | 310 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 71   | 71  | 240 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 76   | 76  | 250 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 82   | 82  | 270 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 62   | 62  | 210 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 110  | 110 | 380 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | < 77   | 77  | 260 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | < 82   | 82  | 270 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 130  | 130 | 450 |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 51     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 53     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 78     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838082

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/25/03

Project Number : 1569

Report Date : 10/02/03

Field ID : TP-620 (11-12)

Lab Sample Number : 838082-007

## INORGANICS

| Test           | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Total | 1.3    | 0.13 | 0.42 |     | 1    | mg/Kg |      | 09/02/03      | SW846 9010B | SW846 9012A     |
| Percent Solids | 82.8   |      |      |     | 1    | %     |      | 08/26/03      | SM 2540G M  | SM 2540G M      |
| Sulfide        | < 24   | 24   | 80   |     | 1    | mg/kg |      | 09/11/03      | 9034/9030B  | 9034/9030B      |
| Sulfur         | 100    | 100  | 330  |     | 1    | mg/kg | Q    | 09/04/03      |             | 9038            |

## PVOC

Prep Date: 08/28/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 350    | 30  | 72  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 100    | 30  | 72  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 3100   | 30  | 72  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 2400   | 30  | 72  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 33     | 30  | 72  |     | 50   | ug/kg  | Q    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 640    | 30  | 72  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 1400   | 60  | 140 |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 99     |     |     |     | 1    | %Recov |      | 08/28/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 08/28/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 31     | 11  | 38  |     | 1    | ug/kg  | Q    | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 30     | 12  | 40  |     | 1    | ug/kg  | Q    | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | < 18   | 18  | 59  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 29   | 29  | 97  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 18   | 18  | 59  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 9.7  | 9.7 | 32  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 9.7  | 9.7 | 32  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 10   | 10  | 35  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 19   | 19  | 64  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 14   | 14  | 48  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 11   | 11  | 37  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 12   | 12  | 40  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 13   | 13  | 43  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 9.7  | 9.7 | 32  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 18   | 18  | 59  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 2000   | 12  | 40  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | < 13   | 13  | 43  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 21   | 21  | 70  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 50     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 60     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 78     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838082

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/25/03

Project Number : 1569

Report Date : 10/02/03

Field ID : TP-621 (8.5-9.0)

Lab Sample Number : 838082-008

## INORGANICS

| Test           | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Total | 0.70   | 0.15 | 0.49 |     | 1    | mg/Kg |      | 09/02/03      | SW846 9010B | SW846 9012A     |
| Percent Solids | 70.8   |      |      |     | 1    | %     |      | 08/26/03      | SM 2540G M  | SM 2540G M      |
| Sulfide        | < 30   | 30   | 100  |     | 1    | mg/kg |      | 09/11/03      | 9034/9030B  | 9034/9030B      |
| Sulfur         | 300    | 100  | 330  |     | 1    | mg/kg | Q    | 09/04/03      |             | 9038            |

## PVOC

Prep Date: 08/28/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 960    | 35  | 85  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 300    | 35  | 85  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 1800   | 35  | 85  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 3100   | 35  | 85  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 48     | 35  | 85  |     | 50   | ug/kg  | Q    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 710    | 35  | 85  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 1400   | 71  | 170 |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 100    |     |     |     | 1    | %Recov |      | 08/28/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 08/28/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 2400   | 110 | 350 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 2600   | 110 | 380 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | 1100   | 170 | 550 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 270  | 270 | 900 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 170  | 170 | 550 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 90   | 90  | 300 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 90   | 90  | 300 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 98   | 98  | 330 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 180  | 180 | 600 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 140  | 140 | 450 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 100  | 100 | 350 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 110  | 110 | 370 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 120  | 120 | 400 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 90   | 90  | 300 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 170  | 170 | 550 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 12000  | 110 | 380 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | < 120  | 120 | 400 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 200  | 200 | 650 |     | 8    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 44     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 48     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 58     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838082

Client: NATURAL RESOURCE TECH

Matrix Type: SOIL

Project Name: TWO RIVERS

Collection Date: 08/25/03

Project Number: 1569

Report Date: 10/02/03

Field ID: TP-622 (11)

Lab Sample Number: 838082-009

## INORGANICS

| Test           | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Total | 0.14   | 0.13 | 0.43 |     | 1    | mg/Kg | Q    | 09/02/03      | SW846 9010B | SW846 9012A     |
| Percent Solids | 81.0   |      |      |     | 1    | %     |      | 08/26/03      | SM 2540G M  | SM 2540G M      |
| Sulfide        | < 26   | 26   | 87   |     | 1    | mg/kg |      | 09/10/03      | 9034/9030B  | 9034/9030B      |
| Sulfur         | < 100  | 100  | 330  |     | 1    | mg/kg |      | 09/04/03      |             | 9038            |

## PVOC

Prep Date: 08/28/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 93     | 31  | 74  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 53     | 31  | 74  |     | 50   | ug/kg  | Q    | 08/28/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 310    | 31  | 74  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 87     | 31  | 74  |     | 50   | ug/kg  |      | 08/28/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 82     | 62  | 150 |     | 50   | ug/kg  | Q    | 08/28/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 103    |     |     |     | 1    | %Recov |      | 08/28/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 08/28/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 310    | 9.1 | 30  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 150    | 9.8 | 33  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | 350    | 14  | 48  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 23   | 23  | 78  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 14   | 14  | 48  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 7.8  | 7.8 | 26  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 7.8  | 7.8 | 26  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 8.5  | 8.5 | 28  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 16   | 16  | 52  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 12   | 12  | 39  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 9.0  | 9.0 | 30  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 9.6  | 9.6 | 32  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 10   | 10  | 35  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | 77     | 7.8 | 26  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 14   | 14  | 48  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 1600   | 9.8 | 33  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | < 10   | 10  | 35  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 17   | 17  | 56  |     | 1    | ug/kg  |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 58     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 55     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 70     |     |     |     | 1    | %Recov |      | 08/30/03      | SW846 3545  | 8270C-SIM       |

## Qualifier Codes

| Flag | Applies To | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A    | Inorganic  | Analyte is detected in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.                                                                                                                 |
| B    | Inorganic  | The analyte has been detected between the method detection limit and the reporting limit.                                                                                                                                                                                                                                                                                                                                    |
| B    | Organic    | Analyte is present in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.                                                                                                                  |
| C    | All        | Elevated detection limit.                                                                                                                                                                                                                                                                                                                                                                                                    |
| D    | All        | Analyte value from diluted analysis or surrogate result not applicable due to sample dilution.                                                                                                                                                                                                                                                                                                                               |
| E    | Inorganic  | Estimated concentration due to matrix interferences. During the metals analysis using the inductively coupled plasma (ICP), the serial dilution failed to meet the established control limits of 0-10% and the sample concentration is greater than 50 times the IDL (100 times the IDL for analysis done on the ICP-MS). The result was flagged with the E qualifier to indicate that a physical interference was observed. |
| E    | Organic    | Analyte concentration exceeds calibration range.                                                                                                                                                                                                                                                                                                                                                                             |
| F    | Inorganic  | Due to potential interferences for this analysis by Inductively Coupled Plasma techniques (SW-846 Method 6010), this analyte has been confirmed by and reported from an alternate method.                                                                                                                                                                                                                                    |
| F    | Organic    | Surrogate results outside control criteria.                                                                                                                                                                                                                                                                                                                                                                                  |
| H    | All        | Preservation, extraction or analysis performed past holding time.                                                                                                                                                                                                                                                                                                                                                            |
| J    | Inorganic  | The analyte has been detected between the method detection limit and the reporting limit.                                                                                                                                                                                                                                                                                                                                    |
| J    | Organic    | Concentration detected is greater than the method detection limit but less than the reporting limit.                                                                                                                                                                                                                                                                                                                         |
| K    | Inorganic  | Sample received unpreserved. Sample was either preserved at the time of receipt or at the time of sample preparation.                                                                                                                                                                                                                                                                                                        |
| K    | Organic    | Detection limit may be elevated due to the presence of an unrequested analyte.                                                                                                                                                                                                                                                                                                                                               |
| L    | All        | Elevated detection limit due to low sample volume.                                                                                                                                                                                                                                                                                                                                                                           |
| N    | All        | Spiked sample recovery not within control limits.                                                                                                                                                                                                                                                                                                                                                                            |
| P    | Organic    | The relative percent difference between the two columns for detected concentrations was greater than 40%.                                                                                                                                                                                                                                                                                                                    |
| Q    | All        | The analyte has been detected between the limit of detection (LOD) and limit of quantitation (LOQ). The results are qualified due to the uncertainty of analyte concentrations within this range.                                                                                                                                                                                                                            |
| S    | Organic    | The relative percent difference between quantitation and confirmation columns exceeds internal quality control criteria. Because the result is unconfirmed, it has been reported as a non-detect with an elevated detection limit.                                                                                                                                                                                           |
| U    | All        | The analyte was not detected at or above the reporting limit.                                                                                                                                                                                                                                                                                                                                                                |
| V    | All        | Sample received with headspace.                                                                                                                                                                                                                                                                                                                                                                                              |
| W    | All        | A second aliquot of sample was analyzed from a container with headspace.                                                                                                                                                                                                                                                                                                                                                     |
| X    | All        | See Sample Narrative.                                                                                                                                                                                                                                                                                                                                                                                                        |
| &    | All        | Laboratory Control Spike recovery not within control limits.                                                                                                                                                                                                                                                                                                                                                                 |
| *    | All        | Precision not within control limits.                                                                                                                                                                                                                                                                                                                                                                                         |
| <    | All        | The analyte was not detected at or above the reporting limit.                                                                                                                                                                                                                                                                                                                                                                |
| 1    | Inorganic  | Dissolved analyte or filtered analyte greater than total analyte; analyses passed QC based on precision criteria.                                                                                                                                                                                                                                                                                                            |
| 2    | Inorganic  | Dissolved analyte or filtered analyte greater than total analyte; analyses failed QC based on precision criteria.                                                                                                                                                                                                                                                                                                            |
| 3    | Inorganic  | BOD result is estimated due to the BOD blank exceeding the allowable oxygen depletion.                                                                                                                                                                                                                                                                                                                                       |
| 4    | Inorganic  | BOD duplicate precision not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                        |
| 5    | Inorganic  | BOD result is estimated due to insufficient oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                             |
| 6    | Inorganic  | BOD laboratory control sample not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                  |
| 7    | Inorganic  | BOD result is estimated due to complete oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                 |

| Test Group Name | 838082-001 | 838082-002 | 838082-003 | 838082-004 | 838082-005 | 838082-006 | 838082-007 | 838082-008 | 838082-009 |
|-----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| ARSENIC         |            |            | G          |            | G          |            |            |            |            |
| BARIUM          |            |            | G          |            | G          |            |            |            |            |
| CADMIUM         |            |            | G          |            | G          |            |            |            |            |
| CHROMIUM        |            |            | G          |            | G          |            |            |            |            |
| CYANIDE, TOTAL  | K          | K          | K          | K          | K          | K          | K          | K          | K          |
| LEAD            |            |            | G          |            | G          |            |            |            |            |
| MERCURY         |            |            | G          |            | G          |            |            |            |            |
| PAH/PNA         | G          | G          | G          | G          | G          | G          | G          | G          | G          |
| PERCENT SOLIDS  | G          | G          | G          | G          | G          | G          | G          | G          | G          |
| PVOC            | G          | G          | G          | G          | G          | G          | G          | G          | G          |
| SELENIUM        |            |            | G          |            | G          |            |            |            |            |
| SILVER          |            |            | G          |            | G          |            |            |            |            |
| SULFIDE         | S          | S          | S          | S          | S          | S          | S          | S          | S          |
| SULFUR          | S          | S          | S          | S          | S          | S          | S          | S          | S          |

## Wisconsin Certification

|                            |                               |
|----------------------------|-------------------------------|
| G = En Chem Green Bay      | 405132750 / DATCP: 105 000444 |
| K = En Chem Kimberly       | 445134030                     |
| S = Subcontracted Analysis |                               |

# En Chem, Inc. Cooler Receipt Log

Batch No. 838082

Project Name or ID Two Rivers

No. of Coolers: 1

Temps: ROF

A. Receipt Phase: Date cooler was opened: 8/26/03 By: CX

- 1: Were samples received on ice? (Must be  $\leq 6^{\circ}\text{C}$ ).....YES NO<sup>2</sup>
- 2: Was there a Temperature Blank?.....YES ~~NO~~ 8/26/03 CX
- 3: Were custody seals present and intact? (Record on COC).....YES NO
- 4: Are COC documents present?.....YES NO<sup>2</sup>
- 5: Does this Project require quick turn around analysis?.....YES ~~NO~~
- 6: Is there any sub-work?.....YES NO
- 7: Are there any short hold time tests?.....YES ~~NO~~
- 8: Are any samples nearing expiration of hold-time? (Within 2 days).....YES<sup>1</sup> ~~NO~~ Contacted by/Who \_\_\_\_\_
- 9: Do any samples need to be Filtered or Preserved in the lab?.....YES<sup>1</sup> ~~NO~~ Contacted by/Who \_\_\_\_\_

B. Check-in Phase: Date samples were Checked-in: 8/26/03 By: CX

- 1: Were all sample containers listed on the COC received and intact?.....YES NO<sup>2</sup> NA
- 2: Sign the COC as received by En Chem. Completed.....YES NO
- 3: Do sample labels match the COC? .....YES NO<sup>2</sup>
- 4: Completed pH check on preserved samples. ....YES NO ~~NA~~  
(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)
- 5: Do samples have correct chemical preservation?.....YES NO<sup>2</sup> ~~NA~~  
(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)
- 6: Are dissolved parameters field filtered?.....YES NO<sup>2</sup> ~~NA~~
- 7: Are sample volumes adequate for tests requested? .....YES NO<sup>2</sup>
- 8: Are VOC samples free of bubbles >6mm .....YES NO<sup>2</sup> ~~NA~~
- 9: Enter samples into logbook. Completed.....YES NO
- 10: Place laboratory sample number on all containers and COC. Completed.....YES NO
- 11: Complete Laboratory Tracking Sheet (LTS). Completed.....YES NO ~~NA~~
- 12: Start Nonconformance form. ....YES NO ~~NA~~
- 13: Initiate Subcontracting procedure. Completed.....YES NO NA
- 14: Check laboratory sample number on all containers and COC. ....JR YES NO NA

## Short Hold-time tests:

|                              |                                   |                                        |
|------------------------------|-----------------------------------|----------------------------------------|
| 48 Hours or less             | 7 days                            | Footnotes                              |
| Coliform (6 hrs)             | Flashpoint                        | 1 Notify proper lab group immediately. |
| Hexavalent Chromium (24 Hrs) | TSS                               | 2 Complete nonconformance memo.        |
| BOD                          | Total Solids                      |                                        |
| Nitrite or Nitrate           | TDS                               |                                        |
| Low Level Mercury            | Sulfide                           |                                        |
| Ortho Phosphorus             | Free Liquids                      |                                        |
| Turbidity                    | Total Volatile Solids             |                                        |
| Surfactants                  | Aqueous Extractable Organics- ALL |                                        |
| Sulfite                      | Unpreserved VOC's                 |                                        |
| En Core Preservation         | Ash                               |                                        |
| Color                        |                                   |                                        |

Rev. 4/11/03, Attachment to 1-REC-5.  
Subject to QA Audit.

Reviewed by/date EB 8/28/03







Corporate Office & Laboratory  
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920-469-2436, 800-7-ENCHEM, Fax: 920-469-8827  
[www.enchem.com](http://www.enchem.com)

## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Project Name : TWO RIVERS

Project Number : 1569

| Lab Sample<br>Number | Field ID          | Matrix | Collection<br>Date |
|----------------------|-------------------|--------|--------------------|
| 838182-001           | SB626 (16.5-20)   | SOIL   | 08/26/03           |
| 838182-002           | SB626 (12-15)     | SOIL   | 08/26/03           |
| 838182-003           | SB628 (13.5-16.5) | SOIL   | 08/26/03           |
| 838182-004           | SB627 (9.75-14)   | SOIL   | 08/26/03           |
| 838182-005           | SB629 (14-17.5)   | SOIL   | 08/27/03           |
| 838182-006           | SB630 (14-18)     | SOIL   | 08/27/03           |
| 838182-007           | SB631 (8.5-14)    | SOIL   | 08/27/03           |
| 838182-008           | SB632 (10.5-13.5) | SOIL   | 08/27/03           |
| 838182-009           | SB633 (14.5-19.5) | SOIL   | 08/27/03           |
| 838182-010           | SB634 (7-8)       | SOIL   | 08/27/03           |

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. Reported results shall not be reproduced, except in full, without the written approval of the lab. The sample results relate only to the analytes of interest tested.

Approval Signature

9/17/03

Date

## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/26/03

Project Number : 1569

Report Date : 09/17/03

Field ID : SB626 (16.5-20)

Lab Sample Number : 838182-001

## INORGANICS

| Test                        | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Weak & Dissociable | < 0.13 | 0.13 | 0.44 |     | 1    | mg/Kg |      | 09/10/03      | SM 4500-CN  | SM 4500-CN      |
| Percent Solids              | 79.3   |      |      |     | 1    | %     |      | 08/28/03      | SM 2540G M  | SM 2540G M      |
| Sulfide                     | < 32   | 32   | 110  |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur                      | 100    | 100  | 330  |     | 1    | mg/kg | Q    | 09/04/03      | 9038        | 9038            |

## PVOC

Prep Date: 09/02/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 82     | 32  | 76  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 35     | 32  | 76  |     | 50   | ug/kg  | Q    | 09/02/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 36     | 32  | 76  |     | 50   | ug/kg  | Q    | 09/02/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 200    | 32  | 76  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 54     | 32  | 76  |     | 50   | ug/kg  | Q    | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 120    | 63  | 150 |     | 50   | ug/kg  | Q    | 09/02/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 103    |     |     |     | 1    | %Recov |      | 09/02/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 09/02/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 970    | 18  | 59  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 1300   | 19  | 63  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | 290    | 28  | 92  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | 730    | 45  | 150 |     | 1    | ug/kg  | *    | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | 160    | 28  | 92  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | 68     | 15  | 50  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | 51     | 15  | 50  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | 27     | 16  | 55  |     | 1    | ug/kg  | Q    | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | 33     | 30  | 100 |     | 1    | ug/kg  | Q    | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | 34     | 23  | 76  |     | 1    | ug/kg  | Q    | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | 64     | 17  | 58  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 19   | 19  | 62  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | 180    | 20  | 67  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | 180    | 15  | 50  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 28   | 28  | 92  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 2200   | 19  | 63  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | 580    | 20  | 67  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | 280    | 33  | 110 |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 46     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 63     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 73     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/26/03

Project Number : 1569

Report Date : 09/17/03

Field ID : SB626 (12-15)

Lab Sample Number : 838182-002

## INORGANICS

| Test                        | Result  | LOD    | LOQ    | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|---------|--------|--------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic                     | 0.61    | 0.13   | 0.42   |     | 5    | mg/Kg |      | 09/03/03      | SW846 3050B | SW846 6020      |
| Barium                      | 9.1     | 0.080  | 0.27   |     | 5    | mg/Kg |      | 09/03/03      | SW846 3050B | SW846 6020      |
| Cadmium                     | < 0.045 | 0.045  | 0.15   |     | 5    | mg/Kg |      | 09/03/03      | SW846 3050B | SW846 6020      |
| Chromium                    | 4.1     | 0.12   | 0.39   |     | 5    | mg/Kg |      | 09/03/03      | SW846 3050B | SW846 6020      |
| Lead                        | 1.2     | 0.038  | 0.12   |     | 5    | mg/Kg |      | 09/03/03      | SW846 3050B | SW846 6020      |
| Mercury                     | 0.0045  | 0.0020 | 0.0066 |     | 1    | mg/Kg | Q    | 09/04/03      | SW846 7471A | SW846 7471A     |
| Selenium                    | 0.43    | 0.25   | 0.84   |     | 5    | mg/Kg | Q    | 09/03/03      | SW846 3050B | SW846 6020      |
| Silver                      | < 0.026 | 0.026  | 0.086  |     | 5    | mg/Kg |      | 09/03/03      | SW846 3050B | SW846 6020      |
| Cyanide, Weak & Dissociable | < 0.14  | 0.14   | 0.46   |     | 1    | mg/Kg |      | 09/10/03      | SM 4500-CN  | SM 4500-CN      |
| Percent Solids              | 76.0    |        |        |     | 1    | %     |      | 08/28/03      | SM 2540G M  | SM 2540G M      |
| Sulfide                     | < 31    | 31     | 100    |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur                      | 200     | 100    | 330    |     | 1    | mg/kg | Q    | 09/04/03      | 9038        | 9038            |

## PVOC

Prep Date: 09/02/03

| Analyte                 | Result | LOD  | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|------|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 47000  | 820  | 2000 |     | 1250 | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 14000  | 820  | 2000 |     | 1250 | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 4200   | 820  | 2000 |     | 1250 | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 130000 | 820  | 2000 |     | 1250 | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 620  | 620  | 1500 |     | 1250 | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 14000  | 820  | 2000 |     | 1250 | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 37000  | 820  | 2000 |     | 1250 | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 73000  | 1600 | 3900 |     | 1250 | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 105    |      |      |     | 1    | %Recov |      | 09/02/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 09/04/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 420000  | 9200  | 31000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 510000  | 9900  | 33000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | 380000  | 14000 | 48000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | 51000   | 24000 | 79000 |     | 500  | ug/kg | Q    | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | 210000  | 14000 | 48000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | 78000   | 7900  | 26000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | 75000   | 7900  | 26000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | 25000   | 8500  | 28000 |     | 500  | ug/kg | Q    | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | 28000   | 16000 | 53000 |     | 500  | ug/kg | Q    | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | 56000   | 12000 | 39000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | 87000   | 9100  | 30000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 9700  | 9700  | 32000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | 180000  | 11000 | 35000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | 200000  | 7900  | 26000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | 26000   | 14000 | 48000 |     | 500  | ug/kg | Q    | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 1.1E+06 | 9900  | 33000 |     | 500  | ug/kg |      | 09/11/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/26/03

Project Number : 1569

Report Date : 09/17/03

Field ID : SB626 (12-15)

Lab Sample Number : 838182-002

## PAH/PNA

Prep Date: 09/04/03

| Analyte          | Result | LOD   | LOQ   | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------|--------|-------|-------|-----|------|--------|------|---------------|-------------|-----------------|
| Phenanthrene     | 540000 | 11000 | 35000 |     | 500  | ug/kg  |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Pyrene           | 280000 | 17000 | 57000 |     | 500  | ug/kg  |      | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5  | < NA   |       |       |     | 1    | %Recov | D    | 09/11/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl | < NA   |       |       |     | 1    | %Recov | D    | 09/11/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14    | < NA   |       |       |     | 1    | %Recov | D    | 09/11/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/26/03

Project Number : 1569

Report Date : 09/17/03

Field ID : SB628 (13.5-16.5)

Lab Sample Number : 838182-003

## INORGANICS

| Test                        | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Weak & Dissociable | < 0.13 | 0.13 | 0.43 |     | 1    | mg/Kg |      | 09/10/03      | SM 4500-CN  | SM 4500-CN      |
| Percent Solids              | 82.1   |      |      |     | 1    | %     |      | 08/28/03      | SM 2540G M  | SM 2540G M      |
| Sulfide                     | < 31   | 31   | 100  |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur                      | < 100  | 100  | 330  |     | 1    | mg/kg |      | 09/04/03      | 9038        | 9038            |

## PVOC

Prep Date: 09/02/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 2100   | 30  | 73  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 1800   | 30  | 73  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 99     | 30  | 73  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 110    | 61  | 150 |     | 50   | ug/kg  | Q    | 09/02/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 100    |     |     |     | 1    | %Recov |      | 09/02/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 09/04/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 8.7    | 8.5 | 28  |     | 1    | ug/kg  | Q    | 09/06/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 13     | 9.1 | 30  |     | 1    | ug/kg  | Q    | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | < 13   | 13  | 45  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | 26     | 22  | 73  |     | 1    | ug/kg  | Q    | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 13   | 13  | 45  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | 59     | 7.3 | 24  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | 78     | 7.3 | 24  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | 47     | 7.9 | 26  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | 45     | 15  | 49  |     | 1    | ug/kg  | Q    | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | 50     | 11  | 37  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | 67     | 8.4 | 28  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 9.0  | 9.0 | 30  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | 64     | 9.7 | 32  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 7.3  | 7.3 | 24  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | 30     | 13  | 45  |     | 1    | ug/kg  | Q    | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 83     | 9.1 | 30  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | 24     | 9.7 | 32  |     | 1    | ug/kg  | Q    | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | 120    | 16  | 53  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 65     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 64     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 74     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/26/03

Project Number : 1569

Report Date : 09/17/03

Field ID : SB627 (9.75-14)

Lab Sample Number : 838182-004

## INORGANICS

| Test                        | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Weak & Dissociable | < 0.13 | 0.13 | 0.45 |     | 1    | mg/Kg |      | 09/10/03      | SM 4500-CN  | SM 4500-CN      |
| Percent Solids              | 78.5   |      |      |     | 1    | %     |      | 08/28/03      | SM 2540G M  | SM 2540G M      |
| Sulfide                     | < 31   | 31   | 100  |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur                      | < 100  | 100  | 330  |     | 1    | mg/kg |      | 09/04/03      | 9038        | 9038            |

## PVOC

Prep Date: 09/02/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 200    | 32  | 76  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 220    | 32  | 76  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 73     | 32  | 76  |     | 50   | ug/kg  | Q    | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 80     | 64  | 150 |     | 50   | ug/kg  | Q    | 09/02/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 104    |     |     |     | 1    | %Recov |      | 09/02/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 09/04/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 8.9  | 8.9 | 30  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | < 9.6  | 9.6 | 32  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | < 14   | 14  | 47  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 23   | 23  | 76  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 14   | 14  | 47  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 7.6  | 7.6 | 25  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 7.6  | 7.6 | 25  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 8.3  | 8.3 | 28  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 15   | 15  | 51  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 11   | 11  | 38  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 8.8  | 8.8 | 29  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 9.4  | 9.4 | 31  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 10   | 10  | 34  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 7.6  | 7.6 | 25  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 14   | 14  | 47  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 58     | 9.6 | 32  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | 11     | 10  | 34  |     | 1    | ug/kg  | Q    | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 17   | 17  | 55  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 55     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 55     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 69     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/27/03

Project Number : 1569

Report Date : 09/17/03

Field ID : SB629 (14-17.5)

Lab Sample Number : 838182-005

## INORGANICS

| Test                        | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Weak & Dissociable | < 0.13 | 0.13 | 0.44 |     | 1    | mg/Kg |      | 09/10/03      | SM 4500-CN  | SM 4500-CN      |
| Percent Solids              | 79.8   |      |      |     | 1    | %     |      | 08/28/03      | SM 2540G M  | SM 2540G M      |
| Sulfide                     | < 30   | 30   | 100  |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur                      | 300    | 100  | 330  |     | 1    | mg/kg | Q    | 09/04/03      | 9038        | 9038            |

## PVOC

Prep Date: 09/02/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 92     | 31  | 75  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 370    | 31  | 75  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 350    | 31  | 75  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 87     | 31  | 75  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 50   | 50  | 120 |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 103    |     |     |     | 1    | %Recov |      | 09/02/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 09/04/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 290    | 18  | 58  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 120    | 19  | 63  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | 240    | 28  | 92  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 45   | 45  | 150 |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 28   | 28  | 92  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 15   | 15  | 50  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 15   | 15  | 50  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 16   | 16  | 54  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 30   | 30  | 100 |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 23   | 23  | 75  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 17   | 17  | 58  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 19   | 19  | 62  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 20   | 20  | 67  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 15   | 15  | 50  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 28   | 28  | 92  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 550    | 19  | 63  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | < 20   | 20  | 67  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 33   | 33  | 110 |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 62     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 68     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 76     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/27/03

Project Number : 1569

Report Date : 09/17/03

Field ID : SB630 (14-18)

Lab Sample Number : 838182-006

## INORGANICS

| Test                        | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Weak & Dissociable | < 0.13 | 0.13 | 0.43 |     | 1    | mg/Kg |      | 09/10/03      | SM 4500-CN  | SM 4500-CN      |
| Percent Solids              | 80.7   |      |      |     | 1    | %     |      | 08/28/03      | SM 2540G M  | SM 2540G M      |
| Sulfide                     | < 39   | 39   | 130  |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur                      | 100    | 100  | 330  |     | 1    | mg/kg | Q    | 09/04/03      | 9038        | 9038            |

## PVOC

Prep Date: 09/02/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 34     | 31  | 74  |     | 50   | ug/kg  | Q    | 09/02/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 2400   | 31  | 74  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 1600   | 31  | 74  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 47     | 31  | 74  |     | 50   | ug/kg  | Q    | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 430    | 31  | 74  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 450    | 62  | 150 |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 101    |     |     |     | 1    | %Recov |      | 09/02/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 09/04/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 8.7  | 8.7 | 29  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | < 9.3  | 9.3 | 31  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | < 14   | 14  | 45  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 22   | 22  | 74  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 14   | 14  | 45  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 7.4  | 7.4 | 25  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 7.4  | 7.4 | 25  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 8.1  | 8.1 | 27  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 15   | 15  | 50  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 11   | 11  | 37  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 8.5  | 8.5 | 28  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 9.2  | 9.2 | 31  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 9.9  | 9.9 | 33  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 7.4  | 7.4 | 25  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 14   | 14  | 45  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 340    | 9.3 | 31  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | < 9.9  | 9.9 | 33  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 16   | 16  | 54  |     | 1    | ug/kg  |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 65     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 67     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 82     |     |     |     | 1    | %Recov |      | 09/06/03      | SW846 3545  | 8270C-SIM       |



## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/27/03

Project Number : 1569

Report Date : 09/17/03

Field ID : SB631 (8.5-14)

Lab Sample Number : 838182-007

## INORGANICS

| Test                        | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Weak & Dissociable | < 0.13 | 0.13 | 0.43 |     | 1    | mg/Kg |      | 09/10/03      | SM 4500-CN  | SM 4500-CN      |
| Percent Solids              | 80.8   |      |      |     | 1    | %     |      | 08/28/03      | SM 2540G M  | SM 2540G M      |
| Sulfide                     | < 36   | 36   | 120  |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur                      | < 100  | 100  | 330  |     | 1    | mg/kg |      | 09/04/03      | 9038        | 9038            |

## PVOC

Prep Date: 09/02/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 50   | 50  | 120 |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 104    |     |     |     | 1    | %Recov |      | 09/02/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 09/04/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 8.7  | 8.7 | 29  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | < 9.3  | 9.3 | 31  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | < 14   | 14  | 45  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 22   | 22  | 74  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 14   | 14  | 45  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 7.4  | 7.4 | 25  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 7.4  | 7.4 | 25  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 8.0  | 8.0 | 27  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 15   | 15  | 50  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 11   | 11  | 37  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 8.5  | 8.5 | 28  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 9.2  | 9.2 | 31  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 9.9  | 9.9 | 33  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 7.4  | 7.4 | 25  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 14   | 14  | 45  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | < 9.3  | 9.3 | 31  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | < 9.9  | 9.9 | 33  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 16   | 16  | 54  |     | 1    | ug/kg  |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 76     |     |     |     | 1    | %Recov |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 73     |     |     |     | 1    | %Recov |      | 09/04/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 76     |     |     |     | 1    | %Recov |      | 09/04/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/27/03

Project Number : 1569

Report Date : 09/17/03

Field ID : SB632 (10.5-13.5)

Lab Sample Number : 838182-008

## INORGANICS

| Test                        | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Weak & Dissociable | < 0.13 | 0.13 | 0.44 |     | 1    | mg/Kg |      | 09/10/03      | SM 4500-CN  | SM 4500-CN      |
| Percent Solids              | 79.8   |      |      |     | 1    | %     |      | 08/28/03      | SM 2540G M  | SM 2540G M      |
| Sulfide                     | < 36   | 36   | 120  |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur                      | 420    | 100  | 330  |     | 1    | mg/kg |      | 09/04/03      | 9038        | 9038            |

## PVOC

Prep Date: 09/02/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 50   | 50  | 120 |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 103    |     |     |     | 1    | %Recov |      | 09/02/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 09/04/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 8.8  | 8.8 | 29  |     | 1    | ug/kg  | *    | 09/09/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | < 9.4  | 9.4 | 31  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | < 14   | 14  | 46  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 23   | 23  | 75  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 14   | 14  | 46  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 7.5  | 7.5 | 25  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 7.5  | 7.5 | 25  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 8.1  | 8.1 | 27  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 15   | 15  | 50  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 11   | 11  | 38  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 8.6  | 8.6 | 29  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 9.3  | 9.3 | 31  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 10   | 10  | 33  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 7.5  | 7.5 | 25  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 14   | 14  | 46  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | < 9.4  | 9.4 | 31  |     | 1    | ug/kg  | &*   | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | < 10   | 10  | 33  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 16   | 16  | 54  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 43     |     |     |     | 1    | %Recov |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 64     |     |     |     | 1    | %Recov |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 82     |     |     |     | 1    | %Recov |      | 09/09/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/27/03

Project Number : 1569

Report Date : 09/17/03

Field ID : SB633 (14.5-19.5)

Lab Sample Number : 838182-009

## INORGANICS

| Test                        | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Cyanide, Weak & Dissociable | < 0.13 | 0.13 | 0.43 |     | 1    | mg/Kg |      | 09/10/03      | SM 4500-CN  | SM 4500-CN      |
| Percent Solids              | 80.5   |      |      |     | 1    | %     |      | 08/28/03      | SM 2540G M  | SM 2540G M      |
| Sulfide                     | < 33   | 33   | 110  |     | 1    | mg/kg |      | 09/03/03      | 9034/9030B  | 9034/9030B      |
| Sulfur                      | 330    | 100  | 330  |     | 1    | mg/kg |      | 09/04/03      | 9038        | 9038            |

## PVOC

Prep Date: 09/02/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 110    | 31  | 75  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 50   | 50  | 120 |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 104    |     |     |     | 1    | %Recov |      | 09/02/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 09/10/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 8.7  | 8.7 | 29  |     | 1    | ug/kg  | *    | 09/10/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | < 9.3  | 9.3 | 31  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | < 14   | 14  | 46  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 22   | 22  | 75  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 14   | 14  | 46  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 7.5  | 7.5 | 25  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 7.5  | 7.5 | 25  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 8.1  | 8.1 | 27  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 15   | 15  | 50  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 11   | 11  | 37  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 8.6  | 8.6 | 29  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 9.2  | 9.2 | 31  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 9.9  | 9.9 | 33  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 7.5  | 7.5 | 25  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 14   | 14  | 46  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | 68     | 9.3 | 31  |     | 1    | ug/kg  | &*   | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | 10     | 9.9 | 33  |     | 1    | ug/kg  | Q    | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 16   | 16  | 54  |     | 1    | ug/kg  |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 53     |     |     |     | 1    | %Recov |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 60     |     |     |     | 1    | %Recov |      | 09/10/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 63     |     |     |     | 1    | %Recov |      | 09/10/03      | SW846 3545  | 8270C-SIM       |

## Analytical Report Number: 838182

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 08/27/03

Project Number : 1569

Report Date : 09/17/03

Field ID : SB634 (7-8)

Lab Sample Number : 838182-010

## INORGANICS

| Test           | Result | LOD | LOQ | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------|--------|-----|-----|-----|------|-------|------|---------------|-------------|-----------------|
| Percent Solids | 79.4   |     |     |     | 1    | %     |      | 08/28/03      | SM 2540G M  | SM 2540G M      |

## PVOC

Prep Date: 09/02/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 25   | 25  | 60  |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 50   | 50  | 120 |     | 50   | ug/kg  |      | 09/02/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 105    |     |     |     | 1    | %Recov |      | 09/02/03      | SW846 5030B | SW846 M8021     |

## PAH/PNA

Prep Date: 09/04/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 10     | 8.8 | 29  |     | 1    | ug/kg  | Q*   | 09/09/03      | SW846 3545  | 8270C-SIM       |
| 2-Methylnaphthalene    | 18     | 9.4 | 31  |     | 1    | ug/kg  | Q    | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthene           | < 14   | 14  | 46  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Acenaphthylene         | < 23   | 23  | 76  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Anthracene             | < 14   | 14  | 46  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)anthracene     | < 7.6  | 7.6 | 25  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Benzo(a)pyrene         | < 7.6  | 7.6 | 25  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 8.2  | 8.2 | 27  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Benzo(ghi)perylene     | < 15   | 15  | 50  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 11   | 11  | 38  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Chrysene               | < 8.7  | 8.7 | 29  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 9.3  | 9.3 | 31  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Fluoranthene           | < 10   | 10  | 34  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Fluorene               | < 7.6  | 7.6 | 25  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 14   | 14  | 46  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Naphthalene            | < 9.4  | 9.4 | 31  |     | 1    | ug/kg  | &*   | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Phenanthrene           | < 10   | 10  | 34  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Pyrene                 | < 16   | 16  | 55  |     | 1    | ug/kg  |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Nitrobenzene-d5        | 45     |     |     |     | 1    | %Recov |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| 2-Fluorobiphenyl       | 55     |     |     |     | 1    | %Recov |      | 09/09/03      | SW846 3545  | 8270C-SIM       |
| Terphenyl-d14          | 80     |     |     |     | 1    | %Recov |      | 09/09/03      | SW846 3545  | 8270C-SIM       |

## Qualifier Codes

| Flag | Applies To | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A    | Inorganic  | Analyte is detected in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.                                                                                                                 |
| B    | Inorganic  | The analyte has been detected between the method detection limit and the reporting limit.                                                                                                                                                                                                                                                                                                                                    |
| B    | Organic    | Analyte is present in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.                                                                                                                  |
| C    | All        | Elevated detection limit.                                                                                                                                                                                                                                                                                                                                                                                                    |
| D    | All        | Analyte value from diluted analysis or surrogate result not applicable due to sample dilution.                                                                                                                                                                                                                                                                                                                               |
| E    | Inorganic  | Estimated concentration due to matrix interferences. During the metals analysis using the inductively coupled plasma (ICP), the serial dilution failed to meet the established control limits of 0-10% and the sample concentration is greater than 50 times the IDL (100 times the IDL for analysis done on the ICP-MS). The result was flagged with the E qualifier to indicate that a physical interference was observed. |
| E    | Organic    | Analyte concentration exceeds calibration range.                                                                                                                                                                                                                                                                                                                                                                             |
| F    | Inorganic  | Due to potential interferences for this analysis by Inductively Coupled Plasma techniques (SW-846 Method 6010), this analyte has been confirmed by and reported from an alternate method.                                                                                                                                                                                                                                    |
| F    | Organic    | Surrogate results outside control criteria.                                                                                                                                                                                                                                                                                                                                                                                  |
| H    | All        | Preservation, extraction or analysis performed past holding time.                                                                                                                                                                                                                                                                                                                                                            |
| J    | Inorganic  | The analyte has been detected between the method detection limit and the reporting limit.                                                                                                                                                                                                                                                                                                                                    |
| J    | Organic    | Concentration detected is greater than the method detection limit but less than the reporting limit.                                                                                                                                                                                                                                                                                                                         |
| K    | Inorganic  | Sample received unpreserved. Sample was either preserved at the time of receipt or at the time of sample preparation.                                                                                                                                                                                                                                                                                                        |
| K    | Organic    | Detection limit may be elevated due to the presence of an unrequested analyte.                                                                                                                                                                                                                                                                                                                                               |
| L    | All        | Elevated detection limit due to low sample volume.                                                                                                                                                                                                                                                                                                                                                                           |
| N    | All        | Spiked sample recovery not within control limits.                                                                                                                                                                                                                                                                                                                                                                            |
| P    | Organic    | The relative percent difference between the two columns for detected concentrations was greater than 40%.                                                                                                                                                                                                                                                                                                                    |
| Q    | All        | The analyte has been detected between the limit of detection (LOD) and limit of quantitation (LOQ). The results are qualified due to the uncertainty of analyte concentrations within this range.                                                                                                                                                                                                                            |
| S    | Organic    | The relative percent difference between quantitation and confirmation columns exceeds internal quality control criteria. Because the result is unconfirmed, it has been reported as a non-detect with an elevated detection limit.                                                                                                                                                                                           |
| U    | All        | The analyte was not detected at or above the reporting limit.                                                                                                                                                                                                                                                                                                                                                                |
| V    | All        | Sample received with headspace.                                                                                                                                                                                                                                                                                                                                                                                              |
| W    | All        | A second aliquot of sample was analyzed from a container with headspace.                                                                                                                                                                                                                                                                                                                                                     |
| X    | All        | See Sample Narrative.                                                                                                                                                                                                                                                                                                                                                                                                        |
| &    | All        | Laboratory Control Spike recovery not within control limits.                                                                                                                                                                                                                                                                                                                                                                 |
| *    | All        | Precision not within control limits.                                                                                                                                                                                                                                                                                                                                                                                         |
| <    | All        | The analyte was not detected at or above the reporting limit.                                                                                                                                                                                                                                                                                                                                                                |
| 1    | Inorganic  | Dissolved analyte or filtered analyte greater than total analyte; analyses passed QC based on precision criteria.                                                                                                                                                                                                                                                                                                            |
| 2    | Inorganic  | Dissolved analyte or filtered analyte greater than total analyte; analyses failed QC based on precision criteria.                                                                                                                                                                                                                                                                                                            |
| 3    | Inorganic  | BOD result is estimated due to the BOD blank exceeding the allowable oxygen depletion.                                                                                                                                                                                                                                                                                                                                       |
| 4    | Inorganic  | BOD duplicate precision not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                        |
| 5    | Inorganic  | BOD result is estimated due to insufficient oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                             |
| 6    | Inorganic  | BOD laboratory control sample not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                  |
| 7    | Inorganic  | BOD result is estimated due to complete oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                 |

| Test Group Name             | 838182-001 | 838182-002 | 838182-003 | 838182-004 | 838182-005 | 838182-006 | 838182-007 | 838182-008 | 838182-009 | 838182-010 |
|-----------------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| ARSENIC                     |            | G          |            |            |            |            |            |            |            |            |
| BARIUM                      |            | G          |            |            |            |            |            |            |            |            |
| CADMIUM                     |            | G          |            |            |            |            |            |            |            |            |
| CHROMIUM                    |            | G          |            |            |            |            |            |            |            |            |
| CYANIDE, WEAK & DISSOCIABLE | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          |
| LEAD                        |            | G          |            |            |            |            |            |            |            |            |
| MERCURY                     |            | G          |            |            |            |            |            |            |            |            |
| PAH/PNA                     | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |
| PERCENT SOLIDS              | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |
| PVOC                        | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |
| SELENIUM                    |            | G          |            |            |            |            |            |            |            |            |
| SILVER                      |            | G          |            |            |            |            |            |            |            |            |
| SULFIDE                     | S          | S          | S          | S          | S          | S          | S          | S          | S          | S          |
| SULFUR                      | S          | S          | S          | S          | S          | S          | S          | S          | S          | S          |

## Wisconsin Certification

G = En Chem Green Bay 405132750 / DATCP: 105 000444

K = En Chem Kimberly 445134030

S = Subcontracted Analysis





## Documentation of Subcontracted Analysis

Listed below are labs used for subcontracted analysis and their associated State Certification numbers.

| Analyst Code | Sub-Laboratory              | Wisconsin<br>Cert # | Minnesota<br>Cert # | Phone        |
|--------------|-----------------------------|---------------------|---------------------|--------------|
| *BD          | Badger Labs                 | 445023150           | NA                  | 920-729-1100 |
| *BR          | Braun Intertec Corp         | 999462640           | 027-053-117         | 800-279-6100 |
| *CT          | CT Laboratories             | 157066030           | 07-053-117          | 608-356-2760 |
| *DL          | Daily Lab                   | NA                  | NA                  | 309-691-4513 |
| *ELA         | E-LAB                       | NA                  | NA                  | 616-399-6070 |
| *ECS         | ECCS                        | 113289110           |                     | 608-221-8700 |
| *EHL         | Environmental Health Labs   | 999766900           | 018-999-338         | 574-233-4777 |
| *ERA         | ERA Labs                    | 999446800           | 027-137-152         | 218-727-6380 |
| *NL          | Northern Lake Service       | 721026460           | NA                  | 715-478-2777 |
| *NSA         | North Shore Analytical      | 399017190           | 027-137-389         | 218-729-4658 |
| *PAC         | PACE                        | 999407970           | 027-053-137         | 612-607-1700 |
| *SF          | S-F Analytical              | 241249360           | NA                  | 414-475-6700 |
| *SLH         | State Lab of Hygiene        | 113133790           | NA                  | 800-442-4618 |
| *STC         | STL - Chicago               | 999580010           | 017-999-101         | 708-534-5200 |
| *STS         | STL - Savannah              | 999819810           | NA                  | 912-354-7858 |
| *SUB         | Any lab not on this sheet   | NA                  | NA                  | NA           |
| *TA          | Test America                | 128053530           | 055-999-366         | 800-833-7036 |
| *CQM         | CQM                         | NA                  | NA                  | 920-465-3911 |
| *CTE         | CT&E Environmental Services | 999959180           | NA                  | 231-843-1877 |
| *GLA         | Great Lakes Analytical      | 99991716            | NA                  | 847-808-7766 |
| *USF         | US Filter/Enviroscan        | 737053130           | 055-999-302         | 715-359-7226 |



# En Chem, Inc. Cooler Receipt Log

Batch No. 838182

Project Name or ID Two Rivers

No. of Coolers: 1

Temps: ROI

## A. Receipt Phase: Date cooler was opened:

8/28/03

By: JR

- 1: Were samples received on ice? (Must be  $\leq 6$  C).....YES NO<sup>2</sup>
- 2: Was there a Temperature Blank?.....YES NO
- 3: Were custody seals present and intact? (Record on COC).....YES NO
- 4: Are COC documents present?.....YES NO<sup>2</sup>
- 5: Does this Project require quick turn around analysis?.....YES NO
- 6: Is there any sub-work?.....YES NO JR 8/28/03
- 7: Are there any short hold time tests?.....YES NO
- 8: Are any samples nearing expiration of hold-time? (Within 2 days).....YES<sup>1</sup> NO Contacted by/Who \_\_\_\_\_
- 9: Do any samples need to be Filtered or Preserved in the lab?.....YES<sup>1</sup> NO Contacted by/Who \_\_\_\_\_

## B. Check-in Phase: Date samples were Checked-in:

8/28/03

By: JR

- 1: Were all sample containers listed on the COC received and intact?.....YES NO<sup>2</sup> NA
- 2: Sign the COC as received by En Chem. Completed.....YES NO
- 3: Do sample labels match the COC? .....YES NO<sup>2</sup>
- 4: Completed pH check on preserved samples.....YES NO (NA)
- 5: Do samples have correct chemical preservation?.....YES NO<sup>2</sup> NA  
(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)
- 6: Are dissolved parameters field filtered?.....YES NO<sup>2</sup> (NA)
- 7: Are sample volumes adequate for tests requested? .....YES NO<sup>2</sup>
- 8: Are VOC samples free of bubbles >6mm .....YES NO<sup>2</sup> (NA)
- 9: Enter samples into logbook. Completed.....YES NO
- 10: Place laboratory sample number on all containers and COC. Completed.....YES NO
- 11: Complete Laboratory Tracking Sheet (LTS). Completed.....YES NO (NA)
- 12: Start Nonconformance form. ....YES NO (NA)
- 13: Initiate Subcontracting procedure. Completed.....YES NO NA
- 14: Check laboratory sample number on all containers and COC. ....8/28/03 YES NO NA

### Short Hold-time tests:

|                              |                                   |                                                                                        |
|------------------------------|-----------------------------------|----------------------------------------------------------------------------------------|
| 48 Hours or less             | 7 days                            | Footnotes<br>1 Notify proper lab group immediately.<br>2 Complete nonconformance memo. |
| Coliform (6 hrs)             | Flashpoint                        |                                                                                        |
| Hexavalent Chromium (24 Hrs) | TSS                               |                                                                                        |
| BOD                          | Total Solids                      |                                                                                        |
| Nitrite or Nitrate           | TDS                               |                                                                                        |
| Low Level Mercury            | Sulfide                           |                                                                                        |
| Ortho Phosphorus             | Free Liquids                      |                                                                                        |
| Turbidity                    | Total Volatile Solids             |                                                                                        |
| Surfactants                  | Aqueous Extractable Organics- ALL |                                                                                        |
| Sulfite                      | Unpreserved VOC's                 |                                                                                        |
| En Core Preservation         | Ash                               |                                                                                        |
| Color                        |                                   |                                                                                        |
|                              |                                   |                                                                                        |
|                              |                                   |                                                                                        |
|                              |                                   |                                                                                        |
|                              |                                   |                                                                                        |

Rev. 4/11/03, Attachment to 1-REC-5.  
Subject to QA Audit.

Reviewed by/date JB 9/2/03



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[www.enchem.com](http://www.enchem.com)

## Analytical Report Number: 838344

Client : NATURAL RESOURCE TECH

Project Name : TWO RIVERS

Project Number : 1569

| Lab Sample<br>Number | Field ID              | Matrix | Collection<br>Date |
|----------------------|-----------------------|--------|--------------------|
| 838344-001           | TP-617 (4-6)          | SOIL   | 09/02/03           |
| 838344-002           | TP-616 (3-4)          | SOIL   | 09/02/03           |
| 838344-003           | TP-617 (3-4)          | SOIL   | 09/02/03           |
| 838344-004           | TP-615 (1-3.5)        | SOIL   | 09/02/03           |
| 838344-005           | COMP-TP 615-TP 616    | SOIL   | 09/02/03           |
| 838344-006           | COMP-TP 615, 616, 617 | SOIL   | 09/02/03           |
| 838344-007           | TP-621 (7-9)          | SOIL   | 09/02/03           |
| 838344-008           | TP-618 (4-5)          | SOIL   | 09/02/03           |
| 838344-009           | SB-627 (4-10)         | SOIL   | 09/02/03           |

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. Reported results shall not be reproduced, except in full, without the written approval of the lab. The sample results relate only to the analytes of interest tested.

Approval Signature

9/30/03  
Date

## Analytical Report Number: 838344

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 09/02/03

Project Number : 1569

Report Date : 09/30/03

Field ID : TP-617 (4-6)

Lab Sample Number : 838344-001

## INORGANICS

| Test                  | Result | LOD | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------|--------|-----|------|-----|------|--------|------|---------------|-------------|-----------------|
| British Thermal Units | 340    | 50  | 170  |     | 1    | BTU/lb |      | 09/09/03      | D240        | D240            |
| Percent Solids        | 50.4   |     |      |     | 1    | %      |      | 09/03/03      | SM 2540G M  | SM 2540G M      |
| TOC as NPOC           | 45000  | 380 | 1300 |     | 1    | mg/kg  |      | 09/11/03      | SW846 M9060 | SW846 M9060     |

## Analytical Report Number: 838344

Client : NATURAL RESOURCE TECH

Project Name : TWO RIVERS

Project Number : 1569

Field ID : TP-616 (3-4)

Matrix Type : SOIL

Collection Date : 09/02/03

Report Date : 09/30/03

Lab Sample Number : 838344-002

## INORGANICS

| Test                        | Result  | LOD | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|---------|-----|------|-----|------|--------|------|---------------|-------------|-----------------|
| British Thermal Units       | 1600    | 50  | 170  |     | 1    | BTU/lb |      | 09/09/03      | D240        | D240            |
| Percent Solids              | 42.4    |     |      |     | 1    | %      |      | 09/03/03      | SM 2540G M  | SM 2540G M      |
| TOC as NPOC                 | 99000   | 740 | 2500 |     | 1    | mg/kg  |      | 09/11/03      | SW846 M9060 | SW846 M9060     |
| Special Analytical Services | Attache |     |      |     | 1    |        |      |               |             |                 |

## Analytical Report Number: 838344

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 09/02/03

Project Number : 1569

Report Date : 09/30/03

Field ID : TP-617 (3-4)

Lab Sample Number : 838344-003

## INORGANICS

| Test                        | Result  | LOD  | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|---------|------|------|-----|------|--------|------|---------------|-------------|-----------------|
| British Thermal Units       | 350     | 50   | 170  |     | 1    | BTU/lb |      | 09/09/03      | D240        | D240            |
| Percent Solids              | 80.8    |      |      |     | 1    | %      |      | 09/03/03      | SM 2540G M  | SM 2540G M      |
| TOC as NPOC                 | 130000  | 1400 | 4600 |     | 1    | mg/kg  |      | 09/11/03      | SW846 M9060 | SW846 M9060     |
| Special Analytical Services | Attache |      |      |     | 1    |        |      |               |             |                 |

## Analytical Report Number: 838344

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 09/02/03

Project Number : 1569

Report Date : 09/30/03

Field ID : TP-615 (1-3.5)

Lab Sample Number : 838344-004

## INORGANICS

| Test                        | Result  | LOD  | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|---------|------|------|-----|------|--------|------|---------------|-------------|-----------------|
| British Thermal Units       | 1800    | 50   | 170  |     | 1    | BTU/lb |      | 09/09/03      | D240        | D240            |
| Percent Solids              | 21.5    |      |      |     | 1    | %      |      | 09/03/03      | SM 2540G M  | SM 2540G M      |
| TOC as NPOC                 | 280000  | 1900 | 6400 |     | 1    | mg/kg  |      | 09/11/03      | SW846 M9060 | SW846 M9060     |
| Special Analytical Services | Attache |      |      |     | 1    |        |      |               |             |                 |

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Analytical Report Number: 838344

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 09/02/03

Project Number : 1569

Report Date : 09/30/03

Field ID : COMP-TP 615-TP 616

Lab Sample Number : 838344-005

INORGANICS

| Test                  | Result | LOD | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------|--------|-----|------|-----|------|--------|------|---------------|-------------|-----------------|
| British Thermal Units | 1600   | 50  | 170  |     | 1    | BTU/lb |      | 09/09/03      | D240        | D240            |
| TOC as NPOC           | 140000 | 960 | 3200 |     | 1    | mg/kg  |      | 09/11/03      | SW846 M9060 | SW846 M9060     |

## Analytical Report Number: 838344

Client : NATURAL RESOURCE TECH

Project Name : TWO RIVERS

Project Number : 1569

Field ID : COMP-TP 615, 616, 617

Matrix Type : SOIL

Collection Date : 09/02/03

Report Date : 09/30/03

Lab Sample Number : 838344-006

## INORGANICS

| Test                  | Result | LOD  | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------|--------|------|------|-----|------|--------|------|---------------|-------------|-----------------|
| British Thermal Units | 760    | 50   | 170  |     | 1    | BTU/lb |      | 09/09/03      | D240        | D240            |
| TOC as NPOC           | 120000 | 1600 | 5300 |     | 1    | mg/kg  |      | 09/11/03      | SW846 M9060 | SW846 M9060     |



## Analytical Report Number: 838344

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 09/02/03

Project Number : 1569

Report Date : 09/30/03

Field ID : TP-621 (7-9)

Lab Sample Number : 838344-007

## INORGANICS

| Test                        | Result  | LOD | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|---------|-----|------|-----|------|-------|------|---------------|-------------|-----------------|
| Percent Solids              | 76.6    |     |      |     | 1    | %     |      | 09/03/03      | SM 2540G M  | SM 2540G M      |
| TOC as NPOC                 | 44000   | 440 | 1500 |     | 1    | mg/kg |      | 09/11/03      | SW846 M9060 | SW846 M9060     |
| Special Analytical Services | Attache |     |      |     | 1    |       |      |               |             |                 |

## Analytical Report Number: 838344

Client : NATURAL RESOURCE TECH

Project Name : TWO RIVERS

Project Number : 1569

Field ID : TP-618 (4-5)

Matrix Type : SOIL

Collection Date : 09/02/03

Report Date : 09/30/03

Lab Sample Number : 838344-008

## INORGANICS

| Test                        | Result  | LOD | LOQ | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|---------|-----|-----|-----|------|-------|------|---------------|-------------|-----------------|
| Percent Solids              | 81.0    |     |     |     | 1    | %     |      | 09/03/03      | SM 2540G M  | SM 2540G M      |
| TOC as NPOC                 | 2400    | 280 | 940 |     | 1    | mg/kg |      | 09/11/03      | SW846 M9060 | SW846 M9060     |
| Special Analytical Services | Attache |     |     |     | 1    |       |      |               |             |                 |

## Analytical Report Number: 838344

Client : NATURAL RESOURCE TECH

Matrix Type : SOIL

Project Name : TWO RIVERS

Collection Date : 09/02/03

Project Number : 1569

Report Date : 09/30/03

Field ID : SB-627 (4-10)

Lab Sample Number : 838344-009

## INORGANICS

| Test                        | Result  | LOD | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-----------------------------|---------|-----|------|-----|------|--------|------|---------------|-------------|-----------------|
| British Thermal Units       | 980     | 50  | 170  |     | 1    | BTU/lb |      | 09/09/03      | D240        | D240            |
| Percent Solids              | 77.7    |     |      |     | 1    | %      |      | 09/03/03      | SM 2540G M  | SM 2540G M      |
| TOC as NPOC                 | 54000   | 440 | 1500 |     | 1    | mg/kg  |      | 09/11/03      | SW846 M9060 | SW846 M9060     |
| Special Analytical Services | Attache |     |      |     | 1    |        |      |               |             |                 |

# Qualifier Codes

| Flag | Applies To | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A    | Inorganic  | Analyte is detected in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.                                                                                                                 |
| B    | Inorganic  | The analyte has been detected between the method detection limit and the reporting limit.                                                                                                                                                                                                                                                                                                                                    |
| B    | Organic    | Analyte is present in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.                                                                                                                  |
| C    | All        | Elevated detection limit.                                                                                                                                                                                                                                                                                                                                                                                                    |
| D    | All        | Analyte value from diluted analysis or surrogate result not applicable due to sample dilution.                                                                                                                                                                                                                                                                                                                               |
| E    | Inorganic  | Estimated concentration due to matrix interferences. During the metals analysis using the inductively coupled plasma (ICP), the serial dilution failed to meet the established control limits of 0-10% and the sample concentration is greater than 50 times the IDL (100 times the IDL for analysis done on the ICP-MS). The result was flagged with the E qualifier to indicate that a physical interference was observed. |
| E    | Organic    | Analyte concentration exceeds calibration range.                                                                                                                                                                                                                                                                                                                                                                             |
| F    | Inorganic  | Due to potential interferences for this analysis by Inductively Coupled Plasma techniques (SW-846 Method 6010), this analyte has been confirmed by and reported from an alternate method.                                                                                                                                                                                                                                    |
| F    | Organic    | Surrogate results outside control criteria.                                                                                                                                                                                                                                                                                                                                                                                  |
| H    | All        | Preservation, extraction or analysis performed past holding time.                                                                                                                                                                                                                                                                                                                                                            |
| J    | Inorganic  | The analyte has been detected between the method detection limit and the reporting limit.                                                                                                                                                                                                                                                                                                                                    |
| J    | Organic    | Concentration detected is greater than the method detection limit but less than the reporting limit.                                                                                                                                                                                                                                                                                                                         |
| K    | Inorganic  | Sample received unpreserved. Sample was either preserved at the time of receipt or at the time of sample preparation.                                                                                                                                                                                                                                                                                                        |
| K    | Organic    | Detection limit may be elevated due to the presence of an unrequested analyte.                                                                                                                                                                                                                                                                                                                                               |
| L    | All        | Elevated detection limit due to low sample volume.                                                                                                                                                                                                                                                                                                                                                                           |
| N    | All        | Spiked sample recovery not within control limits.                                                                                                                                                                                                                                                                                                                                                                            |
| P    | Organic    | The relative percent difference between the two columns for detected concentrations was greater than 40%.                                                                                                                                                                                                                                                                                                                    |
| Q    | All        | The analyte has been detected between the limit of detection (LOD) and limit of quantitation (LOQ). The results are qualified due to the uncertainty of analyte concentrations within this range.                                                                                                                                                                                                                            |
| S    | Organic    | The relative percent difference between quantitation and confirmation columns exceeds internal quality control criteria. Because the result is unconfirmed, it has been reported as a non-detect with an elevated detection limit.                                                                                                                                                                                           |
| U    | All        | The analyte was not detected at or above the reporting limit.                                                                                                                                                                                                                                                                                                                                                                |
| V    | All        | Sample received with headspace.                                                                                                                                                                                                                                                                                                                                                                                              |
| W    | All        | A second aliquot of sample was analyzed from a container with headspace.                                                                                                                                                                                                                                                                                                                                                     |
| X    | All        | See Sample Narrative.                                                                                                                                                                                                                                                                                                                                                                                                        |
| &    | All        | Laboratory Control Spike recovery not within control limits.                                                                                                                                                                                                                                                                                                                                                                 |
| *    | All        | Precision not within control limits.                                                                                                                                                                                                                                                                                                                                                                                         |
| <    | All        | The analyte was not detected at or above the reporting limit.                                                                                                                                                                                                                                                                                                                                                                |
| 1    | Inorganic  | Dissolved analyte or filtered analyte greater than total analyte; analyses passed QC based on precision criteria.                                                                                                                                                                                                                                                                                                            |
| 2    | Inorganic  | Dissolved analyte or filtered analyte greater than total analyte; analyses failed QC based on precision criteria.                                                                                                                                                                                                                                                                                                            |
| 3    | Inorganic  | BOD result is estimated due to the BOD blank exceeding the allowable oxygen depletion.                                                                                                                                                                                                                                                                                                                                       |
| 4    | Inorganic  | BOD duplicate precision not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                        |
| 5    | Inorganic  | BOD result is estimated due to insufficient oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                             |
| 6    | Inorganic  | BOD laboratory control sample not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                  |
| 7    | Inorganic  | BOD result is estimated due to complete oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                 |

| Test Group Name       | 838344-001 | 838344-002 | 838344-003 | 838344-004 | 838344-005 | 838344-006 | 838344-007 | 838344-008 | 838344-009 |
|-----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| BRITISH THERMAL UNITS | S          | S          | S          | S          | S          | S          |            |            | S          |
| PERCENT SOLIDS        | G          | G          | G          | G          |            |            | G          | G          | G          |
| SAS                   |            | S          | S          | S          |            |            | S          | S          | S          |
| TOC AS NPOC           | K          | K          | K          | K          | K          | K          | K          | K          | K          |

| Wisconsin Certification    |                               |
|----------------------------|-------------------------------|
| G = En Chem Green Bay      | 405132750 / DATCP: 105 000444 |
| K = En Chem Kimberly       | 445134030                     |
| S = Subcontracted Analysis |                               |

# CQM, INC.

## SIEVE ANALYSIS OF COARSE TO FINE AGGREGATES (ASTM D422)

### GENERAL DATA:

|                        |                     |
|------------------------|---------------------|
| Client:                | EN CHEM, Inc.       |
| Project:               | No. 838344          |
| Location Sampled:      | TP-616              |
| Sample No:             | 838344-002          |
| Depth of Sample:       | 3.0' - 4.0'         |
| Date Received:         | 9/4/03              |
| Sample Designated For: | Soil Classification |
| Source of Sample:      | On Project Site     |
| Munsell Color Code:    | 10YR 2/1            |
| Date Sampled:          | 9/2/03              |

### LABORATORY DATA:

|                    |                     |
|--------------------|---------------------|
| Date Tested:       | September 5-9, 2003 |
| Test Performed By: | KAK                 |

|                      |     |
|----------------------|-----|
| 24 Hrs. Turn Around: | NO  |
| Washed Gradation:    | YES |

Dry Weight of Soil (gms): 190.5

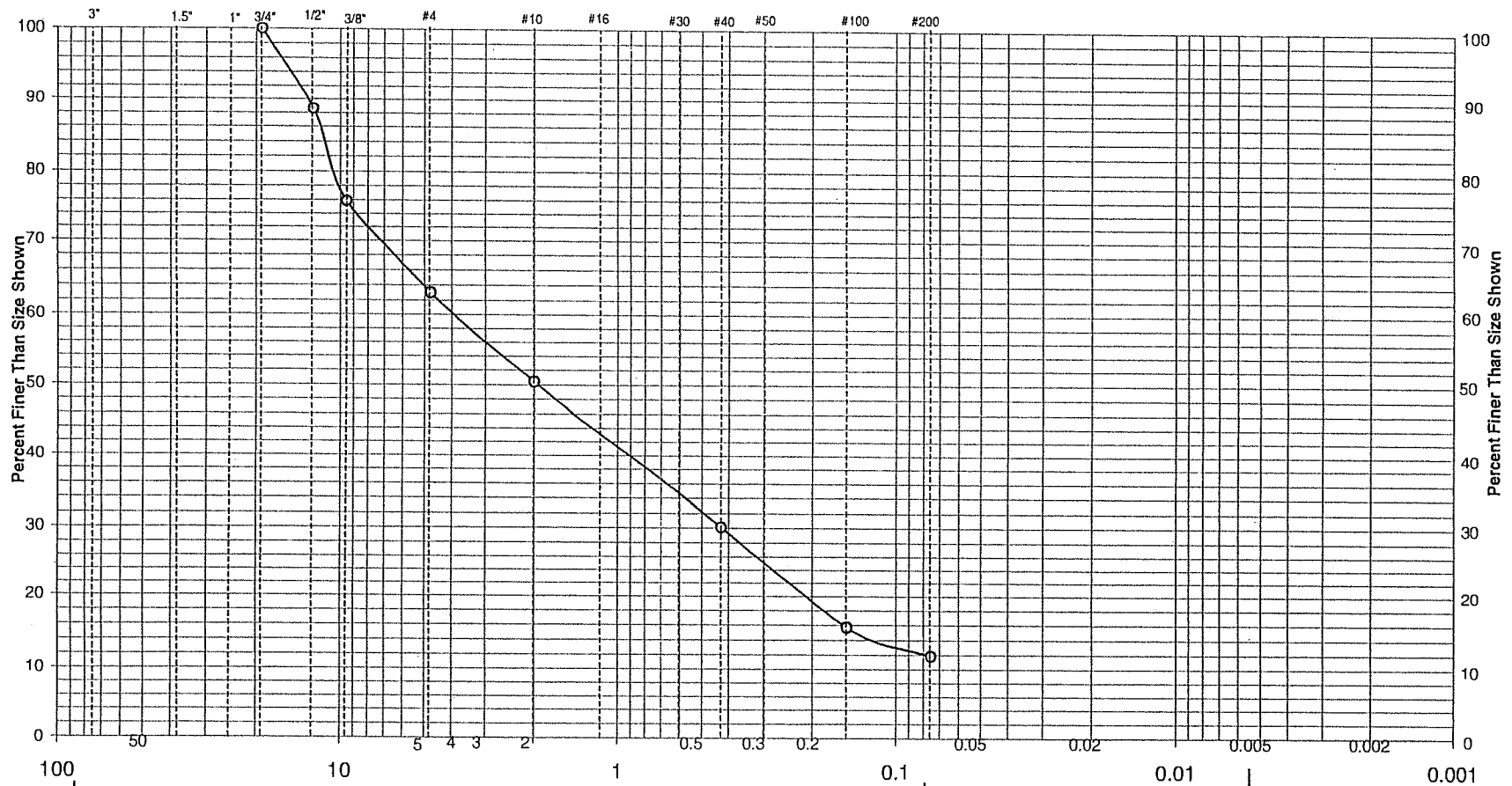
| Sieve Size | Weight Retained | % Retained | % Passing | Project Specification<br>% Passing by Weight | Source of Specification |
|------------|-----------------|------------|-----------|----------------------------------------------|-------------------------|
| 3"         |                 |            |           |                                              |                         |
| 1 1/2"     |                 |            |           |                                              |                         |
| 1"         |                 |            |           |                                              |                         |
| 3/4"       | 0.0             | 0.0        | 100.0     |                                              |                         |
| 1/2"       | 21.7            | 11.4       | 88.6      |                                              |                         |
| 3/8"       | 24.3            | 12.8       | 75.8      |                                              |                         |
| #4         | 24.3            | 12.8       | 63.0      |                                              |                         |
| #10        | 24.0            | 12.6       | 50.4      |                                              |                         |
| #40        | 38.6            | 20.3       | 30.1      |                                              |                         |
| #100       | 27.5            | 14.4       | 15.7      |                                              |                         |
| #200       | 7.4             | 3.9        | 11.8      |                                              |                         |

|                |             |
|----------------|-------------|
| REVIEWED BY:   | PE D. D. D. |
| DATE REVIEWED: | 9-24-03     |

Remarks:

# GRAIN SIZE DISTRIBUTION CURVE

U.S. Standard Sieve Sizes



|        |       |        |        |       |      |      |
|--------|-------|--------|--------|-------|------|------|
| Gravel |       | Sand   |        |       |      |      |
| Coarse | Fine  | Coarse | Medium | Fine  | Silt | Clay |
|        | 37.0% | 12.6%  | 20.3%  | 18.3% |      |      |

Soil Classification: SAND W/SILT AND GRAVEL, medium to fine to coarse grained, with organic fines, black (SM-SP)

Location Sampled: TP-616

Elevation or Depth: 3.0' - 4.0'

Date Sampled: 9/2/03

Sample Number: 838344-002

Sampled Moisture Content (%): 99.4

Report No.: 344-2

Sample Source: On Project Site

CQM, INC.

Atterberg Limits:

LL=

PL=

PI=

Client: EN CHEM, Inc.

Munsell Color Code: 10YR 2/1

Project: No. 838344

Page: 2

Date Received: 9/4/03

Prepared by: Robert R. Rouse

Date: 9/23/03

Coefficients: Cc=

Cu=

Checked by: PE D. Dorman

Date: 9-24-03

# CQM, INC.

## SIEVE ANALYSIS OF COARSE TO FINE AGGREGATES (ASTM D422)

### GENERAL DATA:

|                        |                     |
|------------------------|---------------------|
| Client:                | EN CHEM, Inc        |
| Project:               | No. 838344          |
| Location Sampled:      | TP-617              |
| Sample No:             | 838344-003          |
| Depth of Sample:       | 3.0' - 4.0'         |
| Date Received:         | 9/4/03              |
| Sample Designated For: | Soil Classification |
| Source of Sample:      | On Project Site     |
| Munsell Color Code:    | 10YR 3/3            |
| Date Sampled:          | 9/2/03              |

### LABORATORY DATA:

|                    |                     |
|--------------------|---------------------|
| Date Tested:       | September 5-9, 2003 |
| Test Performed By: | KAK                 |

|                      |     |
|----------------------|-----|
| 24 Hrs. Turn Around: | NO  |
| Washed Gradation:    | YES |

Dry Weight of Soil (gms): 410.3

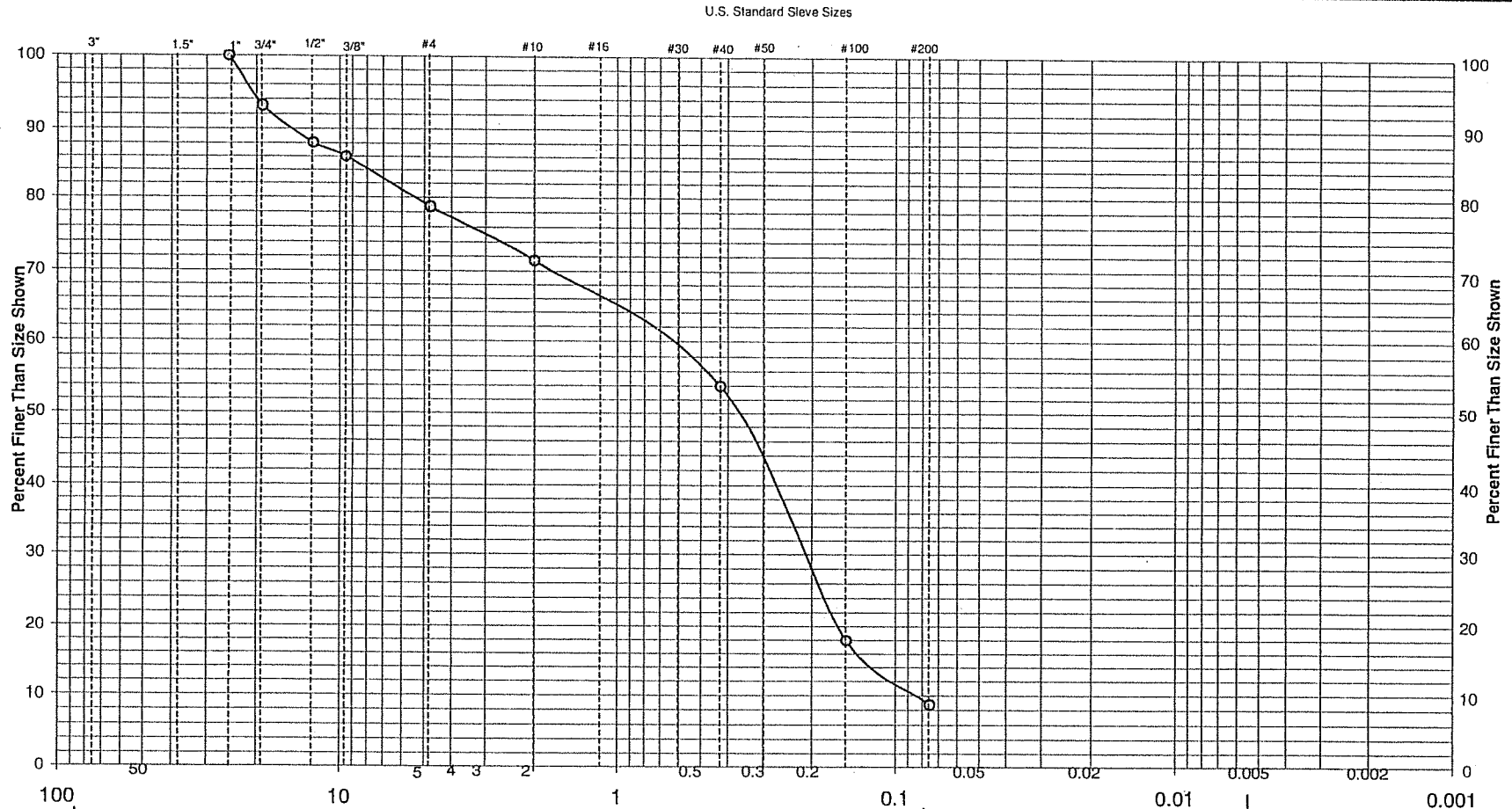
| Sieve Size | Weight Retained | % Retained | % Passing | Project Specification<br>% Passing by Weight | Source of Specification |
|------------|-----------------|------------|-----------|----------------------------------------------|-------------------------|
| 3"         |                 |            |           |                                              |                         |
| 1 1/2"     |                 |            |           |                                              |                         |
| 1"         | 0.0             | 0.0        | 100.0     |                                              |                         |
| 3/4"       | 28.2            | 6.9        | 93.1      |                                              |                         |
| 1/2"       | 20.9            | 5.1        | 88.0      |                                              |                         |
| 3/8"       | 8.1             | 2.0        | 86.0      |                                              |                         |
| #4         | 30.1            | 7.3        | 78.7      |                                              |                         |
| #10        | 29.8            | 7.3        | 71.4      |                                              |                         |
| #40        | 71.6            | 17.5       | 53.9      |                                              |                         |
| #100       | 147.8           | 36.0       | 17.9      |                                              |                         |
| #200       | 37.7            | 9.2        | 8.7       |                                              |                         |

|                |          |
|----------------|----------|
| REVIEWED BY:   | PE Dizon |
| DATE REVIEWED: | 9-24-03  |

Remarks:



# GRAIN SIZE DISTRIBUTION CURVE



| Gravel |       | Sand   |        |       | Silt | Clay |
|--------|-------|--------|--------|-------|------|------|
| Coarse | Fine  | Coarse | Medium | Fine  |      |      |
| 6.9%   | 14.4% | 7.3%   | 17.5%  | 45.2% | 8.7% |      |

Soil Classification: SAND W/SILT AND GRAVEL, fine to medium grained, dark brown (SP-SM)

Location Sampled: TP-617

Elevation or Depth: 3.0' - 4.0'

Date Sampled: 9/2/03

Sample Number: 838344-003

Sampled Moisture Content (%): 30.7

Report No.: 344-3

Sample Source: On Project Site

**CQM, INC.**

Atterberg Limits:

LL=

PL=

PI=

Client: EN CHEM, Inc

Munsell Color Code: 10YR 3/3

Project: No. 838344

Page: 2

Date Received: 9/4/03

Prepared by: Robert R. Rouse

Date: 9/23/03

Coefficients: Cc=0.8

Cu=7.4

Checked by: PE D. D. D.

Date: 9-24-03

# CQM, INC.

## SIEVE ANALYSIS OF COARSE TO FINE AGGREGATES (ASTM D422)

### GENERAL DATA:

|                        |                     |
|------------------------|---------------------|
| Client:                | EN CHEM, Inc.       |
| Project:               | No. 838344          |
| Location Sampled:      | TP-615              |
| Sample No:             | 838344-004          |
| Depth of Sample:       | 1.0' - 3.5'         |
| Date Received:         | 9/4/03              |
| Sample Designated For: | Soil Classification |
| Source of Sample:      | On Project Site     |
| Munsell Color Code:    | 10YR 2/1            |
| Date Sampled:          | 9/2/03              |

### LABORATORY DATA:

|                    |                     |
|--------------------|---------------------|
| Date Tested:       | September 5-9, 2003 |
| Test Performed By: | KAK                 |

|                      |     |
|----------------------|-----|
| 24 Hrs. Turn Around: | NO  |
| Washed Gradation:    | YES |

Dry Weight of Soil (gms): 148.0

| Sieve Size | Weight Retained | % Retained | % Passing | Project Specification % Passing by Weight | Source of Specification |
|------------|-----------------|------------|-----------|-------------------------------------------|-------------------------|
| 3"         |                 |            |           |                                           |                         |
| 1 1/2"     |                 |            |           |                                           |                         |
| 1"         | 0.0             | 0.0        | 100.0     |                                           |                         |
| 3/4"       | 20.6            | 13.9       | 86.1      |                                           |                         |
| 1/2"       | 2.9             | 2.0        | 84.1      |                                           |                         |
| 3/8"       | 5.2             | 3.5        | 80.6      |                                           |                         |
| #4         | 14.7            | 9.9        | 70.7      |                                           |                         |
| #10        | 14.3            | 9.7        | 61.0      |                                           |                         |
| #40        | 24.4            | 16.5       | 44.5      |                                           |                         |
| #100       | 29.1            | 19.7       | 24.8      |                                           |                         |
| #200       | 7.8             | 5.3        | 19.5      |                                           |                         |

REVIEWED BY:

PE Drouart

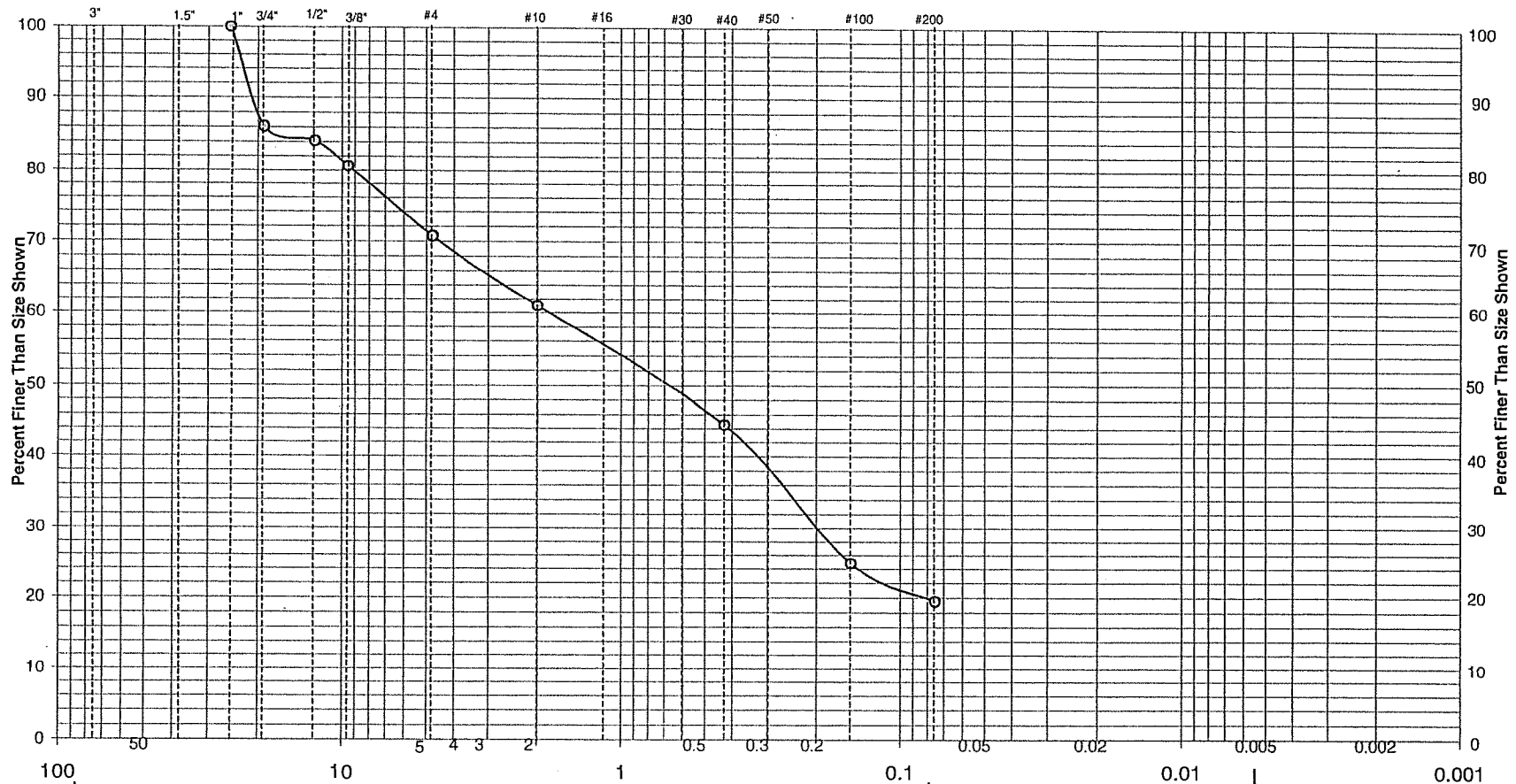
DATE REVIEWED:

9-24-03

Remarks:

# GRAIN SIZE DISTRIBUTION CURVE

U.S. Standard Sieve Sizes



| Gravel |       | Sand   |        |       | Silt | Clay |
|--------|-------|--------|--------|-------|------|------|
| Coarse | Fine  | Coarse | Medium | Fine  |      |      |
| 13.9%  | 15.4% | 9.7%   | 16.5%  | 25.0% |      |      |

Soil Classification: CLAYEY SAND W/GRAVEL, fine to medium grained, with organic fines, black (SC)

Location Sampled: TP-615

Elevation or Depth: 1.0' - 3.5'

Date Sampled: 9/2/03

Sample Number: 838344-004

Sampled Moisture Content (%): 99.5

Report No.: 344-4

Sample Source: On Project Site

**CQM, INC.**

Atterberg Limits:

LL=

PL=

PI=

Client: EN CHEM, Inc.

Munsell Color Code: 10YR 2/1

Project: No. 838344

Page: 2

Date Received: 9/4/03

Prepared by: Robert R. Rouse

Date: 9/24/03

Coefficients: Cc=

Cu=

Checked by: PE D. D. D.

Date: 9-24-03

# CQM, INC.

## SIEVE ANALYSIS OF COARSE TO FINE AGGREGATES (ASTM D422)

### GENERAL DATA:

|                        |                     |
|------------------------|---------------------|
| Client:                | EN CHEM, Inc.       |
| Project:               | No. 838344          |
| Location Sampled:      | TP-621              |
| Sample No:             | 838344-007          |
| Depth of Sample:       | 7.0' - 9.0'         |
| Date Received:         | 9/4/03              |
| Sample Designated For: | Soil Classification |
| Source of Sample:      | On Project Site     |
| Munsell Color Code:    | 10YR 5/2            |
| Date Sampled:          | 9/2/03              |

### LABORATORY DATA:

|                    |                     |
|--------------------|---------------------|
| Date Tested:       | September 5-9, 2003 |
| Test Performed By: | KAK                 |

|                      |     |
|----------------------|-----|
| 24 Hrs. Turn Around: | NO  |
| Washed Gradation:    | YES |

Dry Weight of Soil (gms): 591.7

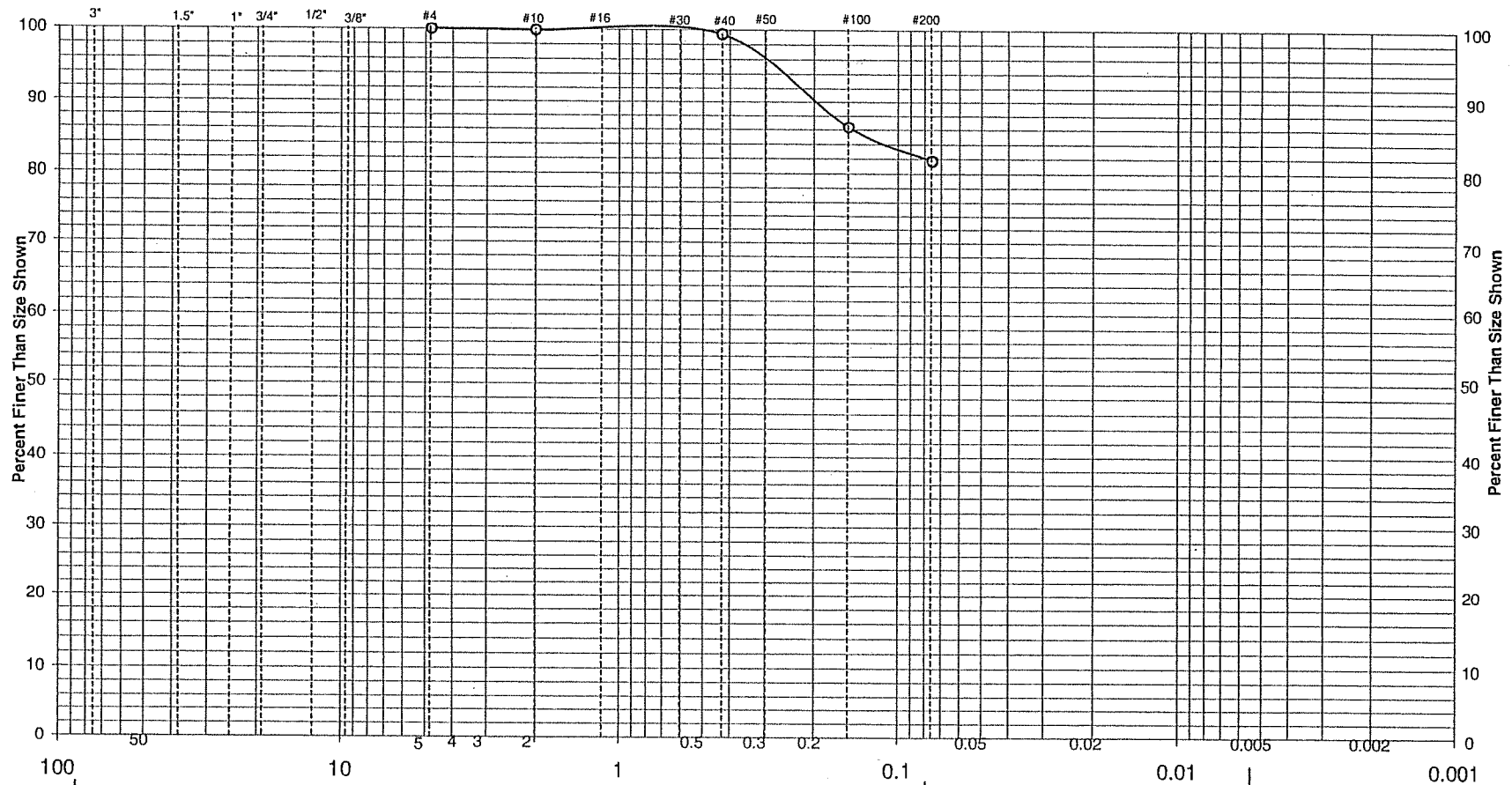
| Sieve Size | Weight Retained | % Retained | % Passing | Project Specification % Passing by Weight | Source of Specification |
|------------|-----------------|------------|-----------|-------------------------------------------|-------------------------|
| 3"         |                 |            |           |                                           |                         |
| 1 1/2"     |                 |            |           |                                           |                         |
| 1"         |                 |            |           |                                           |                         |
| 3/4"       |                 |            |           |                                           |                         |
| 1/2"       |                 |            |           |                                           |                         |
| 3/8"       |                 |            |           |                                           |                         |
| #4         | 0.0             | 0.0        | 100.0     |                                           |                         |
| #10        | 0.6             | 0.1        | 99.9      |                                           |                         |
| #40        | 2.9             | 0.5        | 99.4      |                                           |                         |
| #100       | 77.3            | 13.1       | 86.3      |                                           |                         |
| #200       | 27.5            | 4.6        | 81.7      |                                           |                         |

|                |            |
|----------------|------------|
| REVIEWED BY:   | PE Dismant |
| DATE REVIEWED: | 9-24-05    |

Remarks:

# GRAIN SIZE DISTRIBUTION CURVE

U.S. Standard Sieve Sizes



|        |      |        |        |       |      |      |
|--------|------|--------|--------|-------|------|------|
| Gravel |      | Sand   |        |       |      |      |
| Coarse | Fine | Coarse | Medium | Fine  | Silt | Clay |
|        |      | 0.1%   | 0.5%   | 17.7% |      |      |

Soil Classification: LEAN CLAY W/SAND, grayish brown (CL)

Location Sampled: TP-621

Elevation or Depth: 7.0' - 9.0'

Date Sampled: 9/2/03

Sample Number: 838344-007

Sampled Moisture Content (%): 35.1

Report No.: 844-7

Sample Source: On Project Site

**CQM, INC.**

Atterberg Limits:

LL=

PL=

PI=

Client: EN CHEM, Inc.

Munsell Color Code: 10YR 5/2

Project: No. 838344

Page: 2

Date Received: 9/4/03

Prepared by: Robert R. Rouse

Date: 9/24/03

Coefficients: Cc=

Cu=

Checked by: PE *Dumont*

Date: 9-24-03

# CQM, INC.

## SIEVE ANALYSIS OF COARSE TO FINE AGGREGATES (ASTM D422)

### GENERAL DATA:

|                        |                     |
|------------------------|---------------------|
| Client:                | EN CHEM, Inc.       |
| Project:               | No. 838344          |
| Location Sampled:      | TP-618              |
| Sample No:             | 838344-008          |
| Depth of Sample:       | 4.0' - 5.0'         |
| Date Received:         | 9/4/03              |
| Sample Designated For: | Soil Classification |
| Source of Sample:      | On Project Site     |
| Munsell Color Code:    | 10YR 3/2            |
| Date Sampled:          | 9/2/03              |

### LABORATORY DATA:

|                    |                      |
|--------------------|----------------------|
| Date Tested:       | September 5-10, 2003 |
| Test Performed By: | KRV                  |

|                      |     |
|----------------------|-----|
| 24 Hrs. Turn Around: | NO  |
| Washed Gradation:    | YES |

Dry Weight of Soil (gms): 469.1

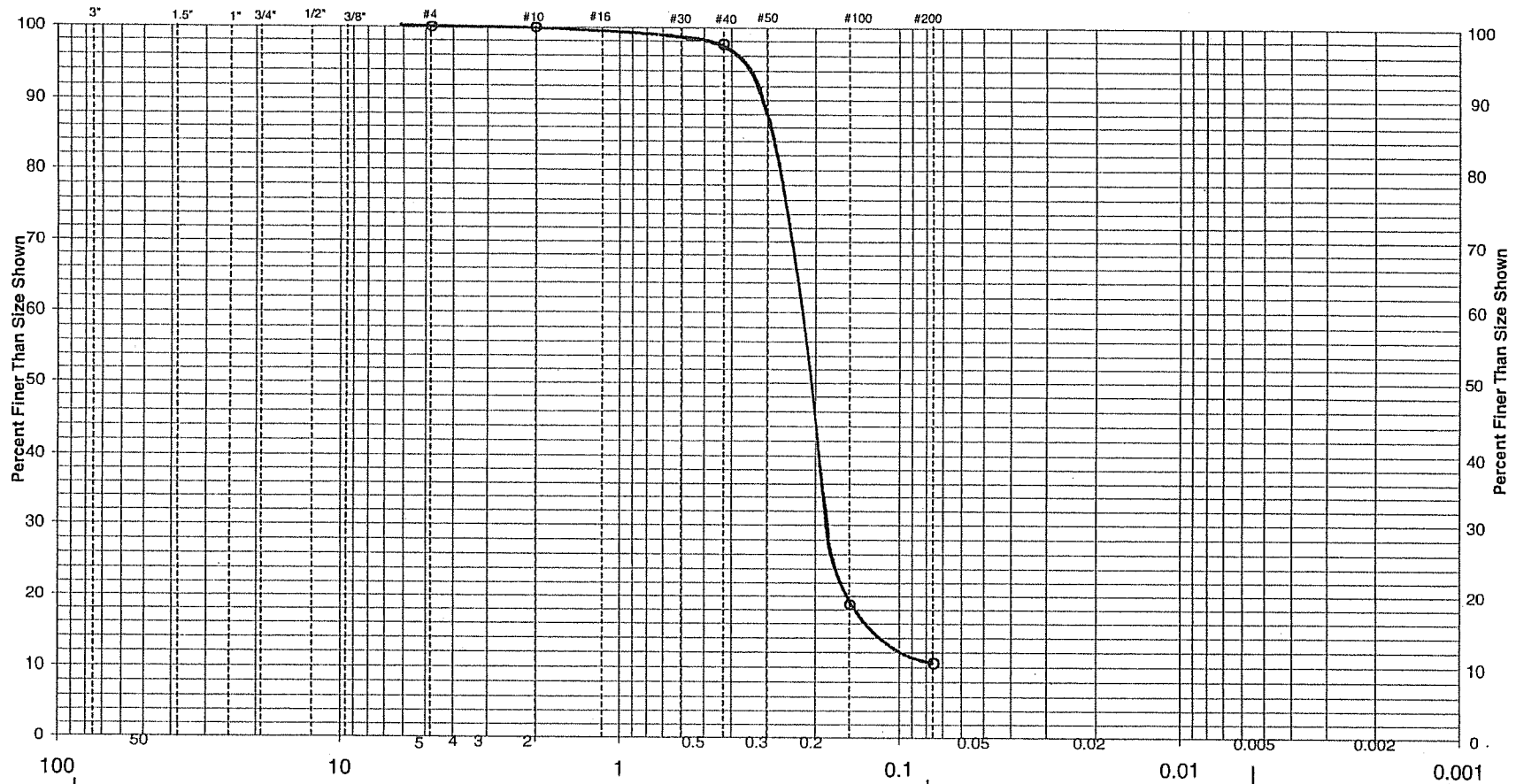
| Sieve Size | Weight Retained | % Retained | % Passing | Project Specification % Passing by Weight | Source of Specification |
|------------|-----------------|------------|-----------|-------------------------------------------|-------------------------|
| 3"         |                 |            |           |                                           |                         |
| 1 1/2"     |                 |            |           |                                           |                         |
| 1"         |                 |            |           |                                           |                         |
| 3/4"       |                 |            |           |                                           |                         |
| 1/2"       |                 |            |           |                                           |                         |
| 3/8"       |                 |            |           |                                           |                         |
| #4         | 0.0             | 0.0        | 100.0     |                                           |                         |
| #10        | 0.2             | 0.0        | 100.0     |                                           |                         |
| #40        | 11.2            | 2.4        | 97.6      |                                           |                         |
| #100       | 369.7           | 78.8       | 18.8      |                                           |                         |
| #200       | 39.0            | 8.3        | 10.5      |                                           |                         |

|                |            |
|----------------|------------|
| REVIEWED BY:   | PE Drouart |
| DATE REVIEWED: | 9-24-03    |

Remarks:

# GRAIN SIZE DISTRIBUTION CURVE

U.S. Standard Sieve Sizes



|        |      |        |        |       |      |      |
|--------|------|--------|--------|-------|------|------|
| Gravel |      | Sand   |        |       |      |      |
| Coarse | Fine | Coarse | Medium | Fine  | Silt | Clay |
|        |      | 0.0%   | 2.4%   | 87.1% |      |      |

Soil Classification: SAND W/SILT, fine grained, very dark grayish brown (SM-SP)

Location Sampled: TP-618

Elevation or Depth: 4.0' - 5.0'

Date Sampled: 9/2/03

Sample Number: 838344-008

Sampled Moisture Content (%): 21.9

Report No.: 344-8

Sample Source: On Project Site

**CQM, INC.**

Atterberg Limits:

LL=

PL=

PI=

Client: EN CHEM, Inc.

Munsell Color Code: 10YR 3/2

Project: No. 838344

Page: 2

Date Received: 9/4/03

Prepared by: Robert R. Rouse

Date: 9/24/03

Coefficients: Cc=

Cu=

Checked by: PE [Signature]

Date: 9-24-03

# CQM, INC.

## SIEVE ANALYSIS OF COARSE TO FINE AGGREGATES (ASTM D422)

### GENERAL DATA:

|                        |                     |
|------------------------|---------------------|
| Client:                | EN CHEM, Inc.       |
| Project:               | No. 838344          |
| Location Sampled:      | SB-627              |
| Sample No:             | 838344-009          |
| Depth of Sample:       | 4.0' - 10.0'        |
| Date Received:         | 9/4/03              |
| Sample Designated For: | Soil Classification |
| Source of Sample:      | On Project Site     |
| Munsell Color Code:    | 10YR 4/3            |
| Date Sampled:          | 9/2/03              |

### LABORATORY DATA:

|                    |                     |
|--------------------|---------------------|
| Date Tested:       | September 5-9, 2003 |
| Test Performed By: | KAK                 |

|                      |     |
|----------------------|-----|
| 24 Hrs. Turn Around: | NO  |
| Washed Gradation:    | YES |

|                           |       |
|---------------------------|-------|
| Dry Weight of Soil (gms): | 421.8 |
|---------------------------|-------|

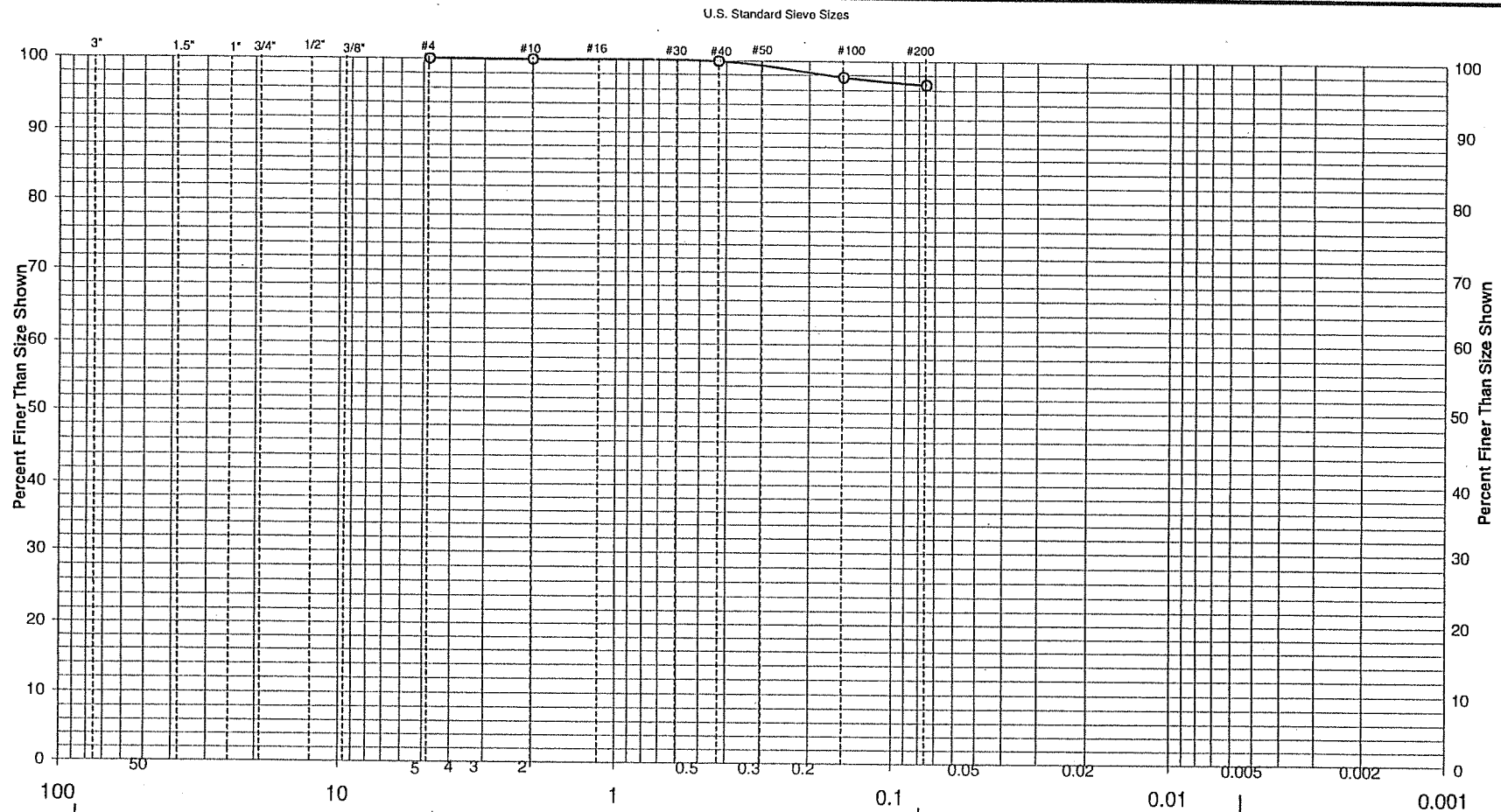
| Sieve Size | Weight Retained | % Retained | % Passing | Project Specification % Passing by Weight | Source of Specification |
|------------|-----------------|------------|-----------|-------------------------------------------|-------------------------|
| 3"         |                 |            |           |                                           |                         |
| 1 1/2"     |                 |            |           |                                           |                         |
| 1"         |                 |            |           |                                           |                         |
| 3/4"       |                 |            |           |                                           |                         |
| 1/2"       |                 |            |           |                                           |                         |
| 3/8"       |                 |            |           |                                           |                         |
| #4         | 0.0             | 0.0        | 100.0     |                                           |                         |
| #10        | 0.2             | 0.0        | 100.0     |                                           |                         |
| #40        | 0.3             | 0.1        | 99.9      |                                           |                         |
| #100       | 9.3             | 2.2        | 97.7      |                                           |                         |
| #200       | 4.1             | 1.0        | 96.7      |                                           |                         |

|                |          |
|----------------|----------|
| REVIEWED BY:   | PE Dumas |
| DATE REVIEWED: | 9-24-03  |

Remarks:



# GRAIN SIZE DISTRIBUTION CURVE



|        |      |        |        |      |      |      |
|--------|------|--------|--------|------|------|------|
| Gravel |      | Sand   |        |      |      |      |
| Coarse | Fine | Coarse | Medium | Fine | Silt | Clay |
|        |      | 0.0%   | 0.1%   | 3.2% |      |      |

Soil Classification: LEAN CLAY, brown (CL)

Location Sampled: SB-627

Elevation or Depth: 4.0' - 10.0'

Date Sampled: 9/2/03

Sample Number: 838344-009

Sampled Moisture Content (%): 25.3

Report No.: 344-9

Sample Source: On Project Site

**CQM, INC.**

Atterberg Limits:

LL=

PL=

PI=

Client: EN CHEM, Inc.

Munsell Color Code: 10YR 4/3

Project: No. 838344

Page: 2

Date Received: 9/4/03

Prepared by: Robert R. Rouse

Date: 9/24/03

Coefficients: Cc=

Cu=

Checked by: PE Drouart

Date: 9-24-03



## Documentation of Subcontracted Analysis

Listed below are labs used for subcontracted analysis and their associated State Certification numbers.

| Analyst Code | Sub-Laboratory              | Wisconsin<br>Cert # | Minnesota<br>Cert # | Phone        |
|--------------|-----------------------------|---------------------|---------------------|--------------|
| *BD          | Badger Labs                 | 445023150           | NA                  | 920-729-1100 |
| *BR          | Braun Intertec Corp         | 999462640           | 027-053-117         | 800-279-6100 |
| *CT          | CT Laboratories             | 157066030           | 07-053-117          | 608-356-2760 |
| *DL          | Daily Lab                   | NA                  | NA                  | 309-691-4513 |
| *ELA         | E-LAB                       | NA                  | NA                  | 616-399-6070 |
| *ECS         | ECCS                        | 113289110           |                     | 608-221-8700 |
| *EHL         | Environmental Health Labs   | 999766900           | 018-999-338         | 574-233-4777 |
| *ERA         | ERA Labs                    | 999446800           | 027-137-152         | 218-727-6380 |
| *NL          | Northern Lake Service       | 721026460           | NA                  | 715-478-2777 |
| *NSA         | North Shore Analytical      | 399017190           | 027-137-389         | 218-729-4658 |
| *PAC         | PACE                        | 999407970           | 027-053-137         | 612-607-1700 |
| *SF          | S-F Analytical              | 241249360           | NA                  | 414-475-6700 |
| *SLH         | State Lab of Hygiene        | 113133790           | NA                  | 800-442-4618 |
| *STC         | STL - Chicago               | 999580010           | 017-999-101         | 708-534-5200 |
| *STS         | STL - Savannah              | 999819810           | NA                  | 912-354-7858 |
| *SUB         | Any lab not on this sheet   | NA                  | NA                  | NA           |
| *TA          | Test America                | 128053530           | 055-999-366         | 800-833-7036 |
| *CQM         | CQM                         | NA                  | NA                  | 920-465-3911 |
| *CTE         | CT&E Environmental Services | 999959180           | NA                  | 231-843-1877 |
| *GLA         | Great Lakes Analytical      | 99991716            | NA                  | 847-808-7766 |
| *USF         | US Filter/Enviroscan        | 737053130           | 055-999-302         | 715-359-7226 |

# En Chem, Inc. Cooler Receipt Log

Batch No. 838,344

Project Name or ID Toto River

No. of Coolers: 1 Temps: REF

A. Receipt Phase: Date cooler was opened: 9/3/03 By: cy

- 1: Were samples received on ice? (Must be  $\leq 6^{\circ}\text{C}$ ).....YES NO<sup>2</sup>
- 2: Was there a Temperature Blank?.....YES NO
- 3: Were custody seals present and intact? (Record on COC).....YES NO
- 4: Are COC documents present?.....YES NO<sup>2</sup>
- 5: Does this Project require quick turn around analysis?.....YES NO
- 6: Is there any sub-work?.....YES NO
- 7: Are there any short hold time tests?.....YES NO
- 8: Are any samples nearing expiration of hold-time? (Within 2 days).....YES<sup>1</sup> NO Contacted by/Who \_\_\_\_\_
- 9: Do any samples need to be Filtered or Preserved in the lab?.....YES<sup>1</sup> NO Contacted by/Who \_\_\_\_\_

B. Check-in Phase: Date samples were Checked-in: 9/3/03 By: cy

- 1: Were all sample containers listed on the COC received and intact?.....YES NO<sup>2</sup> NA
- 2: Sign the COC as received by En Chem. Completed.....YES NO
- 3: Do sample labels match the COC? .....YES NO<sup>2</sup>
- 4: Completed pH check on preserved samples.....YES NO NA  
(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)
- 5: Do samples have correct chemical preservation?.....YES NO<sup>2</sup> NA  
(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)
- 6: Are dissolved parameters field filtered?.....YES NO<sup>2</sup> NA
- 7: Are sample volumes adequate for tests requested? .....YES NO<sup>2</sup>
- 8: Are VOC samples free of bubbles >6mm .....YES NO<sup>2</sup> NA
- 9: Enter samples into logbook. Completed.....YES NO
- 10: Place laboratory sample number on all containers and COC. Completed.....YES NO
- 11: Complete Laboratory Tracking Sheet (LTS). Completed.....YES NO NA
- 12: Start Nonconformance form. ....YES NO NA
- 13: Initiate Subcontracting procedure. Completed.....YES NO NA
- 14: Check laboratory sample number on all containers and COC. ....JR YES NO NA 9/3/03 cy

## Short Hold-time tests:

|                              |                                   |                                        |
|------------------------------|-----------------------------------|----------------------------------------|
| 48 Hours or less             | 7 days                            | Footnotes                              |
| Coliform (6 hrs)             | Flashpoint                        | 1 Notify proper lab group immediately. |
| Hexavalent Chromium (24 Hrs) | TSS                               | 2 Complete nonconformance memo.        |
| BOD                          | Total Solids                      |                                        |
| Nitrite or Nitrate           | TDS                               |                                        |
| Low Level Mercury            | Sulfide                           |                                        |
| Ortho Phosphorus             | Free Liquids                      |                                        |
| Turbidity                    | Total Volatile Solids             |                                        |
| Surfactants                  | Aqueous Extractable Organics- ALL |                                        |
| Sulfite                      | Unpreserved VOC's                 |                                        |
| En Core Preservation         | Ash                               |                                        |
| Color                        |                                   |                                        |

Rev. 4/11/03, Attachment to 1-REC-5.  
Subject to QA Audit.

Reviewed by/date W 9/5/03



**APPENDIX F**

**GROUNDWATER ANALYTICAL RESULTS**



Corporate Office & Laboratory  
1241 Bellevue Street, Suite 9, Green Bay, WI 54302  
920-469-2436, 800-7-ENCHEM, Fax: 920-469-8827  
[www.enchem.com](http://www.enchem.com)

### Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Project Name : WPSC-~~GREEN BAY~~ 2 RIVERS

Project Number : 1569

MASTER FILE COPY  
PROJECT # 1569-Data  
CO: \_\_\_\_\_

| Lab Sample Number | Field ID              | Matrix | Collection Date |
|-------------------|-----------------------|--------|-----------------|
| 836234-001        | MW-601                | WATER  | 07/02/03        |
| 836234-002        | MW-602                | WATER  | 07/02/03        |
| 836234-003        | MW-603A               | WATER  | 07/02/03        |
| 836234-004        | MW-603B               | WATER  | 07/02/03        |
| 836234-005        | MW-604                | WATER  | 07/02/03        |
| 836234-006        | MW-606                | WATER  | 07/02/03        |
| 836234-007        | MW-607A               | WATER  | 07/02/03        |
| 836234-008        | MW-608A               | WATER  | 07/02/03        |
| 836234-009        | MW-608B               | WATER  | 07/02/03        |
| 836234-010        | MW-609A               | WATER  | 07/02/03        |
| 836234-011        | MW-609B               | WATER  | 07/02/03        |
| 836234-012        | MW-611                | WATER  | 07/02/03        |
| 836234-013        | QC-1 Blind Dup MW-610 | WATER  | 07/02/03        |
| 836234-014        | QC-2 Blind Dup MW-611 | WATER  | 07/02/03        |
| 836234-015        | TRIP                  | WATER  | 07/02/03        |
| 836234-016        | MW-610                | WATER  | 07/02/03        |
| 836234-017        | MW-605B               | WATER  | 07/02/03        |

I certify that the data contained in this Final Report has been generated and reviewed in accordance with approved methods and Laboratory Standard Operating Procedure. Exceptions, if any, are discussed in the accompanying sample comments. Release of this final report is authorized by Laboratory management, as is verified by the following signature. Reported results shall not be reproduced, except in full, without the written approval of the lab. The sample results relate only to the analytes of interest tested.

Approval Signature

7/28/03  
Date

## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-601

Lab Sample Number : 836234-001

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 180     | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | < 0.93  | 0.93  | 3.1  |     | 1    | ug/L  |      | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 7200    | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | < 0.047 | 0.047 | 0.16 |     | 1    | mg/L  |      | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | 1.9     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 24      | 0.20  | 0.67 |     | 1    | mg/L  | N    | 07/17/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 99     |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | 0.021   | 0.017 | 0.057 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | < 0.020 | 0.020 | 0.067 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | 0.016   | 0.012 | 0.040 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | 0.015   | 0.014 | 0.047 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | 0.020   | 0.016 | 0.053 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | 0.022   | 0.014 | 0.047 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | 0.021   | 0.013 | 0.043 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Project Name : WPSC-GREEN BAY

Project Number : 1569

Field ID : MW-601

Matrix Type : WATER

Collection Date : 07/02/03

Report Date : 07/23/03

Lab Sample Number : 836234-001

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 0.021 | 0.021 | 0.070 |     | 1    | ug/L   |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 0.038   | 0.024 | 0.080 |     | 1    | ug/L   | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | 0.020   | 0.016 | 0.053 |     | 1    | ug/L   | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | 0.032   | 0.017 | 0.057 |     | 1    | ug/L   | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | 102     |       |       |     | 1    | %Recov |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | 85      |       |       |     | 1    | %Recov |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | 90      |       |       |     | 1    | %Recov |      | 07/08/03      | SW846 3510C | 8270C-SIM       |



## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-602

Lab Sample Number : 836234-002

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 130     | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | < 0.93  | 0.93  | 3.1  |     | 1    | ug/L  |      | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 170     | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | 0.16    | 0.047 | 0.16 |     | 1    | mg/L  |      | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | 2.0     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 16      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 100    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | 0.019   | 0.017 | 0.057 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | < 0.020 | 0.020 | 0.067 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | < 0.012 | 0.012 | 0.040 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-602

Lab Sample Number : 836234-002

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 0.021 | 0.021 | 0.070 |     | 1    | ug/L   |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 0.038   | 0.024 | 0.080 |     | 1    | ug/L   | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | 98      |       |       |     | 1    | %Recov |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | 86      |       |       |     | 1    | %Recov |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | 94      |       |       |     | 1    | %Recov |      | 07/08/03      | SW846 3510C | 8270C-SIM       |

## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-603A

Lab Sample Number : 836234-003

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 190     | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | < 0.93  | 0.93  | 3.1  |     | 1    | ug/L  |      | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 44000   | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | 0.063   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | 1.2     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 33      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 140    | 1.3  | 4.4 |     | 2    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 36     | 1.0  | 3.5 |     | 2    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 500    | 0.60 | 2.0 |     | 2    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 330    | 1.2  | 4.0 |     | 2    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 1.2  | 1.2  | 3.9 |     | 2    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 16     | 1.2  | 3.9 |     | 2    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 170    | 1.3  | 4.3 |     | 2    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 150    | 2.4  | 8.0 |     | 2    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 110    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 100    | 18  | 60  |     | 1000 | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | 19     | 17  | 57  |     | 1000 | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | 36     | 18  | 60  |     | 1000 | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 19   | 19  | 63  |     | 1000 | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | < 20   | 20  | 67  |     | 1000 | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | < 12   | 12  | 40  |     | 1000 | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 14   | 14  | 47  |     | 1000 | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 13   | 13  | 43  |     | 1000 | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 16   | 16  | 53  |     | 1000 | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 19   | 19  | 63  |     | 1000 | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | < 14   | 14  | 47  |     | 1000 | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 16   | 16  | 53  |     | 1000 | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | < 13   | 13  | 43  |     | 1000 | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-603A

Lab Sample Number : 836234-003

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | < 17   | 17  | 57  |     | 1000 | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 21   | 21  | 70  |     | 1000 | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 280    | 24  | 80  |     | 1000 | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | 18     | 16  | 53  |     | 1000 | ug/L   | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | < 17   | 17  | 57  |     | 1000 | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |

## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-603B

Lab Sample Number : 836234-004

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 5.8   | 5.8   | 19   |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Barium - Dissolved   | 39      | 0.28  | 0.93 |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Cadmium - Dissolved  | < 0.41  | 0.41  | 1.4  |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Chromium - Dissolved | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Iron - Dissolved     | 130     | 18    | 60   |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Lead - Dissolved     | < 1.2   | 1.2   | 4.0  |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | 0.81    | 0.65  | 2.2  |     | 1    | ug/L  | Q    | 07/15/03      | SW846 6020  | SW846 6020      |
| Silver - Dissolved   | < 3.8   | 3.8   | 13   |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Nitrogen, NO3 + NO2  | 0.050   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 7.6     | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

PVOC Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 103    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

PAH/ PNA Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 0.041   | 0.018 | 0.060 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | 0.018   | 0.018 | 0.060 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | < 0.020 | 0.020 | 0.067 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | 0.025   | 0.012 | 0.040 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | 0.016   | 0.013 | 0.043 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | 0.027   | 0.014 | 0.047 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | 0.036   | 0.013 | 0.043 |     | 1    | ug/L  | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |

## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-603B

Lab Sample Number : 836234-004

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 0.021 | 0.021 | 0.070 |     | 1    | ug/L   |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 0.088   | 0.024 | 0.080 |     | 1    | ug/L   |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | 0.043   | 0.016 | 0.053 |     | 1    | ug/L   | Q    | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | 0.066   | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | 104     |       |       |     | 1    | %Recov |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | 86      |       |       |     | 1    | %Recov |      | 07/08/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | 100     |       |       |     | 1    | %Recov |      | 07/08/03      | SW846 3510C | 8270C-SIM       |

## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Project Name : WPSC-GREEN BAY

Project Number : 1569

Field ID : MW-604

Matrix Type : WATER

Collection Date : 07/02/03

Report Date : 07/23/03

Lab Sample Number : 836234-005

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 150     | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | < 0.93  | 0.93  | 3.1  |     | 1    | ug/L  |      | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 7600    | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | 0.047   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 24      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 46     | 2.6 | 8.8 |     | 4    | ug/l   | K    | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 15     | 2.1 | 6.9 |     | 4    | ug/l   | K    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 140    | 1.2 | 4.0 |     | 4    | ug/l   | K    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 79     | 2.4 | 8.0 |     | 4    | ug/l   | K    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 2.3  | 2.3 | 7.7 |     | 4    | ug/l   | K    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 12     | 2.3 | 7.7 |     | 4    | ug/l   | K    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 77     | 2.6 | 8.5 |     | 4    | ug/l   | K    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 53     | 4.8 | 16  |     | 4    | ug/l   | K    | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 103    |     |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 220    | 9.0 | 30  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | 15     | 8.5 | 28  |     | 500  | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | 89     | 9.0 | 30  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 9.5  | 9.5 | 32  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | 15     | 10  | 33  |     | 500  | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | < 6.0  | 6.0 | 20  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 7.0  | 7.0 | 23  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 6.5  | 6.5 | 22  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 8.0  | 8.0 | 27  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 9.5  | 9.5 | 32  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | 7.6    | 7.0 | 23  |     | 500  | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 8.0  | 8.0 | 27  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | 15     | 6.5 | 22  |     | 500  | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-604

Lab Sample Number : 836234-005

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | 44     | 8.5 | 28  |     | 500  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 10   | 10  | 35  |     | 500  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 150    | 12  | 40  |     | 500  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | 75     | 8.0 | 27  |     | 500  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | 26     | 8.5 | 28  |     | 500  | ug/L   | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |



## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-606

Lab Sample Number : 836234-006

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 190     | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | < 0.93  | 0.93  | 3.1  |     | 1    | ug/L  |      | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 11000   | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | 0.056   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | 2.9     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 17      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 14     | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 4.3    | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 28     | 0.30 | 1.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 43     | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 9.3    | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 21     | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 18     | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 101    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 96     | 4.5 | 15  |     | 250  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | < 4.2  | 4.2 | 14  |     | 250  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | 13     | 4.5 | 15  |     | 250  | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | 9.0    | 4.8 | 16  |     | 250  | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | 5.8    | 5.0 | 17  |     | 250  | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | < 3.0  | 3.0 | 10  |     | 250  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 3.5  | 3.5 | 12  |     | 250  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 3.2  | 3.2 | 11  |     | 250  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 4.0  | 4.0 | 13  |     | 250  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 4.8  | 4.8 | 16  |     | 250  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | < 3.5  | 3.5 | 12  |     | 250  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 4.0  | 4.0 | 13  |     | 250  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | 6.3    | 3.2 | 11  |     | 250  | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-606

Lab Sample Number : 836234-006

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | 27     | 4.2 | 14  |     | 250  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 5.2  | 5.2 | 18  |     | 250  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 71     | 6.0 | 20  |     | 250  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | 30     | 4.0 | 13  |     | 250  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | 9.4    | 4.2 | 14  |     | 250  | ug/L   | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | < 1.0  |     |     |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | < 1.0  |     |     |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | < 1.0  |     |     |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |

**Analytical Report Number: 836234**

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-607A

Lab Sample Number : 836234-007

**INORGANICS**

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 260     | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | < 0.93  | 0.93  | 3.1  |     | 1    | ug/L  |      | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 8100    | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | < 0.047 | 0.047 | 0.16 |     | 1    | mg/L  |      | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 39      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

**PVOC**

Prep Date: 07/08/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 160    | 6.6 | 22  |     | 10   | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | 12     | 5.2 | 17  |     | 10   | ug/l   | Q    | 07/08/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 980    | 3.0 | 10  |     | 10   | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 1500   | 6.0 | 20  |     | 10   | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 5.8  | 5.8 | 19  |     | 10   | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 28     | 5.8 | 19  |     | 10   | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 230    | 6.4 | 21  |     | 10   | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 120    | 12  | 40  |     | 10   | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 100    |     |     |     | 1    | %Recov |      | 07/08/03      | SW846 5030B | SW846 M8021     |

**PAH/ PNA**

Prep Date: 07/08/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 150    | 14  | 48  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | < 14   | 14  | 45  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | 62     | 14  | 48  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 15   | 15  | 51  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | < 16   | 16  | 53  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | < 9.6  | 9.6 | 32  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 11   | 11  | 37  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 10   | 10  | 35  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 13   | 13  | 43  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 15   | 15  | 51  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | < 11   | 11  | 37  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 13   | 13  | 43  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | < 10   | 10  | 35  |     | 800  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Project Name : WPSC-GREEN BAY

Project Number : 1569

Field ID : MW-607A

Matrix Type : WATER

Collection Date : 07/02/03

Report Date : 07/23/03

Lab Sample Number : 836234-007

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | < 14   | 14  | 45  |     | 800  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 17   | 17  | 56  |     | 800  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 240    | 19  | 64  |     | 800  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | < 13   | 13  | 43  |     | 800  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | < 14   | 14  | 45  |     | 800  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |

## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-608A

Lab Sample Number : 836234-008

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 5.8   | 5.8   | 19   |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Barium - Dissolved   | 79      | 0.28  | 0.93 |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Cadmium - Dissolved  | < 0.41  | 0.41  | 1.4  |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Chromium - Dissolved | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Iron - Dissolved     | 5000    | 18    | 60   |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Lead - Dissolved     | < 1.2   | 1.2   | 4.0  |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | 2.8     | 0.65  | 2.2  |     | 1    | ug/L  |      | 07/15/03      | SW846 6020  | SW846 6020      |
| Silver - Dissolved   | < 3.8   | 3.8   | 13   |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Nitrogen, NO3 + NO2  | 0.051   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 31      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 19     | 6.6 | 22  |     | 10   | ug/l   | Q    | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 5.2  | 5.2 | 17  |     | 10   | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 2400   | 3.0 | 10  |     | 10   | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 180    | 6.0 | 20  |     | 10   | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 5.8  | 5.8 | 19  |     | 10   | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 7.6    | 5.8 | 19  |     | 10   | ug/l   | Q    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 78     | 6.4 | 21  |     | 10   | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 100    | 12  | 40  |     | 10   | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 98     |     |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 120    | 9.0 | 30  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | 76     | 8.5 | 28  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | 120    | 9.0 | 30  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 9.5  | 9.5 | 32  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | 15     | 10  | 33  |     | 500  | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | < 6.0  | 6.0 | 20  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 7.0  | 7.0 | 23  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 6.5  | 6.5 | 22  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 8.0  | 8.0 | 27  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 9.5  | 9.5 | 32  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | < 7.0  | 7.0 | 23  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 8.0  | 8.0 | 27  |     | 500  | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | 14     | 6.5 | 22  |     | 500  | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-608A

Lab Sample Number : 836234-008

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|-----|-----|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | 53     | 8.5 | 28  |     | 500  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 10   | 10  | 35  |     | 500  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 120    | 12  | 40  |     | 500  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | 79     | 8.0 | 27  |     | 500  | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | 22     | 8.5 | 28  |     | 500  | ug/L   | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | < NA   |     |     |     | 1    | %Recov | D    | 07/09/03      | SW846 3510C | 8270C-SIM       |

## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-608B

Lab Sample Number : 836234-009

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 5.8   | 5.8   | 19   |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Barium - Dissolved   | 66      | 0.28  | 0.93 |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Cadmium - Dissolved  | < 0.41  | 0.41  | 1.4  |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Chromium - Dissolved | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Iron - Dissolved     | < 18    | 18    | 60   |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Lead - Dissolved     | < 1.2   | 1.2   | 4.0  |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | 1.0     | 0.65  | 2.2  |     | 1    | ug/L  | Q    | 07/15/03      | SW846 6020  | SW846 6020      |
| Silver - Dissolved   | < 3.8   | 3.8   | 13   |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Nitrogen, NO3 + NO2  | < 0.047 | 0.047 | 0.16 |     | 1    | mg/L  |      | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | 1.6     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 10      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/08/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 2.2    | 0.30 | 1.0 |     | 1    | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/08/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 104    |      |     |     | 1    | %Recov |      | 07/08/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD  | LOQ | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|------|-----|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 3.5    | 0.45 | 1.5 |     | 25   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | 0.49   | 0.42 | 1.4 |     | 25   | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | 6.0    | 0.45 | 1.5 |     | 25   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 0.48 | 0.48 | 1.6 |     | 25   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | 1.6    | 0.50 | 1.7 |     | 25   | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | 0.69   | 0.30 | 1.0 |     | 25   | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | 0.61   | 0.35 | 1.2 |     | 25   | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | 0.37   | 0.32 | 1.1 |     | 25   | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 0.40 | 0.40 | 1.3 |     | 25   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 0.48 | 0.48 | 1.6 |     | 25   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | 0.79   | 0.35 | 1.2 |     | 25   | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 0.40 | 0.40 | 1.3 |     | 25   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | 2.1    | 0.32 | 1.1 |     | 25   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-608B

Lab Sample Number : 836234-009

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | 2.6    | 0.42 | 1.4 |     | 25   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 0.52 | 0.52 | 1.8 |     | 25   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 2.0    | 0.60 | 2.0 |     | 25   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | 7.5    | 0.40 | 1.3 |     | 25   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | 3.4    | 0.42 | 1.4 |     | 25   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | 94     |      |     |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | 119    |      |     |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | 86     |      |     |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |



## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-609A

Lab Sample Number : 836234-010

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 150     | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | 2.5     | 0.93  | 3.1  |     | 1    | ug/L  | Q    | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 12000   | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | 7.6     | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | < 0.047 | 0.047 | 0.16 |     | 1    | mg/L  |      | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | 1.5     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 30      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 2.3    | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 67     | 0.30 | 1.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 31     | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 2.7    | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 33     | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | 5.9    | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 100    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 0.55   | 0.18 | 0.60 |     | 10   | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | < 0.17 | 0.17 | 0.57 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | < 0.18 | 0.18 | 0.60 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 0.19 | 0.19 | 0.63 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | < 0.20 | 0.20 | 0.67 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | < 0.12 | 0.12 | 0.40 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 0.14 | 0.14 | 0.47 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 0.13 | 0.13 | 0.43 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 0.16 | 0.16 | 0.53 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 0.19 | 0.19 | 0.63 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | < 0.14 | 0.14 | 0.47 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 0.16 | 0.16 | 0.53 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | < 0.13 | 0.13 | 0.43 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Project Name : WPSC-GREEN BAY

Project Number : 1569

Field ID : MW-609A

Matrix Type : WATER

Collection Date : 07/02/03

Report Date : 07/23/03

Lab Sample Number : 836234-010

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD  | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|------|------|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | < 0.17 | 0.17 | 0.57 |     | 10   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 0.21 | 0.21 | 0.70 |     | 10   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 3.3    | 0.24 | 0.80 |     | 10   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | < 0.16 | 0.16 | 0.53 |     | 10   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | < 0.17 | 0.17 | 0.57 |     | 10   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | 102    |      |      |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | 66     |      |      |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | 78     |      |      |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |

## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-609B

Lab Sample Number : 836234-011

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 66      | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | 1.5     | 0.93  | 3.1  |     | 1    | ug/L  | Q    | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 510     | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | < 0.047 | 0.047 | 0.16 |     | 1    | mg/L  |      | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | 3.2     | 0.97  | 3.2  |     | 1    | mg/L  |      | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 7.4     | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 0.37   | 0.30 | 1.0 |     | 1    | ug/l   | Q    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 103    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | < 0.020 | 0.020 | 0.067 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | < 0.012 | 0.012 | 0.040 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Project Name : WPSC-GREEN BAY

Project Number : 1569

Field ID : MW-609B

Matrix Type : WATER

Collection Date : 07/02/03

Report Date : 07/23/03

Lab Sample Number : 836234-011

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 0.021 | 0.021 | 0.070 |     | 1    | ug/L   |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 0.029   | 0.024 | 0.080 |     | 1    | ug/L   | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | 84      |       |       |     | 1    | %Recov |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | 72      |       |       |     | 1    | %Recov |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | 82      |       |       |     | 1    | %Recov |      | 07/10/03      | SW846 3510C | 8270C-SIM       |

## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-611

Lab Sample Number : 836234-012

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 74      | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | < 0.93  | 0.93  | 3.1  |     | 1    | ug/L  |      | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 1200    | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | 1.6     | 0.65  | 2.2  |     | 1    | ug/L  | Q    | 07/15/03      | SW846 6020  | SW846 6020      |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | 0.090   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | 2.6     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 42      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 104    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | < 0.020 | 0.020 | 0.067 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | < 0.012 | 0.012 | 0.040 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-611

Lab Sample Number : 836234-012

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 0.021 | 0.021 | 0.070 |     | 1    | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 0.028   | 0.024 | 0.080 |     | 1    | ug/L   | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | 100     |       |       |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | 74      |       |       |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | 81      |       |       |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |

## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : QC-1

Lab Sample Number : 836234-013

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 100     | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | 0.95    | 0.93  | 3.1  |     | 1    | ug/L  | Q    | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 4500    | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | < 0.047 | 0.047 | 0.16 |     | 1    | mg/L  |      | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 46      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 103    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | 0.058   | 0.019 | 0.063 |     | 1    | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | 0.022   | 0.020 | 0.067 |     | 1    | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | 0.034   | 0.012 | 0.040 |     | 1    | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | 0.10    | 0.014 | 0.047 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | 0.043   | 0.013 | 0.043 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | 0.063   | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | 0.041   | 0.019 | 0.063 |     | 1    | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | 0.036   | 0.014 | 0.047 |     | 1    | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | 0.023   | 0.013 | 0.043 |     | 1    | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : QC-1

Lab Sample Number : 836234-013

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | 0.043   | 0.021 | 0.070 |     | 1    | ug/L   | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 0.025   | 0.024 | 0.080 |     | 1    | ug/L   | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | 0.023   | 0.016 | 0.053 |     | 1    | ug/L   | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | 0.044   | 0.017 | 0.057 |     | 1    | ug/L   | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | 73      |       |       |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | 63      |       |       |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | 72      |       |       |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |



## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : QC-2

Lab Sample Number : 836234-014

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 5.8   | 5.8   | 19   |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Barium - Dissolved   | 72      | 0.28  | 0.93 |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Cadmium - Dissolved  | < 0.41  | 0.41  | 1.4  |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Chromium - Dissolved | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Iron - Dissolved     | 1300    | 18    | 60   |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Lead - Dissolved     | < 1.2   | 1.2   | 4.0  |     | 1    | ug/L  |      | 07/09/03      | SW846 6010B | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | 1.9     | 0.65  | 2.2  |     | 1    | ug/L  | Q    | 07/15/03      | SW846 6020  | SW846 6020      |
| Silver - Dissolved   | < 3.8   | 3.8   | 13   |     | 1    | ug/L  |      | 07/10/03      | SW846 6010B | SW846 6010B     |
| Nitrogen, NO3 + NO2  | < 0.047 | 0.047 | 0.16 |     | 1    | mg/L  |      | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | 1.0     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 31      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 104    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | < 0.020 | 0.020 | 0.067 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | < 0.012 | 0.012 | 0.040 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : QC-2

Lab Sample Number : 836234-014

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 0.021 | 0.021 | 0.070 |     | 1    | ug/L   |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 0.024   | 0.024 | 0.080 |     | 1    | ug/L   | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | 103     |       |       |     | 1    | %Recov |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | 74      |       |       |     | 1    | %Recov |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | 69      |       |       |     | 1    | %Recov |      | 07/10/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : TRIP

Lab Sample Number : 836234-015

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## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 103    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

**Analytical Report Number: 836234**

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-610

Lab Sample Number : 836234-016

**INORGANICS**

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 100     | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | 2.8     | 0.93  | 3.1  |     | 1    | ug/L  | Q    | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 3300    | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | < 0.047 | 0.047 | 0.16 |     | 1    | mg/L  |      | 07/11/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | 1.2     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 40      | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

**PVOC**

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 102    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

**PAH/ PNA**

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | 0.051   | 0.019 | 0.063 |     | 1    | ug/L  | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | 0.021   | 0.020 | 0.067 |     | 1    | ug/L  | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | 0.026   | 0.012 | 0.040 |     | 1    | ug/L  | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | 0.085   | 0.014 | 0.047 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | 0.036   | 0.013 | 0.043 |     | 1    | ug/L  | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | 0.052   | 0.016 | 0.053 |     | 1    | ug/L  | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | 0.036   | 0.019 | 0.063 |     | 1    | ug/L  | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | 0.030   | 0.014 | 0.047 |     | 1    | ug/L  | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L  |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | 0.018   | 0.013 | 0.043 |     | 1    | ug/L  | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-GREEN BAY

Collection Date : 07/02/03

Project Number : 1569

Report Date : 07/23/03

Field ID : MW-610

Lab Sample Number : 836234-016

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|---------|-------|-------|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | 0.036   | 0.021 | 0.070 |     | 1    | ug/L   | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | 0.028   | 0.024 | 0.080 |     | 1    | ug/L   | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | 0.020   | 0.016 | 0.053 |     | 1    | ug/L   | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | 0.037   | 0.017 | 0.057 |     | 1    | ug/L   | Q    | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | 88      |       |       |     | 1    | %Recov |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | 76      |       |       |     | 1    | %Recov |      | 07/10/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | 76      |       |       |     | 1    | %Recov |      | 07/10/03      | SW846 3510C | 8270C-SIM       |

## Analytical Report Number: 836234

Client : NATURAL RESOURCE TECH

Project Name : WPSC-GREEN BAY

Project Number : 1569

Field ID : MW-605B

Matrix Type : WATER

Collection Date : 07/02/03

Report Date : 07/23/03

Lab Sample Number : 836234-017

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|----------------------|---------|-------|------|-----|------|-------|------|---------------|-------------|-----------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Barium - Dissolved   | 63      | 0.33  | 1.1  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Chromium - Dissolved | < 0.93  | 0.93  | 3.1  |     | 1    | ug/L  |      | 07/11/03      | SW846 3010A | SW846 6010B     |
| Iron - Dissolved     | 280     | 19    | 63   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 07/14/03      | SW846 7470A | SW846 7470A     |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 07/10/03      | SW846 3010A | SW846 6010B     |
| Nitrogen, NO3 + NO2  | < 0.047 | 0.047 | 0.16 |     | 1    | mg/L  |      | 07/16/03      | EPA 353.2   | EPA 353.2       |
| Sulfide              | 1.4     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 07/09/03      | EPA 376.1   | EPA 376.1       |
| TOC as NPOC          | 7.3     | 0.20  | 0.67 |     | 1    | mg/L  |      | 07/09/03      | EPA 415.1   | EPA 415.1       |

## PVOC

Prep Date: 07/07/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|-------------------------|--------|------|-----|-----|------|--------|------|---------------|-------------|-----------------|
| 1,2,4-Trimethylbenzene  | 4.0    | 0.66 | 2.2 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Benzene                 | 0.87   | 0.30 | 1.0 |     | 1    | ug/l   | Q    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Ethylbenzene            | 1.7    | 0.60 | 2.0 |     | 1    | ug/l   | Q    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| Toluene                 | 0.60   | 0.58 | 1.9 |     | 1    | ug/l   | Q    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylene, o               | 2.0    | 0.64 | 2.1 |     | 1    | ug/l   | Q    | 07/07/03      | SW846 5030B | SW846 M8021     |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/l   |      | 07/07/03      | SW846 5030B | SW846 M8021     |
| a,a,a-Trifluorotoluene  | 104    |      |     |     | 1    | %Recov |      | 07/07/03      | SW846 5030B | SW846 M8021     |

## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD  | LOQ  | EQL | Dil. | Units | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|------|------|-----|------|-------|------|---------------|-------------|-----------------|
| 1-Methylnaphthalene    | 0.61   | 0.18 | 0.60 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Methylnaphthalene    | < 0.17 | 0.17 | 0.57 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthene           | 3.9    | 0.18 | 0.60 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Acenaphthylene         | 0.59   | 0.19 | 0.63 |     | 10   | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Anthracene             | 0.26   | 0.20 | 0.67 |     | 10   | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)anthracene     | 0.18   | 0.12 | 0.40 |     | 10   | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(a)pyrene         | < 0.14 | 0.14 | 0.47 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(b)fluoranthene   | < 0.13 | 0.13 | 0.43 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(ghi)perylene     | < 0.16 | 0.16 | 0.53 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Benzo(k)fluoranthene   | < 0.19 | 0.19 | 0.63 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Chrysene               | 0.19   | 0.14 | 0.47 |     | 10   | ug/L  | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Dibenzo(a,h)anthracene | < 0.16 | 0.16 | 0.53 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Fluoranthene           | 0.66   | 0.13 | 0.43 |     | 10   | ug/L  |      | 07/09/03      | SW846 3510C | 8270C-SIM       |

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Analytical Report Number: 836234

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Client : NATURAL RESOURCE TECH

Project Name : WPSC-GREEN BAY

Project Number : 1569

Field ID : MW-605B

Matrix Type : WATER

Collection Date : 07/02/03

Report Date : 07/23/03

Lab Sample Number : 836234-017

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## PAH/ PNA

Prep Date: 07/08/03

| Analyte                | Result | LOD  | LOQ  | EQL | Dil. | Units  | Code | Analysis Date | Prep Method | Analysis Method |
|------------------------|--------|------|------|-----|------|--------|------|---------------|-------------|-----------------|
| Fluorene               | 0.25   | 0.17 | 0.57 |     | 10   | ug/L   | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Indeno(1,2,3-cd)pyrene | < 0.21 | 0.21 | 0.70 |     | 10   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Naphthalene            | < 0.24 | 0.24 | 0.80 |     | 10   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Phenanthrene           | 0.24   | 0.16 | 0.53 |     | 10   | ug/L   | Q    | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Pyrene                 | 1.0    | 0.17 | 0.57 |     | 10   | ug/L   |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Nitrobenzene-d5        | 67     |      |      |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| 2-Fluorobiphenyl       | 70     |      |      |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |
| Terphenyl-d14          | 83     |      |      |     | 1    | %Recov |      | 07/09/03      | SW846 3510C | 8270C-SIM       |

## Qualifier Codes

| Flag | Applies To | Explanation                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A    | Inorganic  | Analyte is detected in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.                                                                                                                 |
| B    | Inorganic  | The analyte has been detected between the method detection limit and the reporting limit.                                                                                                                                                                                                                                                                                                                                    |
| B    | Organic    | Analyte is present in the method blank. Method blank criteria is evaluated to the laboratory method detection limit. Additionally, method blank acceptance may be based on project specific criteria or determined from analyte concentrations in the sample and are evaluated on a sample by sample basis.                                                                                                                  |
| C    | All        | Elevated detection limit.                                                                                                                                                                                                                                                                                                                                                                                                    |
| D    | All        | Analyte value from diluted analysis or surrogate result not applicable due to sample dilution.                                                                                                                                                                                                                                                                                                                               |
| E    | Inorganic  | Estimated concentration due to matrix interferences. During the metals analysis using the inductively coupled plasma (ICP), the serial dilution failed to meet the established control limits of 0-10% and the sample concentration is greater than 50 times the IDL (100 times the IDL for analysis done on the ICP-MS). The result was flagged with the E qualifier to indicate that a physical interference was observed. |
| E    | Organic    | Analyte concentration exceeds calibration range.                                                                                                                                                                                                                                                                                                                                                                             |
| F    | Inorganic  | Due to potential interferences for this analysis by Inductively Coupled Plasma techniques (SW-846 Method 6010), this analyte has been confirmed by and reported from an alternate method.                                                                                                                                                                                                                                    |
| F    | Organic    | Surrogate results outside control criteria.                                                                                                                                                                                                                                                                                                                                                                                  |
| H    | All        | Preservation, extraction or analysis performed past holding time.                                                                                                                                                                                                                                                                                                                                                            |
| J    | Inorganic  | The analyte has been detected between the method detection limit and the reporting limit.                                                                                                                                                                                                                                                                                                                                    |
| J    | Organic    | Concentration detected is greater than the method detection limit but less than the reporting limit.                                                                                                                                                                                                                                                                                                                         |
| K    | Inorganic  | Sample received unpreserved. Sample was either preserved at the time of receipt or at the time of sample preparation.                                                                                                                                                                                                                                                                                                        |
| K    | Organic    | Detection limit may be elevated due to the presence of an unrequested analyte.                                                                                                                                                                                                                                                                                                                                               |
| L    | All        | Elevated detection limit due to low sample volume.                                                                                                                                                                                                                                                                                                                                                                           |
| N    | All        | Spiked sample recovery not within control limits.                                                                                                                                                                                                                                                                                                                                                                            |
| P    | Organic    | The relative percent difference between the two columns for detected concentrations was greater than 40%.                                                                                                                                                                                                                                                                                                                    |
| Q    | All        | The analyte has been detected between the limit of detection (LOD) and limit of quantitation (LOQ). The results are qualified due to the uncertainty of analyte concentrations within this range.                                                                                                                                                                                                                            |
| S    | Organic    | The relative percent difference between quantitation and confirmation columns exceeds internal quality control criteria. Because the result is unconfirmed, it has been reported as a non-detect with an elevated detection limit.                                                                                                                                                                                           |
| U    | All        | The analyte was not detected at or above the reporting limit.                                                                                                                                                                                                                                                                                                                                                                |
| V    | All        | Sample received with headspace.                                                                                                                                                                                                                                                                                                                                                                                              |
| W    | All        | A second aliquot of sample was analyzed from a container with headspace.                                                                                                                                                                                                                                                                                                                                                     |
| X    | All        | See Sample Narrative.                                                                                                                                                                                                                                                                                                                                                                                                        |
| &    | All        | Laboratory Control Spike recovery not within control limits.                                                                                                                                                                                                                                                                                                                                                                 |
| *    | All        | Precision not within control limits.                                                                                                                                                                                                                                                                                                                                                                                         |
| <    | All        | The analyte was not detected at or above the reporting limit.                                                                                                                                                                                                                                                                                                                                                                |
| 1    | Inorganic  | Dissolved analyte or filtered analyte greater than total analyte; analyses passed QC based on precision criteria.                                                                                                                                                                                                                                                                                                            |
| 2    | Inorganic  | Dissolved analyte or filtered analyte greater than total analyte; analyses failed QC based on precision criteria.                                                                                                                                                                                                                                                                                                            |
| 3    | Inorganic  | BOD result is estimated due to the BOD blank exceeding the allowable oxygen depletion.                                                                                                                                                                                                                                                                                                                                       |
| 4    | Inorganic  | BOD duplicate precision not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                        |
| 5    | Inorganic  | BOD result is estimated due to insufficient oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                             |
| 6    | Inorganic  | BOD laboratory control sample not within control limits. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                  |
| 7    | Inorganic  | BOD result is estimated due to complete oxygen depletion. Due to the 48 hour holding time for this test, it is not practical to reanalyze and try to correct the deficiency.                                                                                                                                                                                                                                                 |



| Test Group Name      | 836234-001 | 836234-002 | 836234-003 | 836234-004 | 836234-005 | 836234-006 | 836234-007 | 836234-008 | 836234-009 | 836234-010 | 836234-011 | 836234-012 | 836234-013 | 836234-014 | 836234-015 | 836234-016 | 836234-017 |
|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| ARSENIC - DISSOLVED  | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |            | G          | G          |
| BARIUM - DISSOLVED   | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |            | G          | G          |
| CADMIUM - DISSOLVED  | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |            | G          | G          |
| CHROMIUM - DISSOLVED | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |            | G          | G          |
| IRON - DISSOLVED     | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |            | G          | G          |
| LEAD - DISSOLVED     | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |            | G          | G          |
| MERCURY - DISSOLVED  | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |            | G          | G          |
| NITROGEN, NO3 + NO2  | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          |            | K          | K          |
| PAH/ PNA             | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |            | G          | G          |
| PVOC                 | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |
| SELENIUM - DISSOLVED | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |            | G          | G          |
| SILVER - DISSOLVED   | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          | G          |            | G          | G          |
| SULFIDE              | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          |            | K          | K          |
| TOC AS NPOC          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          | K          |            | K          | K          |

## Wisconsin Certification

G = En Chem Green Bay      405132750 / DATCP: 105 000444  
 K = En Chem Kimberly      445134030  
 S = Subcontracted Analysis

# En Chem, Inc. Cooler Receipt Log

Batch No. 836 234

Project Name or ID WPSC - Green Bay No. of Coolers: 1 Temps: ROI

A. Receipt Phase: Date cooler was opened: 7/2/13 By: CY

- 1: Were samples received on ice? (Must be  $\leq 6$  C).....YES NO<sup>2</sup>
- 2: Was there a Temperature Blank?.....YES NO
- 3: Were custody seals present and intact? (Record on COC).....YES NO
- 4: Are COC documents present?.....YES NO<sup>2</sup>
- 5: Does this Project require quick turn around analysis?.....YES NO
- 6: Is there any sub-work?.....YES NO
- 7: Are there any short hold time tests?.....YES NO
- 8: Are any samples nearing expiration of hold-time? (Within 2 days).....YES<sup>1</sup> NO Contacted by/Who \_\_\_\_\_
- 9: Do any samples need to be Filtered or Preserved in the lab?.....YES<sup>1</sup> NO Contacted by/Who \_\_\_\_\_

B. Check-in Phase: Date samples were Checked-in: 7/2/13 By: CY

- 1: Were all sample containers listed on the COC received and intact?.....YES NO<sup>2</sup> NA
- 2: Sign the COC as received by En Chem. Completed.....YES NO
- 3: Do sample labels match the COC? .....YES NO<sup>2</sup>
- 4: Completed pH check on preserved samples.. .....YES NO NA  
(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)
- 5: Do samples have correct chemical preservation?.....YES NO<sup>2</sup> NA  
(This statement does not apply to water: VOC, O&G, TOC, DRO, Total Rec. Phenolics)
- 6: Are dissolved parameters field filtered?.....YES NO<sup>2</sup> NA
- 7: Are sample volumes adequate for tests requested? .....YES NO<sup>2</sup>
- 8: Are VOC samples free of bubbles >6mm .....YES NO<sup>2</sup> NA
- 9: Enter samples into logbook. Completed.....YES NO
- 10: Place laboratory sample number on all containers and COC. Completed.....YES NO
- 11: Complete Laboratory Tracking Sheet (LTS). Completed.....YES NO NA
- 12: Start Nonconformance form. ....YES NO NA
- 13: Initiate Subcontracting procedure. Completed.....YES NO NA
- 14: Check laboratory sample number on all containers and COC. ....JR YES NO NA

## Short Hold-time tests:

|                              |                                   |                                                                                        |
|------------------------------|-----------------------------------|----------------------------------------------------------------------------------------|
| 48 Hours or less             | 7 days                            | Footnotes<br>1 Notify proper lab group immediately.<br>2 Complete nonconformance memo. |
| Coliform (6 hrs)             | Flashpoint                        |                                                                                        |
| Hexavalent Chromium (24 Hrs) | TSS                               |                                                                                        |
| BOD                          | Total Solids                      |                                                                                        |
| Nitrite or Nitrate           | TDS                               |                                                                                        |
| Low Level Mercury            | Sulfide                           |                                                                                        |
| Ortho Phosphorus             | Free Liquids                      |                                                                                        |
| Turbidity                    | Total Volatile Solids             |                                                                                        |
| Surfactants                  | Aqueous Extractable Organics- ALL |                                                                                        |
| Sulfite                      | Unpreserved VOC's                 |                                                                                        |
| En Core Preservation         | Ash                               |                                                                                        |
| Color                        |                                   |                                                                                        |
|                              |                                   |                                                                                        |
|                              |                                   |                                                                                        |

Rev. 4/11/03, Attachment to 1-REC-5.  
Subject to QA Audit.

Reviewed by/date BS 7/3/03



(Please Print Legibly)

Company Name: Natural Resource Technology

Branch or Location: Pewaukee WI

Project Contact: Eric Kovatch

Telephone: 262-522-1208

Project Number: 1569

Project Name: WPEC- Two Rivers

Project State: WI

Sampled By (Print): Sally Burlew

PO #:

Data Package Options - (please circle if requested)

Sample Results Only (no QC)

EPA Level II (Subject to Surcharge)

EPA Level III (Subject to Surcharge)

EPA Level IV (Subject to Surcharge)

LABORATORY ID (Lab Use Only)

FIELD ID

COLLECTION DATE

TIME

Regulatory Program

UST

RCRA

SDWA

HPDES

CERCLA

Matrix Codes

W=Water

S=Soil

A=Air

C=Charcoal

B=Biota

Sl=Sludge

Matrix

W

S

A

C

B

Sl

Matrix

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1241 Bellevue St., Suite 9  
Green Bay, WI 54302  
920-469-2436  
FAX 920-469-8827

## CHAIN OF CUSTODY

106537

Page 2 of 2

\*Preservation Codes  
D=HNO3 F=Methanol G=NaOH  
I=Sodium Thiosulfate J=Other

A=None B=HCL C=H2SO4 E=EnCore  
H=Sodium Bisulfate Solution

FILTERED? (YES/NO)

PRESERVATION (CODE)\*

Quote #:

Mail Report To: Eric Kovatch

Company: NRT

Address: 23713 W. Paul Road  
Pewaukee, WI 53072

Invoice To: Eric Kovatch

Company: NRT

Address: as above

Mail Invoice To:

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)

Mail Invoice To:

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)

Mail Invoice To:

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)

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Mail Invoice To:

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)

Mail Invoice To:

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)

En Chain Project No: 836234

Sample Receipt Temp: 20.5

Sample Receipt pH (With Metals): 4.5

Cooler Custody Seal: Present / Not Present

Intact / Not Intact: Intact

Date/Time: 12/03 4:52

Date/Time: 12/03 4:52

Date/Time: 12/03 4:52

Date/Time: 12/03 4:52

Date/Time: 12/03 4:52

Received By: CLC

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Date/Time: 12/03 4:52

Received By: CLC

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Received By: CLC



(Please Print Legibly)

Company Name: Natural Resource Technology

Branch or Location: Pewaukee WI

Project Contact: Eric Kovatch

Telephone: 262-522-1208

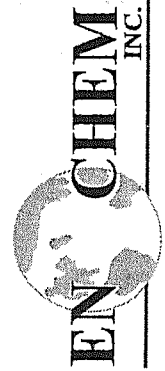
Project Number: 1569

Project Name: WPLC-Two Rivers

Project State: WI

Sampled By (Print): Sody Barben

PO #:



1241 Bellevue St., Suite 9  
Green Bay, WI 54302  
920-469-2436  
FAX 920-469-8827

**CHAIN OF CUSTODY**

Quote # : 106537 Page 2 of 2

Mail Report To: Eric Kovatch

Company: NAT

Address: 23713 W. Paul Road  
Pewaukee, WI 53072

Invoice To: Eric Kovatch

Company: NAT

Address: as above

**ANALYSES REQUESTED**

**Matrix Codes**

W=Water S=Soil A=Air C=Charcoal B=Biota SI=Sludge

**Regulatory Program**

UST RCRA SDWA NPDES CERCLA

**Collection**

DATE TIME

**Field ID**

**Laboratory ID (Lab Use Only)**

**Data Package Options - (please circle if requested)**

Sample Results Only (no QC)

EPA Level II (Subject to Surcharge)

EPA Level III (Subject to Surcharge)

EPA Level IV (Subject to Surcharge)

| LABORATORY ID (Lab Use Only) | FIELD ID | DATE | TIME | MATRIX | PAHs | PYOCs | PCRB Metals | Dissolved Metals | Total Solids | Nitrate / Nitrite | TOTAL # OF BOTTLES SENT | CLIENT COMMENTS                                      | LAB COMMENTS (Lab Use Only) |
|------------------------------|----------|------|------|--------|------|-------|-------------|------------------|--------------|-------------------|-------------------------|------------------------------------------------------|-----------------------------|
| 011                          | MW-60913 |      |      | W      | X    | X     | X           | X                | X            | X                 |                         | RebA Metals 340mls 3-250ml (D,D,C), H-Poly, 1-C Anth |                             |
| 012                          | MW-611   |      |      | W      | X    | X     | X           | X                | X            | X                 |                         | 2 Dissolved                                          |                             |
| 013                          | QC-1     |      |      | W      | X    | X     | X           | X                | X            | X                 |                         | Even Field                                           |                             |
| 014                          | QC-2     |      |      | W      | X    | X     | X           | X                | X            | X                 |                         | Pit Hurd                                             |                             |
| 015                          | TRIP     |      |      | W      | X    | X     | X           | X                | X            | X                 |                         | 1-40mls H <sub>2</sub> O P.B.                        |                             |
| 016                          | MW-610   |      |      | W      | X    | X     | X           | X                | X            | X                 |                         | 340mls 3-250ml (C,D,D) 1-C Poly, 1-C Anth            |                             |
| 017                          | MW-60513 |      |      | W      | X    | X     | X           | X                | X            | X                 |                         |                                                      |                             |
| 020                          |          |      |      | W      | X    | X     | X           | X                | X            | X                 |                         |                                                      |                             |

**Rush Turnaround Time Requested (TAT) - Prelim**

(Rush TAT subject to approval/surcharge)

Date Needed: 12/03/03 Date/Time: 4:15Z

Transmit Prelim Rush Results by (circle):

Phone Fax E-Mail

Phone #: \_\_\_\_\_

Fax #: \_\_\_\_\_

E-Mail Address: \_\_\_\_\_

**Relinquished By:** Ed Barry 7-1-03 4:12 Date/Time: 12/03/03 Date/Time: 4:15Z

**Relinquished By:** \_\_\_\_\_ Date/Time: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Relinquished By:** \_\_\_\_\_ Date/Time: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Relinquished By:** \_\_\_\_\_ Date/Time: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**Relinquished By:** \_\_\_\_\_ Date/Time: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**En Chain Project No:** 836034

**Sample Receipt Temp:** 20.5

**Sample Receipt pH (Wet Metals):** AC

**Cooler Custody Seal:** AC

**Present / Not Present:** Present

**Intact / Not Intact:** Intact

Samples on HOLD are subject to special pricing and release of liability

# Frontier Geosciences Inc.

*Environmental Research & Specialty Analytical Laboratory*  
414 Pontius Ave N · Seattle WA 98109

Eric Kuvatch  
Natural Resource Technology, Inc.  
23713 W. Paul Road  
Pewaukee, WI 53072

July 30, 2003

Dear Eric,

Enclosed please find the results report for the freshwater samples received on July 3, 2003 for weak acid dissociable cyanide (WAD CN) determination. A total of sixteen samples were received in good condition in a cooler with a temperature of 3.9 °C. Samples were field preserved with 12 mL of 25% (v/v) NaOH, so no preservation was required upon receipt.

Frontier's WAD CN method FGS-077.2 determines 'free' cyanide by flow injection/ligand exchange/amperometric titration. Hydrogen cyanide in water, cyanide ion, and the cyano-complexes of zinc, copper, cadmium, mercury, nickel, and silver may be determined by this method. First, an aliquot of the sample is treated with a series of ligand-exchange reagents that complex with the transition metal ions just listed. As this occurs, cyanide ion is released from the complexes. The cyanide ions are then converted to hydrogen cyanide gas (HCN) which diffuses through a membrane before being converted back into cyanide ions. The cyanide ion concentration is monitored amperometrically with a silver working electrode, silver/silver chloride reference electrode, and a platinum/stainless steel counter electrode.

All quality control parameters were within the control limits and there were no analytical issues. Please feel free to contact me with any questions or concerns.

Warm Regards



Brynn Bernis  
Project Manager  
[brynnb@frontiergeosciences.com](mailto:brynnb@frontiergeosciences.com)



M.B. Miller, IV  
Project Manager  
[mbm@frontiergeosciences.com](mailto:mbm@frontiergeosciences.com)

206 622 6960  
fax 206 622 6870  
email: [info@Frontier.WA.com](mailto:info@Frontier.WA.com)  
[www.FrontierGeosciences.com](http://www.FrontierGeosciences.com)

**Report to Natural Resource Technologies**  
**1569 WPSC Two Rivers Project**

Reported by Frontier Geosciences - Brynn Bemis  
July 30, 2003

***Sample Results Summary***

| <b>Sample<br/>ID</b> | <b>WAD CN<br/>(µg/L)</b> |
|----------------------|--------------------------|
| MW-601               | < 1.0                    |
| MW-602               | < 1.0                    |
| MW-603A              | 53.9                     |
| MW-603B              | 3.9                      |
| MW-604               | 4.8                      |
| MW-605B              | < 1.0                    |
| MW-606               | 17.1                     |
| MW-607A              | 9.0                      |
| MW-608A              | < 1.0                    |
| MW-608B              | 6.5                      |
| MW-609A              | 7.4                      |
| MW-609B              | < 1.0                    |
| MW-610               | 3.8                      |
| MW-611               | 10.4                     |
| QC-1                 | 1.7                      |
| QC-2                 | < 1.0                    |
| Reporting Limit @ 2x | 1.0                      |



**Report to Natural Resource Technologies**  
**1569 WPSC Two Rivers Project**

Reported by Frontier Geosciences - Brynn Bemis

July 30, 2003

***PBW and CRM Summary***

| <b>Method</b>        | <b>WAD CN</b>                       |
|----------------------|-------------------------------------|
| <b>Blanks</b>        | <b>(<math>\mu\text{g/L}</math>)</b> |
| PBW1                 | -0.01                               |
| PBW2                 | -0.06                               |
| PBW3                 | -0.06                               |
| Mean                 | -0.04                               |
| Std. Dev.            | 0.03                                |
| Reporting Limit @ 1x | 0.48                                |
| Reporting Limit @ 2x | 1.0                                 |

| <b>Certified</b>     | <b>WAD CN</b>                       |
|----------------------|-------------------------------------|
| <b>Ref. Material</b> | <b>(<math>\mu\text{g/L}</math>)</b> |
| Source               | HgCN                                |
| Cert. Value          | 25.00                               |
| Obs. Value           | 26.91                               |
| % Rec.               | 107.6                               |

PBW - Preparation Blank Water

CRM - Certified Reference Material

**Report to Natural Resource Technologies**  
**1569 WPSC Two Rivers Project**

Reported by Frontier Geosciences - Brynn Bemis  
July 30, 2003

***Quality Control Summary***

| <b>Matrix</b>     | <b>WAD CN</b> |
|-------------------|---------------|
| <b>QC Samples</b> | <b>(µg/L)</b> |
| Sample ID         | MW-606        |
| Sample Conc.      | 17.1          |
| MD Conc.          | 17.8          |
| RPD               | 4.3           |
| Spiking Level     | 40.0          |
| MS Conc.          | 57.2          |
| MS % Rec.         | 99.5          |
| MSD Conc.         | 59.6          |
| MSD % Rec.        | 105.3         |
| MS/MSD RPD        | 4.0           |

# Frontier Geosciences Inc.

Environmental Research & Specialty Analytical Laboratory

414 Pontius Avenue North • Seattle WA 98109

(206) 622-6960 fax (206) 622-6870 Info@FrontierGeosciences.com

## Chain-of-Custody Record & Laboratory Analysis Request

Date: 7.2.03 Page: 1 of 2

|                                                          |  |                                                                                                                                                        |  |
|----------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Client Company: <u>Natural Resource Technology, Inc.</u> |  | Frontier Project Manager: <u>M.B. Miller</u>                                                                                                           |  |
| Address: <u>23713 W. Paul Road, Puyallup, WA 98072</u>   |  | Guaranteed Turnaround Time:                                                                                                                            |  |
| CONTACT: <u>Eric Kountch</u>                             |  | Confirmation of Sample Arrival at Frontier: <input type="checkbox"/> YES <input type="checkbox"/> NO                                                   |  |
| Phone: <u>206-522-1208</u> Fax: <u>206-522-6001</u>      |  | Quality Assurance Level: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> High                                                    |  |
| Email: <u>EKountch@naturalrt.com</u>                     |  | Disposal*: <input checked="" type="checkbox"/> Frontier Dispose <input type="checkbox"/> Return to Client <input type="checkbox"/> Ship to 3rd Party** |  |
| Project Name: <u>1569 WPGC - Two Rivers</u>              |  | *All samples are held for at least 2 months after date of receipt.                                                                                     |  |
| Contract/PO #:                                           |  | Please note that after this time they are disposed of or returned to the client.                                                                       |  |
|                                                          |  | Clients may request a longer holding time by writing to the Frontier Project Manager.                                                                  |  |
|                                                          |  | **Please discuss this with the Frontier Project Manager.                                                                                               |  |
|                                                          |  | Carrier Information: <input checked="" type="checkbox"/> FED EX <input type="checkbox"/> UPS <input type="checkbox"/> Other <input type="checkbox"/>   |  |
|                                                          |  | Tracking # <u>8400 7577 7060</u>                                                                                                                       |  |

| Engraved Bottle ID | Sample ID | Matrix | # Bottles | Date/Time Sampled | Collected by | Preservation | Analysis Required/Comments     |
|--------------------|-----------|--------|-----------|-------------------|--------------|--------------|--------------------------------|
| MW-601             |           | FW     | 1         | 7.2.03            | STB          | N2OH         | West Acid Disc Grade OIA-11677 |
| MW-602             |           |        |           |                   |              |              |                                |
| MW-603A            |           |        |           |                   |              |              |                                |
| MW-603B            |           |        |           |                   |              |              |                                |
| MW-604             |           |        |           |                   |              |              |                                |
| MW-605A            |           |        |           |                   |              |              |                                |
| MW-605B            |           |        |           |                   |              |              |                                |
| MW-606             |           |        |           |                   |              |              |                                |
| MW-607A            |           |        |           |                   |              |              |                                |
| MW-607B            |           |        |           |                   |              |              |                                |

|                                                                                                                                                                                                                                                                                  |  |                                                                                                                                                                                                                                                       |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Sample Receipt</b><br>C.O.C. Seal Intact? <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A<br>Cooler Temperature: <u>3.9</u> °C<br>Comments: <u>Incl. in ship -</u><br><u>ment but not list</u><br><u>on C.O.C.</u><br>VTSR: <u>1036</u> |  | <b>Matrix Codes:</b><br>FW = fresh water (salinity < 0.5 ppt)<br>BW = brackish water<br>SW = seawater<br>WW = wastewater<br>SE = sediment<br>SO = soil<br>AT = animal tissue<br>PT = plant tissue<br>TR = tap<br>PP = petroleum product<br>OT = other |  |
| Relinquished by: <u>Josy Bohn</u><br>Print name: <u>Josy Bohn</u><br>Company: <u>NRT</u><br>Date: <u>7.2.03</u> Time: _____<br>Received by: <u>A. Malachuk</u><br>Print name: <u>A. Malachuk</u><br>Company: <u>Frontier</u><br>Date: <u>7.5.03</u> Time: <u>1205</u>            |  | Relinquished by: _____<br>Print name: _____<br>Company: _____<br>Date: _____ Time: _____<br>Received by: _____<br>Print name: _____<br>Company: _____<br>Date: _____ Time: _____                                                                      |  |

# Frontier Geosciences Inc.

Environmental Research & Specialty Analytical Laboratory

414 Pontius Avenue North • Seattle WA 98109

(206) 622-6960 fax (206) 622-6870 Info@FrontierGeosciences.com

## Chain-of-Custody Record & Laboratory Analysis Request

Date: 7-2-03 Page: 2 of 2

|                                                                                                                                                                                                                                                                                                                    |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |                                                                                                      |  |                                                                                                      |  |                                                                                                                |  |                                                                                                                |  |                                                                                                                                                                                                                                                                                                                   |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------|--|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Client Company:</b> Natural Resource Technology<br><b>Address:</b> 2573 W. Paul Road, POUAUKU, WA, 98072<br><b>CONTACT:</b> Eric Kovatch<br><b>Phone:</b> 206-522-1208 <b>Fax:</b> 206-523-4001<br><b>Email:</b> EKovatch@naturalrt.com<br><b>Project Name:</b> 1269 WPSC - Two Rivers<br><b>Contract/PO #:</b> |  | <b>Frontier Project Manager:</b> M.B. Miller<br><b>Guaranteed Turnaround Time:</b><br><b>Confirmation of Sample Arrival at Frontier:</b> <input type="checkbox"/> YES <input type="checkbox"/> NO<br><b>Quality Assurance Level:</b> <input checked="" type="checkbox"/> Standard <input type="checkbox"/> High<br><b>Disposal:</b> <input checked="" type="checkbox"/> Frontier Dispose <input type="checkbox"/> Return to Client <input type="checkbox"/> Ship to 3rd Party**<br><small>**All samples are held for at least 2 months after date of receipt.<br/> Please note that after this time they are disposed of or returned to the client.<br/> Clients may request a longer holding time by writing to the Frontier Project Manager.<br/> **Please discuss this with the Frontier Project Manager.</small><br><b>Carrier Information:</b> FED EX <input checked="" type="checkbox"/> UPS <input type="checkbox"/> Other <input type="checkbox"/><br><b>Tracking #</b> 8400 7577 7066 |  |                                                                                                      |  |                                                                                                      |  |                                                                                                                |  |                                                                                                                |  |                                                                                                                                                                                                                                                                                                                   |  |
| <b>Engraved Bottle ID</b><br>MW-608A<br>MW-608B<br>MW-609A<br>MW-609B<br>MW-611<br>QC-1<br>QC-2<br>MW-610                                                                                                                                                                                                          |  | <b>Matrix</b><br>FW<br>FW<br>FW<br>FW<br>FW<br>FW<br>FW<br>FW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  | <b># Bottles</b><br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1                                             |  | <b>Date/Time Sampled</b><br>7-2-03<br>7-2-03<br>7-2-03<br>7-2-03<br>7-2-03<br>7-2-03<br>7-2-03       |  | <b>Collected by</b><br>STB<br>STB<br>STB<br>STB<br>STB<br>STB<br>STB<br>STB                                    |  | <b>Preservation</b><br>NaOH<br>NaOH<br>NaOH<br>NaOH<br>NaOH<br>NaOH<br>NaOH<br>NaOH                            |  | <b>Analysis Required/Comments</b><br>Weak Acid Diss. CYCLO OJA-1677<br>Weak Acid Diss. CYCLO OJA-1677<br>Weak Acid Diss. CYCLO OJA-1677<br>Weak Acid Diss. CYCLO OJA-1677<br>Weak Acid Diss. CYCLO OJA-1677<br>Weak Acid Diss. CYCLO OJA-1677<br>Weak Acid Diss. CYCLO OJA-1677<br>Weak Acid Diss. CYCLO OJA-1677 |  |
| <b>Sample Receipt</b><br>C.O.C. Seal Intact? <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A<br>Cooler Temperature: 3.9 °C<br>Comments: * Incl. in shipment but not listed on C.O.C.<br>VTSR: 1030                                                                |  | <b>Matrix Codes:</b><br>FW = fresh water (salinity < 0.5 ppt)<br>BW = brackish water<br>SW = seawater<br>WW = wastewater<br>SE = sediment<br>SO = soil<br>AT = animal tissue<br>PT = plant tissue<br>TR = trap<br>PP = petroleum product<br>OT = other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  | <b>Relinquished by:</b> JESS BARNUM<br>Print name: Jess Barnum<br>Company: MRT<br>Date: 7-2-03 Time: |  | <b>Relinquished by:</b> JESS BARNUM<br>Print name: Jess Barnum<br>Company: MRT<br>Date: 7-2-03 Time: |  | <b>Received by:</b> A. M. Kovatch<br>Print name: A. M. Kovatch<br>Company: Frontier<br>Date: 7-3-03 Time: 1205 |  | <b>Received by:</b> A. M. Kovatch<br>Print name: A. M. Kovatch<br>Company: Frontier<br>Date: 7-3-03 Time: 1205 |  |                                                                                                                                                                                                                                                                                                                   |  |

## Analytical Report Number: 840082

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436Client : NATURAL RESOURCE TECH  
Project Name : WPSC-TWO RIVERS  
Project Number 1569  
Field ID : MW-603AMatrix Type : WATER  
Collection Date : 10/16/03  
Report Date : 11/07/03  
Lab Sample Number 840082-001

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 20    | 20    | 68   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Barium - Dissolved   | 200     | 0.82  | 2.8  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Cadmium - Dissolved  | < 1.3   | 1.3   | 4.4  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Chromium - Dissolved | < 2.3   | 2.3   | 7.8  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Iron - Dissolved     | 40000   | 46    | 160  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Lead - Dissolved     | < 3.2   | 3.2   | 11   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 12    | 12    | 40   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Silver - Dissolved   | < 2.8   | 2.8   | 9.2  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Nitrogen, NO3 + NO2  | < 0.047 | 0.047 | 0.16 |     | 1    | mg/L  |      | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | 5.8     | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 31      | 1.0   | 3.3  |     | 1    | mg/L  |      | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/22/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | 130    | 1.6  | 5.5 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | 70     | 1.3  | 4.3 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | 530    | 0.75 | 2.5 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | 390    | 1.5  | 5.0 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 1.4  | 1.4  | 4.8 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | 19     | 1.4  | 4.8 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | 320    | 1.6  | 5.3 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | 260    | 3.0  | 10  |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 104    |      |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/21/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|--------|-----|-----|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 56     | 4.5 | 15  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | 6.8    | 4.2 | 14  |     | 250  | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | 25     | 4.5 | 15  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | < 4.8  | 4.8 | 16  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | < 5.0  | 5.0 | 17  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | < 3.0  | 3.0 | 10  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | < 3.5  | 3.5 | 12  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | < 3.2  | 3.2 | 11  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | < 4.0  | 4.0 | 13  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | < 4.8  | 4.8 | 16  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | < 3.5  | 3.5 | 12  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 4.0  | 4.0 | 13  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | < 3.2  | 3.2 | 11  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | 12     | 4.2 | 14  |     | 250  | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | < 5.2  | 5.2 | 18  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | 120    | 6.0 | 20  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | 11     | 4.0 | 13  |     | 250  | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | < 4.2  | 4.2 | 14  |     | 250  | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | NA     |     |     |     | 1    | %Recov | D    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | NA     |     |     |     | 1    | %Recov | D    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | NA     |     |     |     | 1    | %Recov | D    | 10/22/03 | SW846 3510C | 8270C-SIM  |

En Chem Inc.

## Analytical Report Number: 840082

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : NATURAL RESOURCE TECH

Project Name : WPSC-TWO RIVERS

Project Number 1569

Field ID : MW-603B

Matrix Type : WATER

Collection Date : 10/16/03

Report Date : 11/07/03

Lab Sample Number 840082-002

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 5.8   | 5.8   | 19   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Barium - Dissolved   | 44      | 0.28  | 0.93 |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Cadmium - Dissolved  | < 0.41  | 0.41  | 1.4  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Chromium - Dissolved | < 1.1   | 1.1   | 3.8  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Iron - Dissolved     | 71      | 18    | 59   |     | 1    | ug/L  |      | 10/27/03 | SW846 6010B | SW846 6010B |
| Lead - Dissolved     | < 1.2   | 1.2   | 4.0  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 3.6   | 3.6   | 12   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Silver - Dissolved   | < 3.8   | 3.8   | 13   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.061   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 5.1     | 1.0   | 3.3  |     | 1    | mg/L  | A    | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/21/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 102    |      |     |     | 1    | %Recov |      | 10/21/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/21/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|---------|-------|-------|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 0.024   | 0.018 | 0.060 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | 0.026   | 0.018 | 0.060 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | 0.037   | 0.019 | 0.063 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | 0.024   | 0.020 | 0.067 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | 0.069   | 0.012 | 0.040 |     | 1    | ug/L   |      | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | 0.041   | 0.014 | 0.047 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | 0.040   | 0.013 | 0.043 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | 0.041   | 0.016 | 0.053 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | 0.038   | 0.019 | 0.063 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | 0.081   | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | 0.075   | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | 0.034   | 0.017 | 0.057 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | 0.028   | 0.021 | 0.070 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | 0.071   | 0.024 | 0.080 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | 0.078   | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | 0.13    | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | 72      |       |       |     | 1    | %Recov |      | 10/21/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | 78      |       |       |     | 1    | %Recov |      | 10/21/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | 84      |       |       |     | 1    | %Recov |      | 10/21/03 | SW846 3510C | 8270C-SIM  |

Client : NATURAL RESOURCE TECH

Project Name : WPSC-TWO RIVERS

Project Number 1569

Field ID : MW-604

Matrix Type : WATER

Collection Date : 10/16/03

Report Date : 11/07/03

Lab Sample Number 840082-003

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Barium - Dissolved   | 130     | 0.33  | 1.1  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Chromium - Dissolved | 1.3     | 0.93  | 3.1  |     | 1    | ug/L  | Q    | 10/27/03 | SW846 3010A | SW846 6010B |
| Iron - Dissolved     | 11000   | 19    | 62   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.063   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | 6.8     | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 15      | 1.0   | 3.3  |     | 1    | mg/L  | A    | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/21/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | 41     | 0.66 | 2.2 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | 11     | 0.52 | 1.7 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | 140    | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | 95     | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | 12     | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | 79     | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | 51     | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 98     |      |     |     | 1    | %Recov |      | 10/21/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/22/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|--------|-----|-----|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 180    | 9.0 | 30  |     | 500  | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | 11     | 1.7 | 5.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | 79     | 9.0 | 30  |     | 500  | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | 11     | 1.9 | 6.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | 23     | 2.0 | 6.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | 10     | 1.2 | 4.0 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | 9.4    | 1.4 | 4.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | 3.7    | 1.3 | 4.3 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | 5.1    | 1.6 | 5.3 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | 4.8    | 1.9 | 6.3 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | 9.4    | 1.4 | 4.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 1.6  | 1.6 | 5.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | 21     | 1.3 | 4.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | 44     | 8.5 | 28  |     | 500  | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | 3.4    | 2.1 | 7.0 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | 12     | 2.4 | 8.0 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | 69     | 8.0 | 27  |     | 500  | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | 30     | 1.7 | 5.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | NA     |     |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | NA     |     |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | NA     |     |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |

Client : NATURAL RESOURCE TECH

Project Name : WPSC-TWO RIVERS

Project Number 1569

Field ID : MW-606

Matrix Type : WATER

Collection Date : 10/16/03

Report Date : 11/07/03

Lab Sample Number 840082-004

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 5.8   | 5.8   | 19   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Barium - Dissolved   | 380     | 0.28  | 0.93 |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Cadmium - Dissolved  | < 0.41  | 0.41  | 1.4  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Chromium - Dissolved | < 1.1   | 1.1   | 3.8  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Iron - Dissolved     | 16000   | 18    | 59   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Lead - Dissolved     | < 1.2   | 1.2   | 4.0  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 3.6   | 3.6   | 12   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Silver - Dissolved   | < 3.8   | 3.8   | 13   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.070   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | 5.4     | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 21      | 1.0   | 3.3  |     | 1    | mg/L  | A    | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/21/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | 3.3    | 0.66 | 2.2 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | 0.86   | 0.52 | 1.7 |     | 1    | ug/L   | Q    | 10/21/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | 38     | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | 37     | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | 3.9    | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | 12     | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | 8.5    | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 100    |      |     |     | 1    | %Recov |      | 10/21/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/22/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|--------|-----|-----|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 62     | 4.5 | 15  |     | 250  | ug/L   | D    | 10/24/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | < 1.7  | 1.7 | 5.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | 13     | 1.8 | 6.0 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | 10     | 1.9 | 6.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | 5.2    | 2.0 | 6.7 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | 2.0    | 1.2 | 4.0 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | < 1.4  | 1.4 | 4.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | < 1.3  | 1.3 | 4.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | < 1.6  | 1.6 | 5.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | < 1.9  | 1.9 | 6.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | 2.1    | 1.4 | 4.7 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 1.6  | 1.6 | 5.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | 5.0    | 1.3 | 4.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | 20     | 1.7 | 5.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | < 2.1  | 2.1 | 7.0 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | 3.3    | 2.4 | 8.0 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | 22     | 1.6 | 5.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | 7.3    | 1.7 | 5.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | NA     |     |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | NA     |     |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | NA     |     |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |



Client : NATURAL RESOURCE TECH  
Project Name : WPSC-TWO RIVERS  
Project Number 1569  
Field ID : MW-605B

Matrix Type : WATER  
Collection Date : 10/16/03  
Report Date : 11/07/03  
Lab Sample Number 840082-008

**INORGANICS**

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 5.8   | 5.8   | 19   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Barium - Dissolved   | 62      | 0.28  | 0.93 |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Cadmium - Dissolved  | < 0.41  | 0.41  | 1.4  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Chromium - Dissolved | < 1.1   | 1.1   | 3.8  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Iron - Dissolved     | 55      | 18    | 59   |     | 1    | ug/L  | Q    | 10/27/03 | SW846 6010B | SW846 6010B |
| Lead - Dissolved     | < 1.2   | 1.2   | 4.0  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 3.6   | 3.6   | 12   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Silver - Dissolved   | < 3.8   | 3.8   | 13   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.059   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 4.1     | 1.0   | 3.3  |     | 1    | mg/L  | A    | 10/30/03 | EPA 415.2   | EPA 415.2   |

**PVOC**

Prep Date: 10/22/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | 7.1    | 0.66 | 2.2 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | 0.77   | 0.52 | 1.7 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | 5.5    | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | 20     | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | 16     | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | 8.9    | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | 10     | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 104    |      |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

**PAH/ PNA**

Prep Date: 10/22/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|---------|-------|-------|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 2.3     | 0.72  | 2.4   |     | 40   | ug/L   | QD   | 10/27/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | 0.75    | 0.68  | 2.3   |     | 40   | ug/L   | QD   | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | 3.0     | 0.72  | 2.4   |     | 40   | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | < 0.76  | 0.76  | 2.5   |     | 40   | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | 0.49    | 0.020 | 0.067 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | 0.12    | 0.012 | 0.040 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | 0.063   | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | 0.030   | 0.013 | 0.043 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | 0.037   | 0.016 | 0.053 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | 0.034   | 0.019 | 0.063 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | 0.11    | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | 0.42    | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | 0.47    | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | 0.024   | 0.021 | 0.070 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | 7.6     | 0.96  | 3.2   |     | 40   | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | 0.82    | 0.64  | 2.1   |     | 40   | ug/L   | QD   | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | < 0.68  | 0.68  | 2.3   |     | 40   | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | 63      |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | 63      |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | 80      |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |

En Chem Inc.

## Analytical Report Number: 840082

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : NATURAL RESOURCE TECH

Project Name : WPSC-TWO RIVERS

Project Number 1569

Field ID : MW-610

Matrix Type : WATER

Collection Date : 10/16/03

Report Date : 11/07/03

Lab Sample Number 840082-007

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Barium - Dissolved   | 130     | 0.33  | 1.1  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Chromium - Dissolved | 1.0     | 0.93  | 3.1  |     | 1    | ug/L  | Q    | 10/28/03 | SW846 3010A | SW846 6010B |
| Iron - Dissolved     | 3200    | 19    | 62   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.069   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | 2.2     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 41      | 1.0   | 3.3  |     | 1    | mg/L  |      | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/22/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 102    |      |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/22/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|---------|-------|-------|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | 0.062   | 0.019 | 0.063 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | < 0.020 | 0.020 | 0.067 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | 0.034   | 0.012 | 0.040 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | 0.11    | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | 0.054   | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | 0.073   | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | 0.053   | 0.019 | 0.063 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | 0.054   | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | 0.021   | 0.016 | 0.053 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | 0.024   | 0.013 | 0.043 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | 0.052   | 0.021 | 0.070 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | < 0.024 | 0.024 | 0.080 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | 0.042   | 0.017 | 0.057 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | 66      |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | 75      |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | 101     |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |

Client : NATURAL RESOURCE TECH

Project Name : WPSC-TWO RIVERS

Project Number 1569

Field ID : MW-602

Matrix Type : WATER

Collection Date : 10/16/03

Report Date : 11/07/03

Lab Sample Number 840082-005

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 5.8   | 5.8   | 19   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Barium - Dissolved   | 120     | 0.28  | 0.93 |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Cadmium - Dissolved  | < 0.41  | 0.41  | 1.4  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Chromium - Dissolved | < 1.1   | 1.1   | 3.8  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Iron - Dissolved     | 35      | 18    | 59   |     | 1    | ug/L  | Q    | 10/27/03 | SW846 6010B | SW846 6010B |
| Lead - Dissolved     | < 1.2   | 1.2   | 4.0  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 3.6   | 3.6   | 12   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Silver - Dissolved   | < 3.8   | 3.8   | 13   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.13    | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 14      | 1.0   | 3.3  |     | 1    | mg/L  | A    | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

| Prep Date: 10/21/03     |        |      |     |     |      |        |      |          |             |             |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/21/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 102    |      |     |     | 1    | %Recov |      | 10/21/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

| Prep Date: 10/22/03    |         |       |       |     |      |        |      |          |             |            |
|------------------------|---------|-------|-------|-----|------|--------|------|----------|-------------|------------|
| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
| 1-Methylnaphthalene    | 0.025   | 0.018 | 0.060 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | < 0.020 | 0.020 | 0.067 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | < 0.012 | 0.012 | 0.040 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | < 0.021 | 0.021 | 0.070 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | < 0.024 | 0.024 | 0.080 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | 62      |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | 75      |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | 85      |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |

En Chem Inc.

## Analytical Report Number: 840082

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-TWO RIVERS

Collection Date : 10/16/03

Project Number 1569

Report Date : 11/07/03

Field ID : MW-611

Lab Sample Number 840082-006

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Barium - Dissolved   | 83      | 0.33  | 1.1  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Chromium - Dissolved | < 0.93  | 0.93  | 3.1  |     | 1    | ug/L  |      | 10/28/03 | SW846 3010A | SW846 6010B |
| Iron - Dissolved     | 1100    | 19    | 62   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.056   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | 1.8     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 29      | 1.0   | 3.3  |     | 1    | mg/L  |      | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/22/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 103    |      |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/22/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|---------|-------|-------|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | < 0.018 | 0.018 | 0.060 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | < 0.020 | 0.020 | 0.067 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | < 0.012 | 0.012 | 0.040 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | < 0.021 | 0.021 | 0.070 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | < 0.024 | 0.024 | 0.080 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | 65      |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | 73      |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | 89      |       |       |     | 1    | %Recov |      | 10/22/03 | SW846 3510C | 8270C-SIM  |

Client : NATURAL RESOURCE TECH  
Project Name : WPSC-TWO RIVERS  
Project Number 1569  
Field ID : MW-609B

Matrix Type : WATER  
Collection Date : 10/16/03  
Report Date : 11/07/03  
Lab Sample Number 840082-016

**INORGANICS**

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Barium - Dissolved   | 58      | 0.33  | 1.1  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Chromium - Dissolved | 1.2     | 0.93  | 3.1  |     | 1    | ug/L  | Q    | 10/28/03 | SW846 3010A | SW846 6010B |
| Iron - Dissolved     | 520     | 19    | 62   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.067   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 10      | 1.0   | 3.3  |     | 1    | mg/L  | A    | 10/30/03 | EPA 415.2   | EPA 415.2   |

**PVOC**

Prep Date: 10/22/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 100    |      |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

**PAH/ PNA**

Prep Date: 10/23/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|---------|-------|-------|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 0.30    | 0.018 | 0.060 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | 0.10    | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | 0.085   | 0.018 | 0.060 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | < 0.020 | 0.020 | 0.067 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | < 0.012 | 0.012 | 0.040 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | 0.016   | 0.014 | 0.047 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | 0.027   | 0.017 | 0.057 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | < 0.021 | 0.021 | 0.070 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | 0.50    | 0.024 | 0.080 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | 0.021   | 0.016 | 0.053 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | 70      |       |       |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | 73      |       |       |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | 95      |       |       |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |

## En Chem Inc.

## Analytical Report Number: 840082

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : NATURAL RESOURCE TECH

Project Name : WPSC-TWO RIVERS

Project Number 1569

Field ID : MW-609A

Matrix Type : WATER

Collection Date : 10/16/03

Report Date : 11/07/03

Lab Sample Number 840082-015

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 5.8   | 5.8   | 19   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Barium - Dissolved   | 150     | 0.28  | 0.93 |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Cadmium - Dissolved  | < 0.41  | 0.41  | 1.4  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Chromium - Dissolved | < 1.1   | 1.1   | 3.8  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Iron - Dissolved     | 11000   | 18    | 59   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Lead - Dissolved     | < 1.2   | 1.2   | 4.0  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 3.6   | 3.6   | 12   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Silver - Dissolved   | < 3.8   | 3.8   | 13   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.061   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 32      | 1.0   | 3.3  |     | 1    | mg/L  |      | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/22/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | 2.2    | 0.66 | 2.2 |     | 1    | ug/L   | Q    | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | 51     | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | 45     | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | 2.3    | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | 30     | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | 6.1    | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 98     |      |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/22/03

| Analyte                | Result | LOD  | LOQ  | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|--------|------|------|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 0.50   | 0.18 | 0.60 |     | 10   | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | < 0.17 | 0.17 | 0.57 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | < 0.18 | 0.18 | 0.60 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | < 0.19 | 0.19 | 0.63 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | < 0.20 | 0.20 | 0.67 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | < 0.12 | 0.12 | 0.40 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | < 0.14 | 0.14 | 0.47 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | < 0.13 | 0.13 | 0.43 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | < 0.16 | 0.16 | 0.53 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | < 0.19 | 0.19 | 0.63 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | < 0.14 | 0.14 | 0.47 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 0.16 | 0.16 | 0.53 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | < 0.13 | 0.13 | 0.43 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | < 0.17 | 0.17 | 0.57 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | < 0.21 | 0.21 | 0.70 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | 2.8    | 0.24 | 0.80 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | < 0.16 | 0.16 | 0.53 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | < 0.17 | 0.17 | 0.57 |     | 10   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | 58     |      |      |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | 51     |      |      |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | 60     |      |      |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |

En Chem Inc.

Analytical Report Number: 840082

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : NATURAL RESOURCE TECH  
Project Name : WPSC-TWO RIVERS  
Project Number 1569  
Field ID : TRIP

Matrix Type : WATER  
Collection Date : 10/16/03  
Report Date : 11/07/03  
Lab Sample Number 840082-014

PVOC

Prep Date: 10/22/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 103    |      |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

Client : NATURAL RESOURCE TECH

Matrix Type : WATER

Project Name : WPSC-TWO RIVERS

Collection Date : 10/16/03

Project Number 1569

Report Date : 11/07/03

Field ID : QC-2

Lab Sample Number 840082-013

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 5.8   | 5.8   | 19   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Barium - Dissolved   | 45      | 0.28  | 0.93 |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Cadmium - Dissolved  | < 0.41  | 0.41  | 1.4  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Chromium - Dissolved | < 1.1   | 1.1   | 3.8  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Iron - Dissolved     | 67      | 18    | 59   |     | 1    | ug/L  |      | 10/27/03 | SW846 6010B | SW846 6010B |
| Lead - Dissolved     | < 1.2   | 1.2   | 4.0  |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 3.6   | 3.6   | 12   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Silver - Dissolved   | < 3.8   | 3.8   | 13   |     | 1    | ug/L  |      | 10/23/03 | SW846 6010B | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.065   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 4.2     | 1.0   | 3.3  |     | 1    | mg/L  | A    | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/22/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | < 0.30 | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 103    |      |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/22/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|---------|-------|-------|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 0.059   | 0.018 | 0.060 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | 0.039   | 0.018 | 0.060 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | 0.025   | 0.019 | 0.063 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | < 0.020 | 0.020 | 0.067 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | 0.039   | 0.012 | 0.040 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | 0.025   | 0.014 | 0.047 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | 0.023   | 0.013 | 0.043 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | 0.026   | 0.016 | 0.053 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | 0.022   | 0.019 | 0.063 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | 0.048   | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | 0.050   | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | 0.027   | 0.017 | 0.057 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | 0.022   | 0.021 | 0.070 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | 0.094   | 0.024 | 0.080 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | 0.064   | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | 0.088   | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | 67      |       |       |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | 77      |       |       |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | 95      |       |       |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |



En Chem Inc.

## Analytical Report Number: 840082

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436Client : NATURAL RESOURCE TECH  
Project Name : WPSC-TWO RIVERS  
Project Number 1569  
Field ID : QC-1Matrix Type : WATER  
Collection Date : 10/16/03  
Report Date : 11/07/03  
Lab Sample Number 840082-012

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 20    | 20    | 68   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Barium - Dissolved   | 190     | 0.82  | 2.8  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Cadmium - Dissolved  | < 1.3   | 1.3   | 4.4  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Chromium - Dissolved | < 2.3   | 2.3   | 7.8  |     | 1    | ug/L  |      | 10/28/03 | SW846 3010A | SW846 6010B |
| Iron - Dissolved     | 35000   | 46    | 160  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Lead - Dissolved     | < 3.2   | 3.2   | 11   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 12    | 12    | 40   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Silver - Dissolved   | < 2.8   | 2.8   | 9.2  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.073   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | 2.0     | 0.97  | 3.2  |     | 1    | mg/L  | Q    | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 30      | 1.0   | 3.3  |     | 1    | mg/L  |      | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/22/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|-----|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | 160    | 3.3 | 11  |     | 5    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | 85     | 2.6 | 8.7 |     | 5    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | 670    | 1.5 | 5.0 |     | 5    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | 640    | 3.0 | 10  |     | 5    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 2.9  | 2.9 | 9.7 |     | 5    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | 22     | 2.9 | 9.7 |     | 5    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | 370    | 3.2 | 11  |     | 5    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | 300    | 6.0 | 20  |     | 5    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 102    |     |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/22/03

| Analyte                | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|--------|-----|-----|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 58     | 7.2 | 24  |     | 400  | ug/L   | D    | 10/24/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | 7.0    | 1.7 | 5.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | 28     | 1.8 | 6.0 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | 3.8    | 1.9 | 6.3 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | 3.1    | 2.0 | 6.7 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | < 1.2  | 1.2 | 4.0 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | < 1.4  | 1.4 | 4.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | < 1.3  | 1.3 | 4.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | < 1.6  | 1.6 | 5.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | < 1.9  | 1.9 | 6.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | < 1.4  | 1.4 | 4.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 1.6  | 1.6 | 5.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | 1.8    | 1.3 | 4.3 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | 14     | 1.7 | 5.7 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | < 2.1  | 2.1 | 7.0 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | 120    | 9.6 | 32  |     | 400  | ug/L   | D    | 10/24/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | 9.8    | 1.6 | 5.3 |     | 100  | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | 2.7    | 1.7 | 5.7 |     | 100  | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | NA     |     |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | NA     |     |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | NA     |     |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |

## En Chem Inc.

## Analytical Report Number: 840082

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : NATURAL RESOURCE TECH

Project Name : WPSC-TWO RIVERS

Project Number 1569

Field ID : MW-607A

Matrix Type : WATER

Collection Date : 10/16/03

Report Date : 11/07/03

Lab Sample Number 840082-011

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Barium - Dissolved   | 200     | 0.33  | 1.1  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Chromium - Dissolved | 3.6     | 0.93  | 3.1  |     | 1    | ug/L  |      | 10/28/03 | SW846 3010A | SW846 6010B |
| Iron - Dissolved     | 14000   | 19    | 62   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Lead - Dissolved     | 2.3     | 1.3   | 4.3  |     | 1    | ug/L  | Q    | 10/27/03 | SW846 3010A | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Nitrogen, NO3 + NO2  | < 0.047 | 0.047 | 0.16 |     | 1    | mg/L  |      | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 31      | 1.0   | 3.3  |     | 1    | mg/L  |      | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/22/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | 140    | 1.6  | 5.5 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | 7.4    | 1.3  | 4.3 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | 560    | 0.75 | 2.5 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | 1100   | 1.5  | 5.0 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 1.4  | 1.4  | 4.8 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | 18     | 1.4  | 4.8 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | 160    | 1.6  | 5.3 |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | 67     | 3.0  | 10  |     | 2.5  | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 97     |      |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/22/03

| Analyte                | Result  | LOD   | LOQ   | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|---------|-------|-------|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 210     | 14    | 48    |     | 800  | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | 0.14    | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | 87      | 14    | 48    |     | 800  | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | < 15    | 15    | 51    |     | 800  | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | 0.026   | 0.020 | 0.067 |     | 1    | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | < 0.012 | 0.012 | 0.040 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | < 0.019 | 0.019 | 0.063 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | < 0.014 | 0.014 | 0.047 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | < 0.013 | 0.013 | 0.043 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | 0.20    | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | < 0.021 | 0.021 | 0.070 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | 260     | 19    | 64    |     | 800  | ug/L   | D    | 10/27/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | < 0.016 | 0.016 | 0.053 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | < 0.017 | 0.017 | 0.057 |     | 1    | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | 114     |       |       |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | 65      |       |       |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | 91      |       |       |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |

Client : NATURAL RESOURCE TECH

Project Name : WPSC-TWO RIVERS

Project Number 1569

Field ID : MW-608B

Matrix Type : WATER

Collection Date : 10/16/03

Report Date : 11/07/03

Lab Sample Number 840082-010

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Barium - Dissolved   | 89      | 0.33  | 1.1  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Chromium - Dissolved | 4.2     | 0.93  | 3.1  |     | 1    | ug/L  |      | 10/28/03 | SW846 3010A | SW846 6010B |
| Iron - Dissolved     | 2400    | 19    | 62   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Lead - Dissolved     | 1.3     | 1.3   | 4.3  |     | 1    | ug/L  | Q    | 10/27/03 | SW846 3010A | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.065   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 7.6     | 1.0   | 3.3  |     | 1    | mg/L  | A    | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/22/03

| Analyte                 | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | < 0.66 | 0.66 | 2.2 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | < 0.52 | 0.52 | 1.7 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | 1.7    | 0.30 | 1.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | < 0.60 | 0.60 | 2.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | < 0.58 | 0.58 | 1.9 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | < 0.64 | 0.64 | 2.1 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | < 1.2  | 1.2  | 4.0 |     | 1    | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 101    |      |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/22/03

| Analyte                | Result | LOD  | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|--------|------|-----|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 2.1    | 0.72 | 2.4 |     | 40   | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | < 0.68 | 0.68 | 2.3 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | 5.3    | 0.72 | 2.4 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | < 0.76 | 0.76 | 2.5 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | 2.2    | 0.80 | 2.7 |     | 40   | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | 1.6    | 0.48 | 1.6 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | 0.92   | 0.56 | 1.9 |     | 40   | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | < 0.52 | 0.52 | 1.7 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | < 0.64 | 0.64 | 2.1 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | < 0.76 | 0.76 | 2.5 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | 1.7    | 0.56 | 1.9 |     | 40   | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | < 0.64 | 0.64 | 2.1 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | 4.5    | 0.52 | 1.7 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | 2.2    | 0.68 | 2.3 |     | 40   | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | < 0.84 | 0.84 | 2.8 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | < 0.96 | 0.96 | 3.2 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | 4.2    | 0.64 | 2.1 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | 7.6    | 0.68 | 2.3 |     | 40   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | NA     |      |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | NA     |      |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | NA     |      |     |     | 1    | %Recov | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |

## En Chem Inc.

## Analytical Report Number: 840082

1241 Bellevue Street  
Green Bay, WI 54302  
920-469-2436

Client : NATURAL RESOURCE TECH

Project Name : WPSC-TWO RIVERS

Project Number 1569

Field ID : MW-608A

Matrix Type : WATER

Collection Date : 10/16/03

Report Date : 11/07/03

Lab Sample Number 840082-009

## INORGANICS

| Test                 | Result  | LOD   | LOQ  | EQL | Dil. | Units | Code | Anl Date | Prep Method | Anl Method  |
|----------------------|---------|-------|------|-----|------|-------|------|----------|-------------|-------------|
| Arsenic - Dissolved  | < 8.1   | 8.1   | 27   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Barium - Dissolved   | 91      | 0.33  | 1.1  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Cadmium - Dissolved  | < 0.53  | 0.53  | 1.8  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Chromium - Dissolved | 3.0     | 0.93  | 3.1  |     | 1    | ug/L  | Q    | 10/28/03 | SW846 3010A | SW846 6010B |
| Iron - Dissolved     | 8500    | 19    | 62   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Lead - Dissolved     | < 1.3   | 1.3   | 4.3  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Mercury - Dissolved  | < 0.030 | 0.030 | 0.10 |     | 1    | ug/L  |      | 10/28/03 | SW846 7470A | SW846 7470A |
| Selenium - Dissolved | < 4.8   | 4.8   | 16   |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Silver - Dissolved   | < 1.1   | 1.1   | 3.7  |     | 1    | ug/L  |      | 10/27/03 | SW846 3010A | SW846 6010B |
| Nitrogen, NO3 + NO2  | 0.060   | 0.047 | 0.16 |     | 1    | mg/L  | Q    | 11/03/03 | EPA 353.2   | EPA 353.2   |
| Sulfide              | < 0.97  | 0.97  | 3.2  |     | 1    | mg/L  |      | 10/24/03 | EPA 376.1   | EPA 376.1   |
| TOC as NPOC          | 28      | 1.0   | 3.3  |     | 1    | mg/L  |      | 10/30/03 | EPA 415.2   | EPA 415.2   |

## PVOC

Prep Date: 10/22/03

| Analyte                 | Result | LOD | LOQ | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method  |
|-------------------------|--------|-----|-----|-----|------|--------|------|----------|-------------|-------------|
| 1,2,4-Trimethylbenzene  | 31     | 16  | 55  |     | 25   | ug/L   | Q    | 10/22/03 | SW846 5030B | SW846 M8021 |
| 1,3,5-Trimethylbenzene  | < 13   | 13  | 43  |     | 25   | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Benzene                 | 3700   | 7.5 | 25  |     | 25   | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Ethylbenzene            | 290    | 15  | 50  |     | 25   | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Methyl-tert-butyl-ether | < 14   | 14  | 48  |     | 25   | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Toluene                 | < 14   | 14  | 48  |     | 25   | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylene, o               | 110    | 16  | 53  |     | 25   | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| Xylenes, m + p          | 150    | 30  | 100 |     | 25   | ug/L   |      | 10/22/03 | SW846 5030B | SW846 M8021 |
| a,a,a-Trifluorotoluene  | 98     |     |     |     | 1    | %Recov |      | 10/22/03 | SW846 5030B | SW846 M8021 |

## PAH/ PNA

Prep Date: 10/22/03

| Analyte                | Result | LOD  | LOQ  | EQL | Dil. | Units  | Code | Anl Date | Prep Method | Anl Method |
|------------------------|--------|------|------|-----|------|--------|------|----------|-------------|------------|
| 1-Methylnaphthalene    | 130    | 7.2  | 24   |     | 400  | ug/L   | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Methylnaphthalene    | 78     | 6.8  | 23   |     | 400  | ug/L   | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthene           | 110    | 7.2  | 24   |     | 400  | ug/L   | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Acenaphthylene         | 6.6    | 0.38 | 1.3  |     | 20   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Anthracene             | 22     | 8.0  | 27   |     | 400  | ug/L   | QD   | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)anthracene     | 7.0    | 4.8  | 16   |     | 400  | ug/L   | QD   | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(a)pyrene         | 8.4    | 0.28 | 0.93 |     | 20   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(b)fluoranthene   | 3.3    | 0.26 | 0.87 |     | 20   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(ghi)perylene     | 3.8    | 0.32 | 1.1  |     | 20   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Benzo(k)fluoranthene   | 4.2    | 0.38 | 1.3  |     | 20   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Chrysene               | 9.2    | 0.28 | 0.93 |     | 20   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Dibenzo(a,h)anthracene | 0.87   | 0.32 | 1.1  |     | 20   | ug/L   | Q    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluoranthene           | 18     | 5.2  | 17   |     | 400  | ug/L   | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Fluorene               | 51     | 6.8  | 23   |     | 400  | ug/L   | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Indeno(1,2,3-cd)pyrene | 3.0    | 0.42 | 1.4  |     | 20   | ug/L   |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Naphthalene            | 170    | 9.6  | 32   |     | 400  | ug/L   | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Phenanthrene           | 76     | 6.4  | 21   |     | 400  | ug/L   | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Pyrene                 | 32     | 6.8  | 23   |     | 400  | ug/L   | D    | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Nitrobenzene-d5        | 90     |      |      |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| 2-Fluorobiphenyl       | 100    |      |      |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |
| Terphenyl-d14          | 108    |      |      |     | 1    | %Recov |      | 10/23/03 | SW846 3510C | 8270C-SIM  |

(Please Print Legibly)

Company Name: Natural Resource Technology

Branch or Location: Pewaukee, WI

Project Contact: Eric Kovach

Telephone: 262-522-1208

Project Number: 1569

Project Name: WPSU-Two Rivers

Project State: WI

Sampled By (Print): Sgt Barbara

PO #:

Data Package Options - (please circle if requested)  
Sample Results Only (no QC)  
EPA Level II (Subject to Surcharge)  
EPA Level III (Subject to Surcharge)  
EPA Level IV (Subject to Surcharge)

LABORATORY ID (Lab Use Only)

FIELD ID

REGULATORY PROGRAM

COLLECTION DATE

TIME

MATRIX

Matrix Codes

W=Water

S=Soil

A=Air

C=Charcoal

B=Biota

SI=Sludge

Matrix Codes

Matrix Codes

Matrix Codes

Matrix Codes

Matrix Codes

Matrix Codes

Matrix Codes

Matrix Codes

Matrix Codes

Matrix Codes

Rush Turnaround Time Requested (TAT) - Prelim  
(Rush TAT subject to approval/surcharge)

Date Needed:

Transmit Prelim Rush Results by (circle):

Phone

Fax

E-Mail

Address:

City:

State:

Zip:

Country:

Special pricing and release of liability

## CHAIN OF CUSTODY

Preservation Codes  
D=HNO3 E=EnCore  
I=Sodium Thiosulfate J=Other

FILTERED? (YES/NO)

PRESERVATION (CODE)\*

A=None B=HCL C=H2SO4

D=HNO3 E=EnCore

I=Sodium Thiosulfate

J=Other

F=Formalin

G=NaOH

H=H2O2

I=Iodine

J=Other

K=Other

L=Other

M=Other

N=Other

O=Other

P=Other

Q=Other

R=Other

S=Other

T=Other

U=Other

V=Other

W=Other

X=Other

Y=Other

Z=Other

AA=Other

AB=Other

AC=Other

AD=Other

AE=Other

AF=Other

AG=Other

AH=Other

AI=Other

AJ=Other

AK=Other

AL=Other

AM=Other

AN=Other

AO=Other

AP=Other

AQ=Other

AR=Other

AS=Other

AT=Other

AU=Other

AV=Other

AW=Other

Page 2 of 2

Quote #:

Mail Report To:

Company:

Address:

City:

State:

Zip:

Country:

Phone:

Fax:

E-Mail:

Web:

Mobile:

Pager:

Other:

Comments:

Notes:

Signatures:

Initials:

Date:

Time:

Location:

Weather:

Soil Type:

Vegetation:

Water Source:

Wind Direction:

Wind Speed:

Humidity:

Temperature:

Pressure:

Visibility:

Cloud Cover:

Moisture:

Salinity:

pH:

Conductivity:

Dissolved Oxygen:

Chlorophyll:

Fluorescence:

Optical Density:

Transmittance:

Scattering:

Absorption:

Reflection:

Refraction:

Diffraction:

Interference:

Polarization:

Dispersion:

Scattering:

Absorption:



# Frontier Geosciences Inc.

*Environmental Research & Specialty Analytical Laboratory*  
414 Pontius Ave N • Seattle WA 98109

Jody Barbeau  
Natural Resource Technology, Inc.  
23713 W. Paul Road  
Pewaukee, WI 53072

November 3, 2003

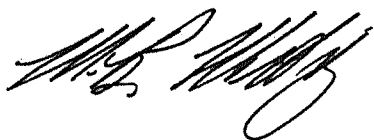
Dear Jody,

Enclosed please find the results report for the freshwater samples received on October 18, 2003 for **available cyanide** (WAD CN) determination. A total of fifteen (15) samples were received in good condition in a cooler with a temperature of 1.3 °C. Samples were field preserved with 12 mL of 25% (v/v) NaOH, so no preservation was required upon receipt.

Frontier's WAD CN method FGS-077.2 (EPA OIA-1677) determines available cyanide by flow injection/ligand exchange/amperometric titration. Hydrogen cyanide in water, cyanide ion, and the cyano-complexes of zinc, copper, cadmium, mercury, nickel, and silver may be determined by this method. During analysis an aliquot of the sample is treated with a series of ligand-exchange reagents that complex with the transition metal ions just listed. As this occurs, cyanide ion is released from the complexes. The cyanide ions are then converted to hydrogen cyanide gas (HCN) which diffuses through a membrane before being converted back into cyanide ions. The cyanide ion concentration is monitored amperometrically with a silver working electrode, silver/silver chloride reference electrode, and a platinum/stainless steel counter electrode.

All quality control parameters were within the control limits and there were no analytical issues. Please feel free to contact me with any questions or concerns.

Warm Regards



M.B. Miller  
Project Manager  
[mbm@frontiergeosciences.com](mailto:mbm@frontiergeosciences.com)

**Report to Natural Resource Technologies**  
**WPSC - Two Rivers 1569**

Reported by Frontier Geosciences - M.B. Miller

November 3, 2003

WAD CN Method FGS-077 (EPA OIA-1677)

***Sample Results Summary***

| <b>Sample<br/>ID</b> | <b>Date<br/>Sampled</b> | <b>WAD CN<br/>(µg/L)</b> |
|----------------------|-------------------------|--------------------------|
| MW-602               | 10/16/2003              | 0.68                     |
| MW-603A              | 10/16/2003              | 15.0                     |
| MW-603B              | 10/16/2003              | 1.54                     |
| MW-604               | 10/16/2003              | 2.31                     |
| MW-605B              | 10/16/2003              | ND                       |
| MW-606               | 10/16/2003              | 18.6                     |
| MW-607A              | 10/16/2003              | 3.58                     |
| MW-608A              | 10/16/2003              | 3.20                     |
| MW-608B              | 10/16/2003              | 2.40                     |
| MW-609A              | 10/16/2003              | ND                       |
| MW-609B              | 10/16/2003              | 3.82                     |
| MW-610               | 10/16/2003              | 1.06                     |
| MW-611               | 10/16/2003              | 0.72                     |
| QC-1                 | 10/16/2003              | 18.8                     |
| QC-2                 | 10/16/2003              | 1.97                     |
| Reporting Limit @ 1x |                         | 0.48                     |

ND = Not Detected.



## Report to Natural Resource Technologies

### WPSC - Two Rivers 1569

Reported by Frontier Geosciences - M.B. Miller

November 3, 2003

WAD CN Method FGS-077 (EPA OIA-1677)

#### *Preparation Blank Water and Certified Reference Material Summary*

| Method               | WAD CN |
|----------------------|--------|
| Blanks               | (µg/L) |
| PBW1                 | 0.00   |
| PBW2                 | -0.04  |
| PBW3                 | -0.07  |
| Mean                 | -0.04  |
| Std. Dev.            | 0.04   |
| Reporting Limit @ 1x | 0.48   |

| Certified     | WAD CN |
|---------------|--------|
| Ref. Material | (µg/L) |
| Source        | HgCN   |
| Cert. Value   | 25.00  |
| Obs. Value    | 27.02  |
| % Rec.        | 108.1  |

PBW - Preparation Blank Water

CRM - Certified Reference Material

## Report to Natural Resource Technologies

### WPSC - Two Rivers 1569

Reported by Frontier Geosciences - M.B. Miller

November 3, 2003

WAD CN Method FGS-077 (EPA OIA-1677)

#### *Quality Control Summary*

| Matrix        | WAD CN |
|---------------|--------|
| QC Samples    | (µg/L) |
| Sample ID     | QC-1   |
| Sample Conc.  | 18.84  |
| MD Conc.      | 18.64  |
| RPD           | 1.1    |
| Spiking Level | 20.00  |
| MS Conc.      | 39.24  |
| MS % Rec.     | 102.5  |
| MSD Conc.     | 40.71  |
| MSD % Rec.    | 109.9  |
| MS/MSD RPD    | 3.7    |

# Frontier Geosciences Inc.

Environmental Research & Specialty Analytical Laboratory

414 Pontius Avenue North, Suite B Seattle WA 98109  
(206) 622-6960 fax (206) 622-6870 Info@Frontier.WA.com

## Chain-of-Custody Record & Laboratory Analysis Request

Date: 10-17-03 Page: 1 of 2

| Client Company: <u>Natural Resource Technology</u><br>Address: <u>23713 W. Pauli Road</u><br>Puyallup, WA 983072<br>CONTACT: <u>Sody Barbenn</u><br>Phone: <u>206-719-4515</u> Fax: <u>206-523-9001</u><br>Email: <u>Sherbenn@naturalrt.com</u><br>Project Name: <u>WPSC - Two Rivers, 1569</u><br>Contract/PO #: |           | Frontier Project Manager: <u>M.B. Miller</u><br>Guaranteed Turnaround Time:<br>Confirmation of Sample Arrival at Frontier: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO<br>Quality Assurance Level: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> High<br>Disposal*: <input checked="" type="checkbox"/> Frontier Dispose <input type="checkbox"/> Return to Client <input type="checkbox"/> Ship to 3rd Party**<br><small>*All samples are held for at least 2 months after date of receipt.<br/>Please note that after this time they are disposed of or returned to the client.<br/>Clients may request a longer holding time by writing to the Frontier Project Manager.<br/>**Please discuss this with the Frontier Project Manager.</small><br>Carrier Information: <input checked="" type="checkbox"/> FED EX <input checked="" type="checkbox"/> UPS <input type="checkbox"/> Other <input type="checkbox"/><br>Tracking # <u>8356 5271 0375</u> |           |                                                                                                                                    |              |                                                                                                                                    |                            |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| Engraved Bottle ID                                                                                                                                                                                                                                                                                                | Sample ID | Matrix                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | # Bottles | Date/Time Sampled                                                                                                                  | Collected by | Preservation                                                                                                                       | Analysis Required/Comments |
| • MW-603A                                                                                                                                                                                                                                                                                                         |           | FW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1         | 10-16-03                                                                                                                           | STB          | N4014                                                                                                                              | WAD Cytocide               |
| • MW-603B                                                                                                                                                                                                                                                                                                         |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           | 10-16-03                                                                                                                           |              |                                                                                                                                    |                            |
| • MW-604                                                                                                                                                                                                                                                                                                          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           | 10-16-03                                                                                                                           |              |                                                                                                                                    |                            |
| • MW-606                                                                                                                                                                                                                                                                                                          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           | 10-16-03                                                                                                                           |              |                                                                                                                                    |                            |
| • MW-602                                                                                                                                                                                                                                                                                                          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           | 10-16-03                                                                                                                           |              |                                                                                                                                    |                            |
| • MW-611                                                                                                                                                                                                                                                                                                          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           | 10-16-03                                                                                                                           |              |                                                                                                                                    |                            |
| • MW-610                                                                                                                                                                                                                                                                                                          |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           | 10-16-03                                                                                                                           |              |                                                                                                                                    |                            |
| • MW-605B                                                                                                                                                                                                                                                                                                         |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           | 10-16-03                                                                                                                           |              |                                                                                                                                    |                            |
| • MW-608A                                                                                                                                                                                                                                                                                                         |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           | 10-16-03                                                                                                                           |              |                                                                                                                                    |                            |
| • MW-608B                                                                                                                                                                                                                                                                                                         |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           | 10-16-03                                                                                                                           |              |                                                                                                                                    |                            |
| Matrix Codes:<br>FW = fresh water (salinity < 0.5 ppt)<br>BW = brackish water<br>SW = seawater<br>WW = wastewater<br>SE = sediment<br>SO = soil<br>AT = animal tissue<br>PT = plant tissue<br>TR = trap<br>PP = petroleum product<br>OT = other                                                                   |           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |           |                                                                                                                                    |              |                                                                                                                                    |                            |
| C.O.C. Seal Intact? <input type="checkbox"/> YES <input type="checkbox"/> NO <input checked="" type="checkbox"/> N/A<br>Cooler Temperature: <u>1.3</u> °C<br>Comments:                                                                                                                                            |           | Relinquished by: <u>Sody Barbenn</u><br>Print name: <u>Sody Barbenn</u><br>Company: <u>NRT</u><br>Date: <u>10-17-03</u> Time:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           | Relinquished by: <u>Sody Barbenn</u><br>Print name: <u>Sody Barbenn</u><br>Company: <u>NRT</u><br>Date: <u>10-17-03</u> Time:      |              | Relinquished by: <u>Sody Barbenn</u><br>Print name: <u>Sody Barbenn</u><br>Company: <u>NRT</u><br>Date: <u>10-17-03</u> Time:      |                            |
| VTSR: <u>1200</u>                                                                                                                                                                                                                                                                                                 |           | Received by: <u>Sherbenn</u><br>Print name: <u>Sherbenn</u><br>Company: <u>Frontier</u><br>Date: <u>10/18/03</u> Time: <u>1250</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           | Received by: <u>Sherbenn</u><br>Print name: <u>Sherbenn</u><br>Company: <u>Frontier</u><br>Date: <u>10/18/03</u> Time: <u>1250</u> |              | Received by: <u>Sherbenn</u><br>Print name: <u>Sherbenn</u><br>Company: <u>Frontier</u><br>Date: <u>10/18/03</u> Time: <u>1250</u> |                            |

# Chain-of-Custody Record & Laboratory Analysis Request

**Environmental Research & Specialty Analytical Laboratory**

414 Pontius Avenue North, Suite B Seattle WA 98109  
(206) 622-6960 fax (206) 622-6870 Info@Frontier.WA.com

Date: 10-17-03 Page: 2 of 2

| Client Company: <b>Natural Resource Technology, Inc.</b><br>Address: <b>23713 W. Paul Road</b><br><b>Pewaukee, WI, 53072</b><br>CONTACT: <b>Jody Barben</b><br>Phone: <b>262-719-4515</b> Fax: <b>262-523-4001</b><br>Email: <b>Jbarben@naturalrt.com</b><br>Project Name: <b>WPSC-Two Rivers ISG</b><br>Contract/PO #:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                 | Frontier Project Manager: <b>M. B. Miller</b><br>Guaranteed Turnaround Time:<br>Confirmation of Sample Arrival at Frontier: <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO<br>Quality Assurance Level: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> High<br>Disposal*: <input checked="" type="checkbox"/> Frontier Dispose <input type="checkbox"/> Return to Client <input type="checkbox"/> Ship to 3rd Party**<br>*All samples are held for at least 2 months after date of receipt.<br>Please note that after this time they are disposed of or returned to the client.<br>Clients may request a longer holding time by writing to the Frontier Project Manager.<br>**Please discuss this with the Frontier Project Manager.<br>Carrier Information: <input checked="" type="checkbox"/> FEDEX <input type="checkbox"/> UPS <input type="checkbox"/> Other <input type="checkbox"/><br>Tracking # |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-------------------|--------------|-------------------|------------------------------|--------------|----------------------------|-----------|--|----|---|----------|-----|------|-----------|--------|--|----|---|----------|-----|------|--|--------|--|----|---|----------|-----|------|--|-----------|--|--|--|--|--|--|--|-----------|--|--|--|--|--|--|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------|------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------------|----------------------------------|---------------------|----------------------------------------------------|-----------------------------|--|---------------------------------|--|-------------|--|----------|--|-------|--|--------------|--|-------------|--|----------|--|-------|
| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Engineered Bottle ID</th> <th>Sample ID</th> <th>Matrix</th> <th># Bottles</th> <th>Date/Time Sampled</th> <th>Collected by</th> <th>Preservation</th> <th>Analysis Required/Comments</th> </tr> </thead> <tbody> <tr> <td>• MW-607A</td> <td></td> <td>FW</td> <td>1</td> <td>10-16-03</td> <td>STB</td> <td>NaOH</td> <td>WAD CYNOL</td> </tr> <tr> <td>• QC-1</td> <td></td> <td>FW</td> <td>1</td> <td>10-16-03</td> <td>STB</td> <td>NaOH</td> <td></td> </tr> <tr> <td>• QC-2</td> <td></td> <td>FW</td> <td>1</td> <td>10-16-03</td> <td>STB</td> <td>NaOH</td> <td></td> </tr> <tr> <td>• MW-609B</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>• MW-609A</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>- all samples field filtered</td> </tr> </tbody> </table> |                                 | Engineered Bottle ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Sample ID | Matrix            | # Bottles    | Date/Time Sampled | Collected by                 | Preservation | Analysis Required/Comments | • MW-607A |  | FW | 1 | 10-16-03 | STB | NaOH | WAD CYNOL | • QC-1 |  | FW | 1 | 10-16-03 | STB | NaOH |  | • QC-2 |  | FW | 1 | 10-16-03 | STB | NaOH |  | • MW-609B |  |  |  |  |  |  |  | • MW-609A |  |  |  |  |  |  | - all samples field filtered | <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th>Sample Receipt</th> <th>Relinquished by:</th> </tr> </thead> <tbody> <tr> <td>C.O.C. Seal Intact? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A</td> <td>Print name: <b>Jody Barben</b></td> </tr> <tr> <td>Cooler Temperature: <b>13</b> °C</td> <td>Company: <b>NRT</b></td> </tr> <tr> <td>Comments: <b>*not listed on COL on arrival. JC</b></td> <td>Date: <b>10-17-03</b> Time:</td> </tr> <tr> <td></td> <td>Received by: <b>Jody Barben</b></td> </tr> <tr> <td></td> <td>Print name:</td> </tr> <tr> <td></td> <td>Company:</td> </tr> <tr> <td></td> <td>Date:</td> </tr> <tr> <td></td> <td>Received by:</td> </tr> <tr> <td></td> <td>Print name:</td> </tr> <tr> <td></td> <td>Company:</td> </tr> <tr> <td></td> <td>Date:</td> </tr> </tbody> </table> |  | Sample Receipt | Relinquished by: | C.O.C. Seal Intact? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A | Print name: <b>Jody Barben</b> | Cooler Temperature: <b>13</b> °C | Company: <b>NRT</b> | Comments: <b>*not listed on COL on arrival. JC</b> | Date: <b>10-17-03</b> Time: |  | Received by: <b>Jody Barben</b> |  | Print name: |  | Company: |  | Date: |  | Received by: |  | Print name: |  | Company: |  | Date: |
| Engineered Bottle ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Sample ID                       | Matrix                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | # Bottles | Date/Time Sampled | Collected by | Preservation      | Analysis Required/Comments   |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
| • MW-607A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                 | FW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1         | 10-16-03          | STB          | NaOH              | WAD CYNOL                    |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
| • QC-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                 | FW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1         | 10-16-03          | STB          | NaOH              |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
| • QC-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                 | FW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1         | 10-16-03          | STB          | NaOH              |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
| • MW-609B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
| • MW-609A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   | - all samples field filtered |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
| Sample Receipt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Relinquished by:                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
| C.O.C. Seal Intact? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO <input type="checkbox"/> N/A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Print name: <b>Jody Barben</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
| Cooler Temperature: <b>13</b> °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Company: <b>NRT</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
| Comments: <b>*not listed on COL on arrival. JC</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Date: <b>10-17-03</b> Time:     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Received by: <b>Jody Barben</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Print name:                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Company:                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Date:                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Received by:                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Print name:                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Company:                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Date:                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
| Matrix Codes:<br>FW = fresh water (salinity < 0.5 ppt)<br>BW = brackish water<br>SW = seawater<br>WW = wastewater<br>SE = sediment<br>SO = soil<br>AT = animal tissue<br>PT = plant tissue<br>TR = trap<br>PP = petroleum product<br>OT = other                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                 | Date: <b>10/18/03</b> Time: <b>1250</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |
| VTSR: 1200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                   |              |                   |                              |              |                            |           |  |    |   |          |     |      |           |        |  |    |   |          |     |      |  |        |  |    |   |          |     |      |  |           |  |  |  |  |  |  |  |           |  |  |  |  |  |  |                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |                |                  |                                                                                                                      |                                |                                  |                     |                                                    |                             |  |                                 |  |             |  |          |  |       |  |              |  |             |  |          |  |       |

## **APPENDIX G**

### **PROPERTY PLAT OF GAS PLANT PROPERTY**

**APPENDIX H**

**DETAILED COSTS FOR TECHNOLOGY OPTIONS**

**UPLAND CONTROL 1A - Excavation with On-Site Thermal Desorption****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/15/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTAL**Consulting**Engineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$200,000

SUBTOTAL, CONSULTING CAPITAL COSTS

\$200,000

25% Estimating Contingency

\$50,000

**TOTAL, CONSULTING CAPITAL COSTS**

\$250,000

**CONSTRUCTION CAPITAL COSTS**

|  | QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|--|----------|------|--------------|--------------|---------------|
|--|----------|------|--------------|--------------|---------------|

**Construction**

\$1,226,800

Mob./Demob. Excavation

1

LS

\$50,000

\$50,000

Mob./Demob. Treatment System

1

LS

\$100,000

\$100,000

Air Monitoring

1

LS

\$125,000

\$125,000

**Site Preparation**

Surface Water / Erosion Controls

1

LS

\$15,000

\$15,000

Abandoned Monitoring Wells

4

WELLS

\$1,000

\$4,000

Clearing/Grubbing

1

LS

\$2,000

\$2,000

Install Temporary Chain link fence

1,200

LF

\$20.00

\$24,000

Remove, Transport, and Recycle Concrete

245

TONS

\$8.00

\$2,000

Place temporary haul road

1

LS

\$5,000

\$5,000

Load, transport, dispose debris at landfill

45

TONS

\$29.00

\$1,300

Provide Truck Scale and Calibration

1

LS

\$25,000

\$25,000

Staging and Storage Pads

1

LS

\$5,000

\$5,000

**Excavation and Processing**

Excavate AOCs

7,380

TONS

\$5.00

\$36,900

Thermal Treatment Pad

1

LS

\$75,000

\$75,000

100' x 150' Structure for Pre-treated area

1

LS

\$100,000

\$100,000

Perimeter Misting

1

LS

\$35,000

\$35,000

Screening and Stockpiling of Excavated Soils

7,380

TONS

\$4.00

\$29,500

Load, transport, dispose debris at landfill

1,107

TONS

\$29.00

\$32,100

Supply and Blend Lime to meet Sulfur and Moisture requirem

627

TONS

\$14.00

\$8,800

Thermal treatment on-site

6,273

TONS

\$35.00

\$219,600

Potable water for thermal treatment unit, dust  
control, compaction, and misc. use

1,800,000

GAL

\$0.0012

\$4,800

Utilities (gas and electric)

6,273

TONS

\$25.00

\$156,825

Fugitive Emission Control

1

LS

\$40,000

\$40,000

Analytical testing

1

LS

\$7,130

\$7,130

**Construction Water Management**

Dewatering / Treatment Equipment and Operation

1

LS

\$6,000

\$6,000

20,000 gallon Frac Tank

2

TANKS

\$10,000

\$20,000

Discharge Analytical Samples

1

LS

\$10,000

\$10,000

Water Disposal at POTW

2,000,000

GAL

\$0.0120

\$24,000

**Site Restoration**

Place and Compact Processed Materials

4,200

CY

\$4.00

\$16,800

Furnish, Place, and Compact Backfill Materials

720

CY

\$9.00

\$6,500

Monitoring Well Replacement

4

WELLS

\$2,000

\$8,000

Compaction Testing

1

LS

\$7,000

\$7,000

Revegetation (6" topsoil, mulch, seed, fertilizer)

5,450

SY

\$4.50

\$24,500

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$1,226,800

25% Estimating Contingency

\$306,700

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$1,533,500

**TOTAL CAPITAL COSTS****\$1,783,500****TECHNOLOGY UNIT COST (PER TON)**

7,380 TON @

**\$ 242 / TON****ASSUMPTIONS**

1. Upland Shallow Soil Zones are shown on Figure 7 and 8.
2. Assumes 4,920 yd<sup>3</sup> excavation at 1.5 tons : 1 yd<sup>3</sup> ----- 7,380 tons
3. Assumes source area soils approximately 15% debris.
4. Earthwork quantities are approximate and need to be field verified during design.
5. Source of estimated costs: previous MGP site construction, RS Means Site Work & Landscape Cost Data.
6. Includes thermal desorption treatment of soil from ground surface to an average of 4 ft bgs, generally top of water table.
7. Assumes treated materials are not recycled for blending purposes.
8. Above is a preliminary estimate and may be revised during final design.
9. Air monitoring cost does not include real time results.
10. Assumes wastewater to be directly discharged to the POTW.

**UPLAND CONTROL 1B - Excavation with Off-Site Thermal Desorption****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/15/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTALConsultingEngineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$180,000

**SUBTOTAL, CONSULTING CAPITAL COSTS**

\$180,000

25% Estimating Contingency

\$45,000

**TOTAL, CONSULTING CAPITAL COSTS**

\$225,000

**CONSTRUCTION CAPITAL COSTS**

| QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|----------|------|--------------|--------------|---------------|
|----------|------|--------------|--------------|---------------|

Construction

\$1,083,300

Mob./Demob. Excavation

1

LS

\$50,000

\$50,000

Air Monitoring

1

LS

\$50,000

\$50,000

Site Preparation

Surface Water / Erosion Controls

1

LS

\$15,000

\$15,000

Abandoned Monitoring Wells

4

WELLS

\$1,000

\$4,000

Clearing/Grubbing

1

LS

\$2,000

\$2,000

Install Temporary Chain link fence

1,200

LF

\$20.00

\$24,000

Remove, Transport, and Recycle Concrete

245

TONS

\$8.00

\$2,000

Place temporary haul road

1

LS

\$5,000

\$5,000

Load, transport, dispose debris at landfill

45

TONS

\$29.00

\$1,300

Staging and Storage Pads

1

LS

\$5,000

\$5,000

Excavation and Processing

Excavate AOCs

7,380

TONS

\$5.00

\$36,900

Screen and Stockpile Excavated Soils

7,380

TONS

\$4.00

\$29,500

Load, transport, dispose debris at landfill

1,107

TONS

\$29.00

\$32,100

Transport soil for off-site treatment

6,273

TONS

\$60.00

\$376,400

Thermal treatment off-site for soil

6,273

TONS

\$50.00

\$313,700

Potable water for dust control, compact, misc.

1,000,000

GAL

\$0.0012

\$1,200

Fugitive Emission Control

1

LS

\$13,000

\$13,000

Analytical testing

1

LS

\$3,560

\$3,560

Construction Water Management

Dewatering / Treatment Equipment

1

LS

\$6,000

\$6,000

20,000 gallon Frac Tank

1

TANKS

\$10,000

\$10,000

Discharge Analytical Samples

1

LS

\$5,000

\$5,000

Water Disposal at POTW

1,150,000

GAL

\$0.0120

\$13,800

Site Restoration

Furnish, Place, and Compact Backfill Materials

4,920

CY

\$9.00

\$44,300

Monitoring Well Replacement

4

WELLS

\$2,000

\$8,000

Compaction Testing

1

LS

\$7,000

\$7,000

Revegetation (6" topsoil, mulch, seed, fertilizer)

5,450

SY

\$4.50

\$24,500

**SUBTOTAL, CONSTRUCTION CAPITAL COSTS**

\$1,083,300

25% Estimating Contingency

\$270,800

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$1,354,100

**TOTAL CAPITAL COSTS**

\$1,579,100

**TECHNOLOGY UNIT COST (PER TON)**

7,380 TON @

\$ 214 / TON

**ASSUMPTIONS**

1. Upland Shallow Soil Zones are shown on Figures 7 and 8.
2. Assumes 4,920 yd<sup>3</sup> excavation at 1.5 tons : 1 yd<sup>3</sup> ~~~~~ 7,380 tons
3. Assumes source area soils approximately 15% debris.
4. Earthwork quantities are approximate and need to be field verified during design.
5. Source of estimated costs: previous MGP site construction, RS Means Site Work & Landscape Cost Data.
6. Includes thermal desorption treatment of soil from ground surface to an average of 4 ft bgs, generally top of water table.
7. Assumes soil is treated at a facility within 400 miles from site.
8. Air monitoring cost does not include real time results.
9. Above is a preliminary estimate and may be revised during final design.
10. Assumes wastewater to be directly discharged to the POTW.



**UPLAND CONTROL 1C - Excavation - Disposal at Landfill****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/15/03

**CONSULTING CAPITAL COSTS**

SUB-

TOTAL

**Consulting**Engineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$160,000

**SUBTOTAL, CONSULTING CAPITAL COSTS**

\$160,000

25% Estimating Contingency

\$40,000

**TOTAL, CONSULTING CAPITAL COSTS**

\$200,000

**CONSTRUCTION CAPITAL COSTS**

|  | QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|--|----------|------|--------------|--------------|---------------|
|--|----------|------|--------------|--------------|---------------|

**Construction**

\$545,700

Mob./Demob. Excavation

1

LS

\$50,000

\$50,000

Air Monitoring

1

LS

\$50,000

\$50,000

**Site Preparation**

Surface Water / Erosion Controls

1

LS

\$15,000

\$15,000

Abandoned Monitoring Wells

4

WELLS

\$1,000

\$4,000

Clearing/Grubbing

1

LS

\$2,000

\$2,000

Install Temporary Chain link fence

1,200

LF

\$20.00

\$24,000

Remove, Transport, and Recycle Concrete

245

TONS

\$8.00

\$2,000

Place temporary haul road

1

LS

\$5,000

\$5,000

Load, transport, dispose debris at landfill

45

TONS

\$29.00

\$1,300

Staging and Storage Pads

1

LS

\$5,000

\$5,000

**Excavation and Processing**

Excavate AOCs

7,380

TONS

\$5.00

\$36,900

Load, transport, dispose soil/debris at landfill

7,380

TONS

\$29.00

\$214,000

Potable water for dust control, compact, misc.

1,000,000

GAL

\$0.0012

\$1,200

Fugitive Emission Control

1

LS

\$13,000

\$13,000

Analytical testing

1

LS

\$3,700

\$3,700

**Construction Water Management**

Dewatering / Treatment Equipment

1

LS

\$6,000

\$6,000

20,000 gallon Frac Tank

1

TANKS

\$10,000

\$10,000

Discharge Analytical Samples

1

LS

\$5,000

\$5,000

Water Disposal at POTW

1,150,000

GAL

\$0.0120

\$13,800

**Site Restoration**

Furnish, Place, and Compact Backfill Materials

4,920

CY

\$9.00

\$44,300

Monitoring Well Replacement

4

WELLS

\$2,000

\$8,000

Compaction Testing

1

LS

\$7,000

\$7,000

Revegetation (6" topsoil, mulch, seed, fertilizer)

5,450

SY

\$4.50

\$24,500

**SUBTOTAL, CONSTRUCTION CAPITAL COSTS**

\$545,700

25% Estimating Contingency

\$136,400

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$682,100

**TOTAL CAPITAL COSTS**

\$882,100

**TECHNOLOGY UNIT COST (PER TON)**

7,380 TON @

\$ 120 / TON

**ASSUMPTIONS**

1. Upland Shallow Soil Zones are shown on Figures 7 and 8.
2. Assumes 4,920 yd<sup>3</sup> excavation at 1.5 tons : 1 yd<sup>3</sup> ~~~~~ 7,380 tons
3. Air monitoring cost does not include real time results.
4. Earthwork quantities are approximate and need to be field verified during design.
5. Source of estimated costs: previous MGP site construction, RS Means Site Work & Landscape Cost Data.
6. Above is a preliminary estimate and may be revised during final design.
7. Assumes wastewater to be directly discharged to the POTW.

**UPLAND CONTROL 2A - Geosynthetic Cover****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/15/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTALConsultingEngineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$39,300

SUBTOTAL, CONSULTING CAPITAL COSTS

\$39,300

25% Estimating Contingency

\$9,800

**TOTAL, CONSULTING CAPITAL COSTS**

\$49,100

**CONSTRUCTION CAPITAL COSTS**

| QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|----------|------|--------------|--------------|---------------|
|----------|------|--------------|--------------|---------------|

Construction

\$157,200

Mob./Demob. Excavation

1

LS

\$10,000

\$10,000

Site Preparation

Surface Water / Erosion Controls

1

LS

\$5,000

\$5,000

Protect Monitoring Wells

4

WELLS

\$200

\$800

Clearing/Grubbing

1

LS

\$2,000

\$2,000

Remove, Transport, and Recycle Concrete

245

TONS

\$8.00

\$2,000

Place temporary haul road

1

LS

\$5,000

\$5,000

Installation

Potable water for dust control, compact, misc.

1,000,000

GAL

\$0.0012

\$1,200

Fine Grading

3,622

SY

\$5

\$18,100

Install 30 mil HDPE Membrane Cover

32,600

SF

\$0.75

\$24,500

Install 200 mil Geocomposite Drainage Layer

32,600

SF

\$1.25

\$40,800

Install General Fill for Rooting Zone Layer (1.5 feet)

1,815

CY

\$9.00

\$16,300

Revegetation (6" topsoil, mulch, seed, fertilizer)

5,450

SY

\$4.50

\$24,500

Geotechnical Testing

1

LS

\$7,000

\$7,000

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$157,200

25% Estimating Contingency

\$39,300

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$196,500

**TOTAL CAPITAL COSTS****\$245,600****TECHNOLOGY UNIT COST (PER SQUARE YARD)**

3,622 square yard@

**\$ 68 / SY****ANNUAL COSTS**

\$3,000

Cap Maintenance

1

LS

\$3,000

\$3,000

SUBTOTAL, ANNUAL COSTS

\$3,000

25% O&amp;M Estimating Contingency

\$800

**TOTAL, ANNUAL COSTS****\$3,800****Present Worth of Annual Costs over 30 Years, 9% Rate of Return****\$39,040****ASSUMPTIONS**

1. Upland Shallow Soil Zones are shown on Figure 9.

2. Assumes surface area approximately:

3,622 square yards

3. Earthwork quantities are approximate and need to be field verified during design.

4. Source of estimated costs: previous MGP site construction, RS Means Site Work &amp; Landscape Cost Data.

5. Assumes cover can be applied without excavating upland soil, cover will be placed directly over impacted soil.

6. Above is a preliminary estimate and may be revised during final design.

7. O&amp;M cap maintenance inspection once a year.

8. Annual O&amp;M costs assumed to extend for 30 years.

**UPLAND CONTROL 2B - Asphalt Capping**  
**Remedial Action Options Report**  
 Wisconsin Public Service Corporation  
 Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2  
 BY: JMK CHKD BY: HMS  
 DATE: 12/11/03

**CONSULTING CAPITAL COSTS**

SUB-  
TOTAL

Consulting

Engineering Design, Plans, Specifications, Bid Procurement and  
 Construction Oversight - Documentation

\$23,200

SUBTOTAL, CONSULTING CAPITAL COSTS

\$23,200

25% Estimating Contingency

\$5,800

**TOTAL, CONSULTING CAPITAL COSTS**

\$29,000

**CONSTRUCTION CAPITAL COSTS**

| QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|----------|------|--------------|--------------|---------------|
|----------|------|--------------|--------------|---------------|

Construction

Mob./Demob. Excavation

1

LS

\$3,000

\$3,000

\$116,000

Site Preparation

Surface Water / Erosion Controls

1

LS

\$5,000

\$5,000

Protect Monitoring Wells

4

WELLS

\$200

\$800

Clearing/Grubbing

1

LS

\$2,000

\$2,000

Remove, Transport, and Recycle Concrete

45

TONS

\$8.00

\$400

Place temporary haul road

1

LS

\$5,000

\$5,000

Site Restoration

Potable water for dust control, compact, misc.

1,000,000

GAL

\$0.0012

\$1,200

Fine Grading

3,622

SY

\$5

\$18,100

Sub Base Course (3-inches)

3,622

SY

\$5

\$18,100

Asphalting impacted area (6-inches)

3,622

SY

\$15

\$54,300

Revegetation (6" topsoil, mulch, seed, fertilizer)

1,811

SY

\$4.50

\$8,100

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$116,000

25% Estimating Contingency

\$29,000

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$145,000

**TOTAL CAPITAL COSTS**

\$174,000

**TECHNOLOGY UNIT COST (PER SQUARE YARD)**

3,622 square yard@

\$ 48 / SY

**ANNUAL COSTS**

Cap Maintenance (includes sealing every 5 years)

1

LS

\$3,500

\$3,500

\$3,500

SUBTOTAL, ANNUAL COSTS

\$3,500

25% O&M Estimating Contingency

\$900

**TOTAL, ANNUAL COSTS**

\$4,400

**Present Worth of Annual Costs over 30 Years, 9% Rate of Return**

\$45,204

**ASSUMPTIONS**

- Upland Shallow Soil Excavation Zones are shown on Sheet No. XXX.
- Assumes surface area approximately: 3,622 square yards
- Earthwork quantities are approximate and need to be field verified during design.
- Source of estimated costs: previous MGP site construction, RS Means Site Work & Landscape Cost Data.
- Assumes asphalt cap can be applied without excavating upland soil, cap will be placed directly over impacted soil.
- Above is a preliminary estimate and may be revised during final design.
- O&M cap maintenance inspection once a year and costs includes sealing the asphalt every 5 years.
- Annual O&M costs assumed to extend for 30 years.

**SOURCE CONTROL 3A - Excavation with On-Site Thermal Desorption****Remedial Action Options Report**

Wisconsin Public Service Corporation  
Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK CHKD BY: HMS

DATE: 12/15/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTALConsulting

Engineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$425,000

**SUBTOTAL, CONSULTING CAPITAL COSTS**

\$425,000

25% Estimating Contingency

\$106,300

**TOTAL, CONSULTING CAPITAL COSTS**

\$531,300

**CONSTRUCTION CAPITAL COSTS**

|  | QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|--|----------|------|--------------|--------------|---------------|
|--|----------|------|--------------|--------------|---------------|

Construction

\$2,871,600

Mob./Demob.

1

LS

\$50,000

\$50,000

Mob./Demob. Treatment System

1

LS

\$100,000

\$100,000

Air Monitoring

1

LS

\$125,000

\$125,000

Site Preparation

Surface Water / Erosion Controls

1

LS

\$15,000

\$15,000

Abandon Monitoring Wells

2

WELLS

\$1,000

\$2,000

Clearing/Grubbing

1

LS

\$4,000

\$4,000

Install Temporary Chain link fence

1,200

LF

\$20.00

\$24,000

Remove, Transport, and Recycle Concrete

45

TONS

\$8.00

\$400

Place Temporary Haul Road

1

LS

\$5,000

\$5,000

Load, transport, dispose debris at landfill

45

TONS

\$29.00

\$1,300

Provide Truck Scale and Calibration

1

LS

\$25,000

\$25,000

Staging and Storage Pads

1

LS

\$5,000

\$5,000

Excavation and Processing

Temporary Excavation Shoring and Decon

20,000

SF

\$17.00

\$340,000

Excavate AOCs

22,500

TONS

\$5.00

\$112,500

Thermal Treatment Pad

1

LS

\$75,000

\$75,000

100' x 150' Structure for Pre-treated area

1

LS

\$100,000

\$100,000

Perimeter Misting

1

LS

\$35,000

\$35,000

Screen and Stockpile Soil

22,500

TONS

\$4.00

\$90,000

Load, Transport, Dispose Debris Not Passing Screen

1,125

TONS

\$29.00

\$32,625

assume 5% of the excavated volume

Supply and Blend Lime into Soil for Moisture Content

2,138

TONS

\$14.00

\$29,900

Thermal Treatment On-Site

21,375

TONS

\$35.00

\$748,125

Potable water for thermal treatment unit, dust  
control, compaction, and misc. use

3,000,000

GAL

\$0.0012

\$3,600

Utilities (gas and electric)

22,500

TONS

\$25.00

\$562,500

Fugitive Emission Control

1

LS

\$40,000

\$40,000

Analytical Testing

1

LS

\$18,860

\$18,860

Construction Water Management

Dewatering / Treatment Equipment and Operation

1

LS

\$75,000

\$75,000

20,000 gallon Frac Tank

2

TANKS

\$10,000

\$20,000

Discharge Analytical Samples

1

LS

\$10,000

\$10,000

Water Disposal at POTW

8,833,360

GALLONS

\$0.01200

\$106,000

Site Restoration

Monitoring Well Replacement

2

WELLS

\$2,000

\$4,000

Place and Compact Processed Material

14,300

CY

\$5.00

\$71,500

Furnish, Place, and Compact Backfill Materials

700

CY

\$9.00

\$6,300

Compaction Testing

1

LS

\$7,000

\$7,000

Revegetation (6" topsoil, mulch, seed, fertilizer)

6,000

SY

\$4.50

\$27,000

**SUBTOTAL, CONSTRUCTION CAPITAL COSTS**

\$2,871,600

25% Estimating Contingency

\$717,900

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$3,589,500

**TOTAL CAPITAL COSTS**

\$4,120,800

**TECHNOLOGY UNIT COST (PER TON)**

22,500 TON @

\$ 183 / TON

**ASSUMPTIONS**

1. Source Area Excavation Zones are shown on Figure 3.
2. Assumes 15,000 yd<sup>3</sup> excavation at 1.5 tons : 1 yd<sup>3</sup> ----- 22,500 tons
3. Assumes source area soils are 5% max debris.
4. Assumes wastewater to be directly discharged to the POTW.
5. Assumes restoration using general lawn seed like material. Does not consider restoration or enhancement of wetland.
6. Source of estimated costs: previous MGP site construction, RS Means Site Work & Landscape Cost Data.
7. Earthwork quantities are approximate and need to be field verified during design.
8. Air monitoring cost does not include real time results.
9. Above is a preliminary estimate and may be revised during final design.

**SOURCE CONTROL 3B - Excavation with Off-Site Thermal Desorption****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/15/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTALConsultingEngineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$375,000

SUBTOTAL, CONSULTING CAPITAL COSTS

\$375,000

25% Estimating Contingency

\$93,800

**TOTAL, CONSULTING CAPITAL COSTS**

\$468,800

**CONSTRUCTION CAPITAL COSTS**

| QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|----------|------|--------------|--------------|---------------|
|----------|------|--------------|--------------|---------------|

Construction

\$3,370,900

Mob./Demob.

1

LS

\$50,000

\$50,000

Air Monitoring

1

LS

\$75,000

\$75,000

Site Preparation

Surface Water / Erosion Controls

1

LS

\$15,000

\$15,000

Abandon Monitoring Wells

2

WELLS

\$1,000

\$2,000

Clearing/Grubbing

1

LS

\$4,000

\$4,000

Install Temporary Chain link fence

1,200

LF

\$20.00

\$24,000

Remove, Transport, and Recycle Concrete

45

TONS

\$8.00

\$400

Place Temporary Haul Road

1

LS

\$5,000

\$5,000

Load, transport, dispose debris at landfill

45

TONS

\$29.00

\$1,300

Staging and Storage Pads

1

LS

\$5,000

\$5,000

Excavation and Processing

Temporary Excavation Shoring and Decon

20,000

SF

\$17.00

\$340,000

Excavate AOCs

22,500

TONS

\$5.00

\$112,500

Screen and Stockpile Excavated Soils

22,500

TONS

\$4.00

\$90,000

Load, transport, dispose debris at landfill

1,125

TONS

\$29.00

\$32,600

Transport soil for off-site treatment

21,375

TONS

\$60.00

\$1,282,500

Thermal Treatment Off-Site

21,375

TONS

\$50.00

\$1,068,750

Potable water for dust control, compact, misc.

1,000,000

GAL

\$0.0012

\$1,200

Fugitive Emission Control

1

LS

\$13,000

\$13,000

Analytical Testing

1

LS

\$3,710

\$3,710

Construction Water Management

Dewatering / Treatment Equipment and Operation

1

LS

\$25,000

\$25,000

20,000 gallon Frac Tank

1

TANKS

\$10,000

\$10,000

Discharge Analytical Samples

1

LS

\$5,000

\$5,000

Water Disposal at POTW

2,661,120

GALLONS

\$0.01200

\$31,900

Site Restoration

Monitoring Well Replacement

2

WELLS

\$2,000

\$4,000

Furnish, Place, and Compact Backfill Materials

15,000

CY

\$9.00

\$135,000

Compaction Testing

1

LS

\$7,000

\$7,000

Revegetation (6" topsoil, mulch, seed, fertilizer)

6,000

SY

\$4.50

\$27,000

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$3,370,900

25% Estimating Contingency

\$842,700

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$4,213,600

**TOTAL CAPITAL COSTS****\$4,682,400****TECHNOLOGY UNIT COST (PER TON)**

22,500 TON @

**\$ 208 / TON****ASSUMPTIONS**

- Source Area Excavation Zones are shown on Figure 3.
- Assumes 15,000 yd<sup>3</sup> excavation at 1.5 tons : 1 yd<sup>3</sup> ~~~~~ 22,500 tons
- Assumes source area soils are 5% max debris.
- Assumes wastewater to be directly discharged to the POTW.
- Assumes soil is treated at a facility within 400 miles from site.
- Assumes restoration using general lawn seed like material. Does not consider restoration or enhancement of wetland.
- Source of estimated costs: previous MGP site construction, RS Means Site Work & Landscape Cost Data.
- Earthwork quantities are approximate and need to be field verified during design.
- Air monitoring cost does not include real time results.
- Above is a preliminary estimate and may be revised during final design.

**SOURCE CONTROL 3C - Excavation - Disposal at Landfill****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/15/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTAL**Consulting**Engineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$350,000

SUBTOTAL, CONSULTING CAPITAL COSTS

\$350,000

25% Estimating Contingency

\$87,500

**TOTAL, CONSULTING CAPITAL COSTS**

\$437,500

**CONSTRUCTION CAPITAL COSTS**

| QUANTITY | UNIT | UNIT COST | ITEM COST | SUB-TOTAL |
|----------|------|-----------|-----------|-----------|
|----------|------|-----------|-----------|-----------|

**Construction**

\$1,550,030

Mob./Demob.

1

LS

\$50,000

\$50,000

Air Monitoring

1

LS

\$75,000

\$75,000

**Site Preparation**

Surface Water / Erosion Controls

1

LS

\$15,000

\$15,000

Abandon Monitoring Wells

2

WELLS

\$1,000

\$2,000

Clearing/Grubbing

1

LS

\$4,000

\$4,000

Install Temporary Chain link fence

1,200

LF

\$20.00

\$24,000

Remove, Transport, and Recycle Concrete

45

TONS

\$8.00

\$400

Place Temporary Haul Road

1

LS

\$5,000

\$5,000

Load, transport, dispose debris at landfill

45

TONS

\$29.00

\$1,300

Staging and Storage Pads

1

LS

\$5,000

\$5,000

**Excavation and Processing**

Temporary Excavation Shoring and Decon

20,000

SF

\$17.00

\$340,000

Excavate AOCs

22,500

TONS

\$5.00

\$112,500

Load, transport, dispose soil/debris at landfill

22,500

TONS

\$29.00

\$652,500

Potable water for dust control, compact, misc.

1,000,000

GAL

\$0.0012

\$1,200

Fugitive Emission Control

1

LS

\$13,000

\$13,000

Analytical Testing

1

LS

\$4,230

\$4,230

**Construction Water Management**

Dewatering / Treatment Equipment and Operation

1

LS

\$25,000

\$25,000

20,000 gallon Frac Tank

1

TANKS

\$10,000

\$10,000

Discharge Analytical Samples

1

LS

\$5,000

\$5,000

Water Disposal at POTW

2,661,120

GALLONS

\$0.01200

\$31,900

**Site Restoration**

Monitoring Well Replacement

2

WELLS

\$2,000

\$4,000

Furnish, Place, and Compact Backfill Materials

15,000

CY

\$9.00

\$135,000

Compaction Testing

1

LS

\$7,000

\$7,000

Revegetation (6" topsoil, mulch, seed, fertilizer)

6,000

SY

\$4.50

\$27,000

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$1,550,000

25% Estimating Contingency

\$387,500

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$1,937,500

**TOTAL CAPITAL COSTS****\$2,375,000****TECHNOLOGY UNIT COST (PER TON)**

22,500 TON @

**\$ 106 / TON****ASSUMPTIONS**

1. Source Area Excavation Zones are shown on Figure 3.
2. Assumes 15,000 yd<sup>3</sup> excavation at 1.5 tons : 1 yd<sup>3</sup> ~~~~~ 22,500 tons
3. Earthwork quantities are approximate and need to be field verified during design.
4. Assumes wastewater to be directly discharged to the POTW.
5. Assumes restoration using general lawn seed like material. Does not consider restoration or enhancement of wetland.
6. Source of estimated costs: previous MGP site construction, RS Means Site Work & Landscape Cost Data.
7. Air monitoring cost does not include real time results.
8. Above is a preliminary estimate and may be revised during final design.

**SOURCE CONTROL 4 - In-Situ Stabilization / Solidification (ISS)****Remedial Action Options Report**

Wisconsin Public Services Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/15/03

**CONSULTING CAPITAL COSTS**

SUB-

TOTAL

ConsultingEngineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$453,400

**SUBTOTAL, CONSULTING CAPITAL COSTS**

\$453,400

25% Estimating Contingency

\$113,400

**TOTAL, CONSULTING CAPITAL COSTS**

\$566,800

**CONSTRUCTION CAPITAL COSTS**

|  | QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|--|----------|------|--------------|--------------|---------------|
|--|----------|------|--------------|--------------|---------------|

Construction

\$1,813,600

Mob./Demob.

1

LS

\$225,000

\$225,000

Bench Scale

1

LS

\$50,000

\$50,000

Pilot Testing

1

LS

\$50,000

\$50,000

Platform (install 2-ft base course for crane stability)

1

LS

\$53,200

\$53,200

Install Temporary Chain link fence

1,200

LF

\$20.00

\$24,000

Abandon monitoring wells

2

WELLS

\$1,000

\$2,000

Air Monitoring

1

LS

\$125,000

\$125,000

In-Situ Stabilizing Reagents/Materials/Treatment

15,000

CY

\$53.00

\$795,000

H&amp;S premium costs

1

LS

\$50,000

\$50,000

Management and backfilling of ISS Swell Materials  
assume 35% of treatment volume

5,250

CY

\$6.00

\$31,500

Environmental Site Management

1

LS

\$70,285

\$70,300

(dust and odor control, erosion and surface water control)

Perimeter Misting

1

LS

\$35,000

\$35,000

Contractor's O&amp;P

1

LS

\$140,570

\$140,600

Quality Control testing

15,000

CY

\$3.20

\$48,000

Construction Water Management

Dewatering / Treatment Equipment and Operation

1

LS

\$20,000

\$20,000

20,000 gallon Frac Tank

1

TANKS

\$10,000

\$10,000

Discharge Analytical Samples

1

LS

\$10,000

\$10,000

Water Disposal at POTW

2,500,000

GAL

\$0.0120

\$30,000

Site Restoration

Install General Fill for Rooting Zone Layer (6-inches)

670

CY

\$9.00

\$6,000

Revegetation (6" topsoil, mulch, seed, fertilizer)

6,000

SY

\$4.50

\$27,000

Monitoring Well Replacement

2

WELLS

\$2,000

\$4,000

Compaction Testing

1

LS

\$7,000

\$7,000

**SUBTOTAL, CONSTRUCTION CAPITAL COSTS**

\$1,813,600

25% Estimating Contingency

\$453,400

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$2,267,000

**TOTAL CAPITAL COSTS**

\$2,833,800

**TECHNOLOGY UNIT COST (PER CUBIC YARD)**

15,000 cubic yards @

\$189 /Cubic Yard

**ASSUMPTIONS**

1. Assumes ISS treatment of soil from ground surface to a depth between 7 and 17 feet below ground surface.
2. Assumes 35% of ISS material is managed as swell.
3. Assumes O&P was not included in contractor's budget number.
4. Assumes the wetland area will not be restored with wetland vegetation and soils. Additional costs may result to buy into a wetland mitigation bank.
5. Assumes wastewater to be directly discharged to the POTW.
6. Above is a preliminary estimate and may be revised during final design.

**SOURCE CONTROL 5A - In-Situ Chemical Oxidation - Source (3 Treatments)****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/30/03

**CONSULTING CAPITAL COSTS**

SUB-

TOTAL

ConsultingEngineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$250,230

SUBTOTAL, CONSULTING CAPITAL COSTS

\$250,200

25% Estimating Contingency

\$62,600

**TOTAL, CONSULTING CAPITAL COSTS****\$312,800****CONSTRUCTION CAPITAL COSTS**

QUANTITY

UNIT

UNIT  
COSTITEM  
COSTSUB-  
TOTALConstruction

\$727,900

Mob./Demob.

1

LS

\$5,000

\$5,000

Bench Scale Studies

1

LS

\$15,000

\$15,000

Pilot scale studies

1

LS

\$42,000

\$42,000

Treatment of Source Control Area

9,000

CY

\$72.60

\$653,400

Groundwater analytical testing after treatment

4

LS

\$3,120

\$12,480

(0, 7, 30, and 90 days)

Environmental Management

\$106,200

Air monitoring

1

LS

\$75,000

\$75,000

Additional on site groundwater monitoring wells

6

WELLS

\$2,000

\$12,000

Additional off site groundwater monitoring wells

2

WELLS

\$2,000

\$4,000

Field monitoring groundwater quality during treatment

1

LS

\$15,200

\$15,200

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$834,100

25% Estimating Contingency

\$208,500

**TOTAL, CONSTRUCTION CAPITAL COSTS****\$1,042,600****TOTAL CAPITAL COSTS****\$1,355,400****TECHNOLOGY UNIT COST (PER CUBIC YARD)**

9,000

CY @

**\$151 /CY****ADDITIONAL TREATMENT COSTS**

\$414,600

Project O&amp;M Labor, Travel, Equipment

1

LS

\$65,000

\$65,000

Mob./Demob.

1

LS

\$5,000

\$5,000

Treatment of Source Control Area

9,000

CY

\$36.30

\$326,700

Monitoring groundwater quality during treatment

1

LS

\$5,400

\$5,400

Groundwater analytical testing after treatment

4

LS

\$3,120

\$12,480

(0, 7, 30, and 90 days)

Environmental Management

\$90,200

Air monitoring

1

LS

\$75,000

\$75,000

Field monitoring groundwater quality during treatment

1

LS

\$15,200

\$15,200

SUBTOTAL, ANNUAL COSTS

\$504,800

25% O&amp;M Estimating Contingency

\$126,200

**TOTAL, ADDITIONAL TREATMENT COSTS / PER TREATMENT****\$ 631,000 /TREATMENT****ASSUMPTIONS**

1. Includes initial treatment and two additional treatments.
2. Need 3 months of post monitoring to determine effectiveness.
3. Above is a preliminary estimate and may be revised during final design.
4. Air monitoring cost does not include real time results.



**SOURCE CONTROL 5B - In-Situ Chemical Oxidation - Source (1 Treatment)****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/30/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTALConsultingEngineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$250,230

SUBTOTAL, CONSULTING CAPITAL COSTS

\$250,200

25% Estimating Contingency

\$62,600

**TOTAL, CONSULTING CAPITAL COSTS**

\$312,800

**CONSTRUCTION CAPITAL COSTS**

|  | QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|--|----------|------|--------------|--------------|---------------|
|--|----------|------|--------------|--------------|---------------|

Construction

\$727,900

Mob./Demob.

1

LS

\$5,000

\$5,000

Bench Scale Studies

1

LS

\$15,000

\$15,000

Pilot scale studies

1

LS

\$42,000

\$42,000

Treatment of Source Control Area

9,000

CY

\$72.60

\$653,400

Groundwater analytical testing after treatment

4

LS

\$3,120

\$12,480

(0, 7, 30, and 90 days)

Environmental Management

\$106,200

Air monitoring

1

LS

\$75,000

\$75,000

Additional on site groundwater monitoring wells

6

WELLS

\$2,000

\$12,000

Additional off site groundwater monitoring wells

2

WELLS

\$2,000

\$4,000

Field monitoring groundwater quality during treatment

1

LS

\$15,200

\$15,200

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$834,100

25% Estimating Contingency

\$208,500

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$1,042,600

**TOTAL CAPITAL COSTS****\$1,355,400****TECHNOLOGY UNIT COST (PER CUBIC YARD)**

9,000

CY @

**\$151 /CY****ASSUMPTIONS**

1. Includes one treatment only.
2. Need 3 months of post monitoring to determine effectiveness.
3. Above is a preliminary estimate and may be revised during final design.
4. Air monitoring cost does not include real time results.

**GROUNDWATER RESPONSE ACTION 5C - In-Situ Chemical Oxidation - Downgradient (2 Treatments)****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569/2.2

BY: JMK

CHKD BY: HMS

DATE: 12/30/03

**CONSULTING CAPITAL COSTS**

SUB-

TOTAL

ConsultingEngineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$103,110

SUBTOTAL, CONSULTING CAPITAL COSTS

\$103,100

25% Estimating Contingency

\$25,800

**TOTAL, CONSULTING CAPITAL COSTS**

\$128,900

**CONSTRUCTION CAPITAL COSTS**

QUANTITY

UNIT

UNIT

ITEM

COST

COST

SUB-

TOTAL

Construction

\$272,100

Mob./Demob.

1

LS

\$5,000

\$5,000

Bench scale studies

1

LS

\$15,000

\$15,000

Pilot Scale

1

LS

\$35,000

\$35,000

Treatment of Source Control Area

2,600

CY

\$77.65

\$201,900

Groundwater analytical testing after treatment

4

LS

\$3,800

\$15,200

(0, 7, 30, and 90 days)

Environmental Management

\$71,600

Air monitoring

1

LS

\$40,000

\$40,000

Additional on site groundwater monitoring wells

11

WELLS

\$2,000

\$22,000

Additional off site groundwater monitoring wells

1

WELLS

\$2,000

\$2,000

Field monitoring groundwater quality during treatment

1

LS

\$7,600

\$7,600

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$343,700

25% Estimating Contingency

\$85,900

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$429,600

**TOTAL CAPITAL COSTS**

\$558,500

**TECHNOLOGY UNIT COST (PER CUBIC YARD)**

2,600

CY @

**\$215 /CY****ADDITIONAL TREATMENT COSTS**

\$154,100

Project O&amp;M Labor, Travel, Equipment

1

LS

\$33,000

\$33,000

Mob./Demob.

1

LS

\$5,000

\$5,000

Treatment of Source Control Area

2,600

CY

\$38.83

\$100,900

Groundwater analytical testing after treatment

4

LS

\$3,800

\$15,200

(0, 7, 30, and 90 days)

Environmental Management

\$47,600

Air monitoring

1

LS

\$40,000

\$40,000

Field monitoring groundwater quality during treatment

1

LS

\$7,600

\$7,600

SUBTOTAL, ANNUAL COSTS

\$201,700

25% O&amp;M Estimating Contingency

\$50,400

**TOTAL, ADDITIONAL TREATMENT COSTS / PER TREATMENT****\$ 252,100 /TREATMENT****ASSUMPTIONS**

1. Includes initial treatment and two additional treatments.
2. Need 3 months of post monitoring to determine effectiveness.
3. Air monitoring cost does not include real time results.
4. Above is a preliminary estimate and may be revised during final design.

**GROUNDWATER RESPONSE ACTION 5D - In-Situ Chemical Oxidation - Downgradient (1 Treatment)****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569/2.2

BY: JMK

CHKD BY: HMS

DATE: 12/30/03

**CONSULTING CAPITAL COSTS**

SUB-

TOTAL

ConsultingEngineering Design, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$103,110

SUBTOTAL, CONSULTING CAPITAL COSTS

\$103,100

25% Estimating Contingency

\$25,800

**TOTAL, CONSULTING CAPITAL COSTS**

\$128,900

**CONSTRUCTION CAPITAL COSTS**

QUANTITY

UNIT

UNIT  
COSTITEM  
COSTSUB-  
TOTALConstruction

\$272,100

Mob./Demob.

1

LS

\$5,000

\$5,000

Bench scale studies

1

LS

\$15,000

\$15,000

Pilot Scale

1

LS

\$35,000

\$35,000

Treatment of Source Control Area

2,600

CY

\$77.65

\$201,900

Groundwater analytical testing after treatment

4

LS

\$3,800

\$15,200

(0, 7, 30, and 90 days)

Environmental Management

\$71,600

Air monitoring

1

LS

\$40,000

\$40,000

Additional on site groundwater monitoring wells

11

WELLS

\$2,000

\$22,000

Additional off site groundwater monitoring wells

1

WELLS

\$2,000

\$2,000

Field monitoring groundwater quality during treatment

1

LS

\$7,600

\$7,600

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$343,700

25% Estimating Contingency

\$85,900

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$429,600

**TOTAL CAPITAL COSTS**

\$558,500

**TECHNOLOGY UNIT COST (PER CUBIC YARD)**

2,600 CY @

\$215 /CY

**ASSUMPTIONS**

1. Includes one treatment only.
2. Need 3 months of post monitoring to determine effectiveness.
3. Air monitoring cost does not include real time results.
4. Above is a preliminary estimate and may be revised during final design.

**GROUNDWATER RESPONSE ACTION 6A - Slurry Wall Containment with Pump and Treat****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/11/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTAL**Consulting**Engineering Design and Geotechnical Evaluation, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

129,990.00

SUBTOTAL, CONSULTING CAPITAL COSTS

\$130,000

25% Estimating Contingency

\$32,500

**TOTAL, CONSULTING CAPITAL COSTS****\$162,500****CONSTRUCTION CAPITAL COSTS**

|  | QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|--|----------|------|--------------|--------------|---------------|
|--|----------|------|--------------|--------------|---------------|

**Construction**

\$155,500

Mob./Demob.

1

LS

\$30,000

\$30,000

Bench Scale / Pilot Testing

1

LS

\$20,000

\$20,000

Air Monitoring

1

LS

\$20,000

\$20,000

Platform (install 2-ft base course for stability)

1

LS

\$12,000

\$12,000

Slurry wall construction (soil-bentonite)

6,800

SF

\$5.80

\$39,400

Slurry Wall Cap

Install 30 mil HDPE Membrane Cover

1,530

SF

\$0.75

\$1,100

Install 200 mil Geocomposite Drainage Layer

1,530

SF

\$1.25

\$1,900

Install General Fill for Rooting Zone Layer (6-inches)

30

CY

\$8.40

\$300

Revegetation (6" topsoil, mulch, seed, fertilizer)

1,530

SY

\$4.50

\$6,900

Health and Safety Premium

6,800

SF

\$0.25

\$1,700

Load, Transport, and Dispose trench spoils

170

TONS

\$29.00

\$4,900

Analytical Testing

1

LS

\$130

\$130

Quality Control Testing

6,800

SF

\$0.45

\$3,100

Contractors O&amp;P

1

LS

\$14,143

\$14,100

**Containment Monitoring**

\$16,000

Install Monitoring Wells (downgradient of containment (3), at ends (2), and  
upgradient (3))

8

WELLS

\$2,000

\$16,000

**Pump and Treat System**

\$261,800

Install groundwater trench with cleanouts

340

LF

\$75.00

\$25,500

Trench Submersible Sumps, Pumps, and Vaults

3

EACH

\$7,000

\$21,000

Underground piping to building

710

LF

\$6.00

\$4,300

System Enclosure

1

LS

\$25,000

\$25,000

Groundwater Treatment Equipment

(transfer tank and pump, air stripper, bag filter)

1

LS

\$25,000

\$25,000

Install Equipment, piping, PLC and Electrical

1

LS

\$80,000

\$80,000

Install 3-phase Electrical Service

1

LS

\$10,000

\$10,000

Loading/Hauling/Dispose Trench Spoils

850

TONS

\$29.00

\$24,700

Trench Backfill

2,000

CY

\$14.00

\$28,000

Restoration of Disturbed Areas

1,500

SY

\$5.00

\$7,500

Disposal of groundwater to sanitary (estimated for 1 year)

65,700

GAL

\$0.012

\$800

Startup/testing

1

LS

\$5,000

\$5,000

Documentation Surveying

1

LS

\$5,000

\$5,000

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$433,300

25% Estimating Contingency

\$108,300

**TOTAL, CONSTRUCTION CAPITAL COSTS****\$541,600****TOTAL CAPITAL COSTS****\$704,100****TECHNOLOGY UNIT COST (PER SQUARE YARD)**

756 SY @

**\$ 932 / SY****ANNUAL COSTS**

\$60,800

Project O&amp;M Labor, Travel, Equipment

1

LS

\$45,000

\$45,000

Discharge Sampling Analytical

1

LS

\$5,000

\$5,000

Discharge to Sanitary Sewer

65,700

GAL

\$0.012

\$800

Electric / Heating / Light

1

LS

\$10,000

\$10,000

SUBTOTAL, ANNUAL COSTS

\$60,800

25% O&amp;M Estimating Contingency

\$15,200

**TOTAL, ANNUAL COSTS****\$76,000****Present Worth of Annual Costs over 30 Years, 9% Rate of Return****\$780,798****ASSUMPTIONS**

1. Average depth of slurry wall assumed to be a total of 20 feet and the length is 330 linear feet.
2. Assume trench spoils are impacted and will be disposed in approved landfill.
3. Slurry wall is 3-feet thick.
4. Cost includes imported material for slurry wall construction.
5. Above is a preliminary estimate and may be revised during final design.
6. Install three sump pumps at 15' bgs.
7. Sumps are equipped with mercury switches for auto on/off
8. Treatment system needs to be flushed every year for precipitate and/or sediment. Cost included.
9. Annual project O&M includes semi-annual O&M reports to WDNR, quarterly visits for maintenance on system and containment evaluation.

|                                                                                               |  |  |                             |              |
|-----------------------------------------------------------------------------------------------|--|--|-----------------------------|--------------|
| <b>GROUNDWATER RESPONSE ACTION 6B - Slurry Wall Containment with Pump and Treat and Phyto</b> |  |  | NRT PROJECT NO.: 1569 / 2.2 |              |
| <b>Remedial Action Options Report</b>                                                         |  |  | BY: JMK                     | CHKD BY: HMS |
| Wisconsin Public Service Corporation                                                          |  |  | DATE: 12/11/03              |              |
| Former Manufactured Gas Plant Site - Two Rivers, WI                                           |  |  |                             |              |

#### CONSULTING CAPITAL COSTS

SUB-  
TOTAL

##### Consulting

Engineering Design and Geotechnical Evaluation, Plans, Specifications, Bid Procurement and Construction Oversight - Documentation 138,360

SUBTOTAL, CONSULTING CAPITAL COSTS

\$138,400

25% Estimating Contingency

\$34,600

**TOTAL, CONSULTING CAPITAL COSTS**

\$173,000

#### CONSTRUCTION CAPITAL COSTS

| QUANTITY | UNIT | UNIT COST | ITEM COST | SUB-TOTAL |
|----------|------|-----------|-----------|-----------|
|----------|------|-----------|-----------|-----------|

##### Construction

Mob./Demob. 1 LS \$30,000 \$30,000 \$155,500

Bench Scale / Pilot Testing 1 LS \$20,000 \$20,000

Air Monitoring 1 LS \$20,000 \$20,000

Platform (install 2-ft base course for stability) 1 LS \$12,000 \$12,000

Slurry wall construction (soil-bentonite) 6,800 SF \$5.80 \$39,400

Slurry Wall Cap

Install 30 mil HDPE Membrane Cover 1,530 SF \$0.75 \$1,100

Install 200 mil Geocomposite Drainage Layer 1,530 SF \$1.25 \$1,900

Install General Fill for Rooting Zone Layer (6-inches) 30 CY \$8.40 \$300

Revegetation (6" topsoil, mulch, seed, fertilizer) 1,530 SY \$4.50 \$6,900

Health and Safety Premium 6,800 SF \$0.25 \$1,700

Load, Transport, and Dispose trench spoils 170 TONS \$29.00 \$4,900

Analytical Testing 1 LS \$130 \$130

Quality Control Testing 6,800 SF \$0.45 \$3,100

Contractors O&P 1 LS \$14,143 \$14,100

##### Containment Monitoring

Install Monitoring Wells (downgradient of containment (3), at ends (2), and upgradient (3)) 8 WELLS \$2,000 \$16,000 \$16,000

##### Pump and Treat System

Design/Testing 1 LS \$20,000 \$20,000 \$281,800

Install groundwater trench with cleanouts 340 LF \$75.00 \$25,500

Trench Submersible Sumps, Pumps, and Vaults 3 EACH \$7,000 \$21,000

Underground piping to building 710 LF \$6.00 \$4,300

System Enclosure 1 LS \$25,000 \$25,000

Groundwater Treatment Equipment

(transfer tank and pump, air stripper, bag filter) 1 LS \$25,000 \$25,000

Install Equipment, piping, PLC and Electrical 1 LS \$80,000 \$80,000

Install 3-phase Electrical Service 1 LS \$10,000 \$10,000

Loading/Hauling/Dispose Trench Spoils 850 TONS \$29.00 \$24,700

Trench Backfill 2,000 CY \$14.00 \$28,000

Restoration of Disturbed Areas 1,500 SY \$5.00 \$7,500

Disposal of groundwater to sanitary (estimated for 1 year) 65,700 GAL \$0.012 \$800

Startup/testing 1 LS \$5,000 \$5,000

Documentation Surveying 1 LS \$5,000 \$5,000

##### Phytoremediation

Hybrid Poplar Trees 150 EACH \$9.00 \$1,400 \$7,900

Install Trees 1 LS \$5,000 \$5,000

Baseline Tree Inventory/Health Documentation 1 LS \$1,500 \$1,500

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$461,200

25% Estimating Contingency

\$115,300

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$576,500

**TOTAL CAPITAL COSTS**

\$749,500

|                                               |                 |                    |
|-----------------------------------------------|-----------------|--------------------|
| <b>TECHNOLOGY UNIT COST (PER SQUARE YARD)</b> | <b>756 SY @</b> | <b>\$ 992 / SY</b> |
|-----------------------------------------------|-----------------|--------------------|

##### ANNUAL COSTS

Project O&M Labor, Travel, Equipment 1 LS \$40,000 \$40,000 \$41,000

Tree Replacement 1 LS \$1,000 \$1,000

SUBTOTAL, ANNUAL COSTS

\$41,000

25% O&M Estimating Contingency

\$10,300

**TOTAL, ANNUAL COSTS**

\$51,300

**Present Worth of Annual Costs over 30 Years, 9% Rate of Return**

\$527,038

##### ASSUMPTIONS

1. Average depth of slurry wall assumed to be a total of 20 feet and the length is 330 linear feet.
2. Assume trench spoils are impacted and will be disposed in approved landfill.
3. Slurry wall is 3-feet thick.
4. Cost includes imported material for slurry wall construction.
5. Above is a preliminary estimate and may be revised during final design.
6. Annual project O&M includes semi-annual O&M reports to WDNR, quarterly visits for maintenance on trees and containment evaluation.

**GROUNDWATER RESPONSE ACTION 7A - Continuous Permeable Reactive Barrier****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/11/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTALConsultingEngineering Design and Geotechnical Evaluation, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$263,505

SUBTOTAL, CONSULTING CAPITAL COSTS

\$263,500

25% Estimating Contingency

\$65,900

**TOTAL, CONSULTING CAPITAL COSTS**

\$329,400

**CONSTRUCTION CAPITAL COSTS**

| QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|----------|------|--------------|--------------|---------------|
|----------|------|--------------|--------------|---------------|

Construction

\$1,728,700

Mob./Demob.

1

LS

\$20,000

\$20,000

Bench Scale / Pilot Testing

1

LS

\$20,000

\$20,000

Column Testing

1

LS

\$40,000

\$40,000

Air Monitoring

1

LS

\$50,000

\$50,000

Platform (install 2-ft base course for stability)

1

LS

\$12,000

\$12,000

Permeable Reactive Barrier wall trenching/construction

6,800

SF

\$15.00

\$102,000

Carbon Material and placement

378

CY

\$3,400

\$1,283,500

Sand mixed with carbon

378

CY

\$10.00

\$3,800

PRB Cap

Install 30 mil HDPE Membrane Cover

1,530

SF

\$0.75

\$1,100

Install 200 mil Geocomposite Drainage Layer

1,530

SF

\$1.25

\$1,900

Install General Fill for Rooting Zone Layer (6-inches)

30

CY

\$8.40

\$300

Revegetation (6" topsoil, mulch, seed, fertilizer)

170

SY

\$4.50

\$800

Load, Transport, and Dispose trench spoils

1,135

TONS

\$29.00

\$32,900

Analytical Testing

1

LS

\$130.00

\$130

Quality Control Testing

6,800

SF

\$0.45

\$3,100

Contractors O&amp;P

1

LS

\$157,153

\$157,200

Monitoring

\$28,000

Install Monitoring Wells (within PRB (6), downgradient  
of PRB (3), at ends (2), and upgradient (3))

14

WELLS

\$2,000

\$28,000

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$1,756,700

25% Estimating Contingency

\$439,200

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$2,195,900

**TOTAL CAPITAL COSTS****\$2,525,300****TECHNOLOGY UNIT COST (PER LINEAR FOOT)**

340 LINEAR FEET @

**\$ 7,427 /LF**ANNUAL COSTS

\$143,000

Project O&amp;M Labor, Travel, Equipment

1

LS

\$45,000

\$45,000

Groundwater Monitoring of Installed wells (quarterly)

4

Rounds

\$2,000

\$8,000

Carbon changeout

1

EACH

\$90,000

\$90,000

SUBTOTAL, ANNUAL COSTS

\$143,000

25% O&amp;M Estimating Contingency

\$35,800

**TOTAL, ANNUAL COSTS****\$178,800****Present Worth of Annual Costs over 30 Years, 9% Rate of Return****\$1,836,929**ASSUMPTIONS

1. Average depth of PRB assumed to be a total of 20 feet and the length is 340 linear feet.
2. Assume all trench spoils are impacted and will be disposed in approved landfill.
3. Slurry wall is 3-feet thick.
4. Cost includes imported material for PRB construction.
5. Assume carbon will not need to be changed out.
6. Trench to be filled with a mixture of 50% carbon and 50% sand.
7. Annual project O&M includes semi-annual O&M reports to WDNR, quarterly visits for groundwater monitoring.
8. Above is a preliminary estimate and may be revised during final design.

**GROUNDWATER RESPONSE ACTION 7B - Funnel and Gate Permeable Reactive Barrier**  
**Remedial Action Options Report**Wisconsin Public Service Corporation  
Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/11/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTALConsultingEngineering Design and Geotechnical Evaluation, Plans, Specifications, Bid Procurement and  
Construction Oversight - Documentation

\$267,440

SUBTOTAL, CONSULTING CAPITAL COSTS

25% Estimating Contingency

\$267,400

**TOTAL, CONSULTING CAPITAL COSTS**

\$66,900

\$334,300

**CONSTRUCTION CAPITAL COSTS**

| QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|----------|------|--------------|--------------|---------------|
|----------|------|--------------|--------------|---------------|

Construction

|                                                        |       |       |           |           |             |
|--------------------------------------------------------|-------|-------|-----------|-----------|-------------|
| Mob./Demob.                                            | 1     | LS    | \$40,000  | \$40,000  | \$1,309,200 |
| Bench Scale / Pilot Testing                            | 1     | LS    | \$20,000  | \$20,000  |             |
| Column Testing                                         | 1     | LS    | \$40,000  | \$40,000  |             |
| Air Monitoring                                         | 1     | LS    | \$20,000  | \$20,000  |             |
| Platform (install 2-ft base course for stability)      | 1     | LS    | \$12,000  | \$12,000  |             |
| Slurry wall construction (soil-bentonite)              | 5,600 | SF    | \$95.00   | \$532,000 |             |
| Permeable Reactive Barrier Gate                        | 6     | EA    | \$45,000  | \$270,000 |             |
| Carbon Material and placement                          | 70    | CY    | \$3,400   | \$238,000 |             |
| Sand mixed with carbon                                 | 70    | CY    | \$10.00   | \$700     |             |
| PRB Cap                                                |       |       |           |           |             |
| Install 30 mil HDPE Membrane Cover                     | 1,530 | SF    | \$0.75    | \$1,100   |             |
| Install 200 mil Geocomposite Drainage Layer            | 1,530 | SF    | \$1.25    | \$1,900   |             |
| Install General Fill for Rooting Zone Layer (6-inc     | 30    | CY    | \$8.40    | \$300     |             |
| Revegetation (6" topsoil, mulch, seed, fertilizer)     | 170   | SY    | \$4.50    | \$800     |             |
| Load, Transport, and Dispose trench spoils             | 350   | TONS  | \$29.00   | \$10,200  |             |
| Analytical Testing                                     | 1     | LS    | \$130.00  | \$130     |             |
| Quality Control Testing                                | 6,800 | SF    | \$0.45    | \$3,100   |             |
| Contractors O&P                                        | 1     | LS    | \$119,023 | \$119,000 |             |
| <u>Monitoring</u>                                      |       |       |           |           |             |
| Install Monitoring Wells (within PRB (6), downgradient | 14    | WELLS | \$2,000   | \$28,000  | \$28,000    |
| of funnels (3), at ends (2), and upgradient (3))       |       |       |           |           |             |

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

25% Estimating Contingency

\$1,337,200

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$334,300

\$1,671,500

**TOTAL CAPITAL COSTS**

\$2,005,800

**TECHNOLOGY UNIT COST (PER LINEAR FOOT)**

340 LINEAR FEET @

\$ 5,899 /LF

**ANNUAL COSTS**

|                                                     |   |        |          |          |           |
|-----------------------------------------------------|---|--------|----------|----------|-----------|
| Project O&M Labor, Travel, Equipment                | 1 | LS     | \$45,000 | \$45,000 | \$107,000 |
| Groundwater Monitoring of Installed wells (quarterl | 4 | Rounds | \$2,000  | \$8,000  |           |
| Carbon changeout                                    | 2 | EACH   | \$27,000 | \$54,000 |           |

SUBTOTAL, ANNUAL COSTS

25% O&amp;M Estimating Contingency

\$107,000

\$26,800

**TOTAL, ANNUAL COSTS**

\$133,800

**Present Worth of Annual Costs over 30 Years, 9% Rate of Return**

\$1,374,615

**ASSUMPTIONS**

1. Average depth of slurry wall assumed to be a total of 20 feet and the length is 340 linear feet.
2. Gates are assumed 10-ft wide (6 total) with funnels 4 times the length (40-ft).
2. Assume all trench spoils are impacted and will be disposed in approved landfill.
3. Slurry wall is 3-feet thick.
4. Cost includes imported material for slurry wall construction.
5. Carbon changeout every 10 years within 30 years. Cost includes replacement of PRB cap.
6. Annual project O&M includes semi-annual O&M reports to WDNR, quarterly visits for groundwater monitoring.
7. Above is a preliminary estimate and may be revised during final design.

**GROUNDWATER RESPONSE ACTION 8 - Remediation by Natural Attenuation (RNA) Monitoring****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY:

DATE: 12/11/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTALConsultingEngineering Design, Permitting, Bid Procurement and  
Construction Oversight - Documentation

\$5,000

SUBTOTAL, CONSULTING CAPITAL COSTS

\$5,000

25% Estimating Contingency

\$1,300

**TOTAL, CONSULTING CAPITAL COSTS**

\$6,300

**CONSTRUCTION CAPITAL COSTS**

| QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|----------|------|--------------|--------------|---------------|
|----------|------|--------------|--------------|---------------|

Monitoring Well Network

\$16,500

Mob/Demob

1

LS

\$5,000

\$5,000

Monitoring Well Installation (assume two additional  
downgradient of MW-609A/B)

2

WELLS

\$2,000

\$4,000

Existing Monitoring Well Repair (MW-601, MW-603B,  
MW-605A, MW-606, MW-607B, MW-608A)

6

WELLS

\$1,000

\$6,000

Survey Newly Installed/Repaired Wells

1

LS

\$1,500

\$1,500

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$16,500

25% Estimating Contingency

\$4,100

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$20,600

**TOTAL CAPITAL COSTS****\$26,900****TECHNOLOGY COST per monitoring well network****\$26,900****ANNUAL COSTS**

\$57,800

Project O&amp;M Labor, Reporting, Travel, Equipment

1

LS

\$35,000

\$35,000

Routine Groundwater MonitoringAnalytical Costs (18 wells in network plus 2 QC samples;  
quarterly)

4

Rounds

\$5,700

\$22,800

SUBTOTAL, ANNUAL COSTS

\$57,800

25% O&amp;M Estimating Contingency

\$14,500

**TOTAL, ANNUAL COSTS (First Two Years)****\$72,300****ANNUAL COSTS**

\$20,700

Project O&amp;M Labor, Reporting, Travel, Equipment

1

LS

\$15,000

\$15,000

Routine Groundwater MonitoringAnalytical Costs (18 wells in network plus 2 QC samples;  
annually)

1

Rounds

\$5,700

\$5,700

SUBTOTAL, ANNUAL COSTS

\$20,700

25% O&amp;M Estimating Contingency

\$5,200

**TOTAL, ANNUAL COSTS (Years 3 through 30)****\$25,900****Present Worth of Annual Costs over 30 Years, 9% Rate of Return****\$347,710****ASSUMPTIONS**

1. Assumes additional 2 wells downgradient of MW-609.
2. Assumes damaged wells can be repaired without replacement.
3. Does not include any well abandonment.
4. Assumes laboratory analysis of PVOs, PAH, Ammonia, Nitrate, Nitrite, TKN, manganese, sulfate, sulfide, methane, alkalinity, hardness, TDS, and TOC.
5. Field measured parameters include temperature, conductivity, turbidity, pH, ORP, DO, carbon dioxide, and ferrous iron.
6. Annual project O&M includes annual O&M reports to WDNR, visits for groundwater monitoring.
7. Assumes two years quarterly groundwater monitoring after which annual groundwater monitoring for 28 years. Parameter list may be reduced after 2 years.
8. Above is a preliminary estimate and may be revised during final design.



**GROUNDWATER CONTROL TECHNOLOGY 9 - Routine Groundwater Monitoring****Remedial Action Options Report**

Wisconsin Public Service Corporation

Former Manufactured Gas Plant Site - Two Rivers, WI

NRT PROJECT NO.: 1569 / 2.2

BY: JMK

CHKD BY: HMS

DATE: 12/29/03

**CONSULTING CAPITAL COSTS**SUB-  
TOTALConsultingEngineering Design, Permitting, Bid Procurement and  
Construction Oversight - Documentation

\$5,000

SUBTOTAL, CONSULTING CAPITAL COSTS

\$5,000

25% Estimating Contingency

\$1,300

**TOTAL, CONSULTING CAPITAL COSTS**

\$6,300

**CONSTRUCTION CAPITAL COSTS**

| QUANTITY | UNIT | UNIT<br>COST | ITEM<br>COST | SUB-<br>TOTAL |
|----------|------|--------------|--------------|---------------|
|----------|------|--------------|--------------|---------------|

Monitoring Well Network

Mob/Demob

1

LS

\$5,000

\$5,000

\$11,500

Monitoring Well Installation (assume two additional  
downgradient of MW-609A/B)

2

WELLS

\$2,000

\$4,000

Existing Monitoring Well Repair (MW-601, MW-603B,  
MW-605A, MW-606, MW-607B, MW-608A)

1

WELLS

\$1,000

\$1,000

Survey Newly Installed/Repaired Wells

1

LS

\$1,500

\$1,500

SUBTOTAL, CONSTRUCTION CAPITAL COSTS

\$11,500

25% Estimating Contingency

\$2,900

**TOTAL, CONSTRUCTION CAPITAL COSTS**

\$14,400

**TOTAL CAPITAL COSTS****\$20,700****TECHNOLOGY COST per monitoring well network****\$20,700**ANNUAL COSTS

Project O&amp;M Labor, Reporting, Travel, Equipment

1

LS

\$35,000

\$35,000

\$45,800

Routine Groundwater MonitoringAnalytical Costs (18 wells in network plus 2 QC samples;  
quarterly)

4

Rounds

\$2,700

\$10,800

SUBTOTAL, ANNUAL COSTS

\$45,800

25% O&amp;M Estimating Contingency

\$11,500

**TOTAL, ANNUAL COSTS (First Two Years)****\$57,300**ANNUAL COSTSProject O&M Labor, Reporting, Travel, Equipment  
Routine Groundwater Monitoring

1

LS

\$15,000

\$15,000

\$17,700

Analytical Costs (18 wells in network plus 2 QC samples;  
annually)

1

Rounds

\$2,700

\$2,700

SUBTOTAL, ANNUAL COSTS

\$17,700

25% O&amp;M Estimating Contingency

\$4,400

**TOTAL, ANNUAL COSTS (Years 3 through 30)****\$22,100****Present Worth of Annual Costs over 30 Years, 9% Rate of Return****\$288,968****ASSUMPTIONS**

1. Assumes additional 2 wells downgradient of MW-609.
2. Assumes damaged wells can be repaired without replacement.
3. Does not include any well abandonment.
4. Assumes laboratory analysis of PVOs and PAH.
5. Field measured parameters include temperature, conductivity, turbidity, pH, ORP, DO, carbon dioxide, and ferrous iron.
6. Annual project O&M includes annual O&M reports to WDNR, visits for groundwater monitoring.
7. Assumes two years quarterly groundwater monitoring after which annual groundwater monitoring for 28 years. Parameter list may be reduced after 2 years.
8. Above is a preliminary estimate and may be revised during final design.

## **SHEETS**

# WORKING DRAFT

U.S. OIL  
PROPERTY  
FORMER BULK  
OIL TERMINAL

LIMIT OF 100 YEAR REGIONAL FLOOD  
AS PER GROUND ELEVATIONS  
ON MAY 6TH, 2003 (584.0)

WATER ELEV.  
= 582.5

WATER ELEVATION 578.0  
ON MAY 6TH, 2003

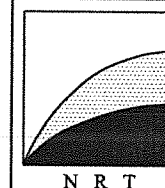
## LEGEND

- TOPOGRAPHICAL CONTOURS
- PROPERTY BOUNDARY
- WETLANDS BOUNDARY
- 100 YEAR FLOOD PLAIN
- WOODS
- FORMER STRUCTURE
- EXISTING STRUCTURE
- SB-626 SOIL BORING
- TP-615 TEST PIT
- MW-601 MONITORING WELL
- OE OVERHEAD ELECTRICAL LINE
- OET OVERHEAD ELECTRICAL & TELEPHONE LINE
- OT OVERHEAD TELEPHONE LINE
- STM STORM LINE
- SAN SANITARY LINE
- WTR WATER LINE
- GAS GAS LINE
- POWER POLE
- DOWN GUY
- GAS VALVE
- SANITARY MANHOLE
- STORM MANHOLE
- STORM CATCH BASIN
- FIRE HYDRANT

0 20 40 80  
SCALE IN FEET

SOURCE NOTE:  
THIS DRAWING WAS DEVELOPED FROM A SURVEY BY CAROW LAND SURVEYING  
CO., INC., PROJECT NO. C034-29, DATED 5-27-03.  
NORTH IS REFERENCED TO THE NORTH LINE OF THE FRACTIONAL NORTHWEST  
1/4 OF SECTION 1, TOWNSHIP 19 NORTH, RANGE 24 EAST, CITY OF TWO  
RIVERS, MANITOWOC COUNTY, WISCONSIN WHICH BEARS N89°59'51"E PER THE  
MANITOWOC COUNTY COORDINATE SYSTEM.  
2003 SOIL BORING AND TEST PIT LOCATIONS WERE TAKEN FROM A SURVEY BY  
CAROW LAND SURVEYING CO., INC., RECEIVED 09-17-03.  
WETLAND BOUNDARY DELINEATED JULY 22, 2003 BY STS CONSULTANTS, LTD.

FORMER OIL  
AND TIRE  
DISTRIBUTOR



Natural  
Resource  
Technology

## SITE MAP

SITE INVESTIGATION AND RAOR  
FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE  
WISCONSIN PUBLIC SERVICE CORPORATION  
CITY OF TWO RIVERS, WISCONSIN

CAD FILE: 1569/2-2gw/1569-22-D01.DWG  
REFERENCE FILES:

PROJECT NO.  
1569/2.2  
DRAWN BY: TAS  
TAS 12/12/03  
CHECKED BY:  
APPROVED BY:  
XX/XX/XX  
SHEET NO.  
1

WORKING DRAFT

| Loc.   | Depth       | Benz | Naph | BTEX | PAHs | WAD | Cyan |
|--------|-------------|------|------|------|------|-----|------|
| SB-632 | 10.5'-13.5' | nd   | nd   | nd   | nd   | nd  | na   |

| Loc.   | Depth | Benz  | Naph | BTEX  | PAHs  | Cyan |
|--------|-------|-------|------|-------|-------|------|
| SB-607 | 0'-2' | 0.028 | nd   | 0.072 | 2.593 | na   |

| Loc.   | Depth | Benz | Naph | BTEX | PAHs  | Cyan |
|--------|-------|------|------|------|-------|------|
| MW-605 | 2'-4' | nd   | 0.44 | nd   | 5.212 | na   |

| Loc.   | Depth | Benz | Naph | BTEX | PAHs  | Cyan |
|--------|-------|------|------|------|-------|------|
| SB-606 | 0'-2' | nd   | 1    | nd   | 7.675 | na   |

| Loc.   | Depth | Benz | Naph | BTEX  | PAHs  | Cyan |
|--------|-------|------|------|-------|-------|------|
| SB-625 | 6'-8' | 0.52 | 1.4  | 12.62 | 28.74 | na   |

| Loc.   | Depth | Benz | Naph | BTEX   | PAHs | Cyan |
|--------|-------|------|------|--------|------|------|
| SB-619 | 2'-4' | nd   | na   | 0.0385 | na   | na   |

| Loc.   | Depth | Benz | Naph | BTEX | PAHs | Cyan |
|--------|-------|------|------|------|------|------|
| SB-621 | 2'-4' | nd   | na   | nd   | na   | na   |

| Loc.   | Depth       | Benz | Naph  | BTEX | PAHs | WAD | Cyan |
|--------|-------------|------|-------|------|------|-----|------|
| SB-633 | 14.5'-19.5' | nd   | 0.068 | 0.1  | 0.1  | nd  | na   |

| Loc.   | Depth | Benz | Naph | BTEX | PAHs | Cyan |
|--------|-------|------|------|------|------|------|
| SB-608 | 0'-2' | nd   | nd   | nd   | nd   | na   |

| Loc.   | Depth   | Benz | Naph | BTEX | PAHs | WAD | Cyan |
|--------|---------|------|------|------|------|-----|------|
| TP-620 | 4'-5'   | nd   | nd   | nd   | nd   | na  | 0.63 |
| TP-620 | 11'-12' | 3.1  | 2    | 7.6  | 2.1  | na  | 1.3  |

| Loc.   | Depth | Benz | Naph | BTEX | PAHs | WAD | Cyan |
|--------|-------|------|------|------|------|-----|------|
| SB-634 | 7'-8' | nd   | nd   | nd   | 0.03 | na  | na   |

| Loc.   | Depth | Benz | Naph | BTEX  | PAHs | Cyan |
|--------|-------|------|------|-------|------|------|
| SB-622 | 2'-4' | 0.33 | na   | 0.343 | na   | na   |

| Loc.   | Depth | Benz | Naph | BTEX | PAHs   | Cyan |
|--------|-------|------|------|------|--------|------|
| SS-603 | 0'-1' | na   | nd   | na   | 1.1128 | na   |

| Loc.   | Depth     | Benz | Naph  | BTEX | PAHs | WAD | Cyan |
|--------|-----------|------|-------|------|------|-----|------|
| SB-627 | 9.75'-14' | 0.2  | 0.058 | 0.6  | 0.1  | nd  | na   |

| Loc.   | Depth | Benz | Naph  | BTEX | PAHs  | Cyan |
|--------|-------|------|-------|------|-------|------|
| MW-608 | 0'-2' | nd   | 0.064 | nd   | 0.713 | na   |

| Loc.   | Depth   | Benz | Naph | BTEX | PAHs  | Cyan |
|--------|---------|------|------|------|-------|------|
| SB-624 | 12'-14' | 1.7  | 11.3 | 8.46 | 540.8 | na   |

| Loc.   | Depth   | Benz | Naph | BTEX | PAHs | WAD | Cyan |
|--------|---------|------|------|------|------|-----|------|
| TP-621 | 8.5'-9' | 1.8  | 12   | 7.1  | 18   | na  | 0.70 |

| Loc.   | Depth | Benz | Naph | BTEX | PAHs | Cyan |
|--------|-------|------|------|------|------|------|
| SB-601 | 0'-2' | nd   | 0.3  | nd   | 9.37 | na   |

| Loc.   | Depth | Benz | Naph | BTEX | PAHs   | Cyan |
|--------|-------|------|------|------|--------|------|
| SB-604 | 0'-2' | nd   | 0.11 | nd   | 1.1432 | na   |

| Loc.   | Depth       | Benz | Naph  | BTEX | PAHs | WAD | Cyan |
|--------|-------------|------|-------|------|------|-----|------|
| SB-628 | 13.5'-16.5' | 2.1  | 0.083 | 4.1  | 0.7  | nd  | na   |

| Loc.   | Depth | Benz | Naph | BTEX | PAHs  | Cyan |
|--------|-------|------|------|------|-------|------|
| MW-607 | 0'-2' | nd   | 0.3  | nd   | 3.295 | na   |

#### LEGEND

| Loc.      | Depth | Benz          | Naph              | BTEX                                                    | PAHs                                          | WAD                                 | Cyan                |
|-----------|-------|---------------|-------------------|---------------------------------------------------------|-----------------------------------------------|-------------------------------------|---------------------|
| Sample ID | fbgs  | Benzene mg/kg | Naphthalene mg/kg | Total Benzene, Toluene, Ethylbenzene, and Xylenes mg/kg | Total Polynuclear Aromatic Hydrocarbons mg/kg | Weak Acid Dissociable Cyanide mg/kg | Total Cyanide mg/kg |

SB-628 SOIL BORING mg/kg MILLIGRAMS PER KILOGRAM

TP-615 TEST PIT

MW-601 MONITORING WELL

SS-601 SURFACE SOIL SAMPLE

PROPERTY BOUNDARY

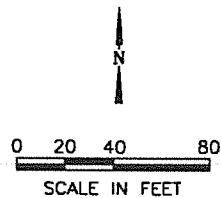
WOODS

FORMER STRUCTURE

EXISTING STRUCTURE

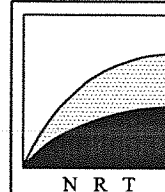
#### ANALYTICAL NOTES:

All parameters are in milligrams per kilogram.  
Samples exceeding the NR720 Residual Cleanup Level (Benzene) or Draft Soil Cleanup Level (Naphthalene) are bold.  
nd: Parameter not detected in this sample.  
na: Parameter not analyzed for in this sample.  
fbgs: Feet below ground surface.  
Benzene RCL is 0.0055 mg/kg.  
Naphthalene DCL is 0.4 mg/kg.



#### SOURCE NOTE:

THIS DRAWING WAS DEVELOPED FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., PROJECT NO. C034.29, DATED 5-27-03.  
NORTH IS REFERENCED TO THE NORTH LINE OF THE FRACTIONAL NORTHWEST 1/4 OF SECTION 1, TOWNSHIP 19 NORTH, RANGE 24 EAST, CITY OF TWO RIVERS, MANITOWOC COUNTY, WISCONSIN WHICH BEARS N89°59'51"E PER THE MANITOWOC COUNTY COORDINATE SYSTEM.  
2003 SOIL BORING AND TEST PIT LOCATIONS WERE TAKEN FROM A SURVEY BY CAROW LAND SURVEYING CO., INC., RECEIVED 09-17-03.  
WETLAND BOUNDARY DELINEATED JULY 22, 2003 BY STS CONSULTANTS, LTD.



Natural  
Resource  
Technology

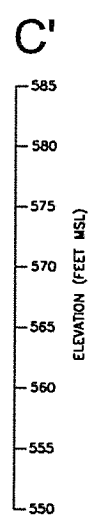
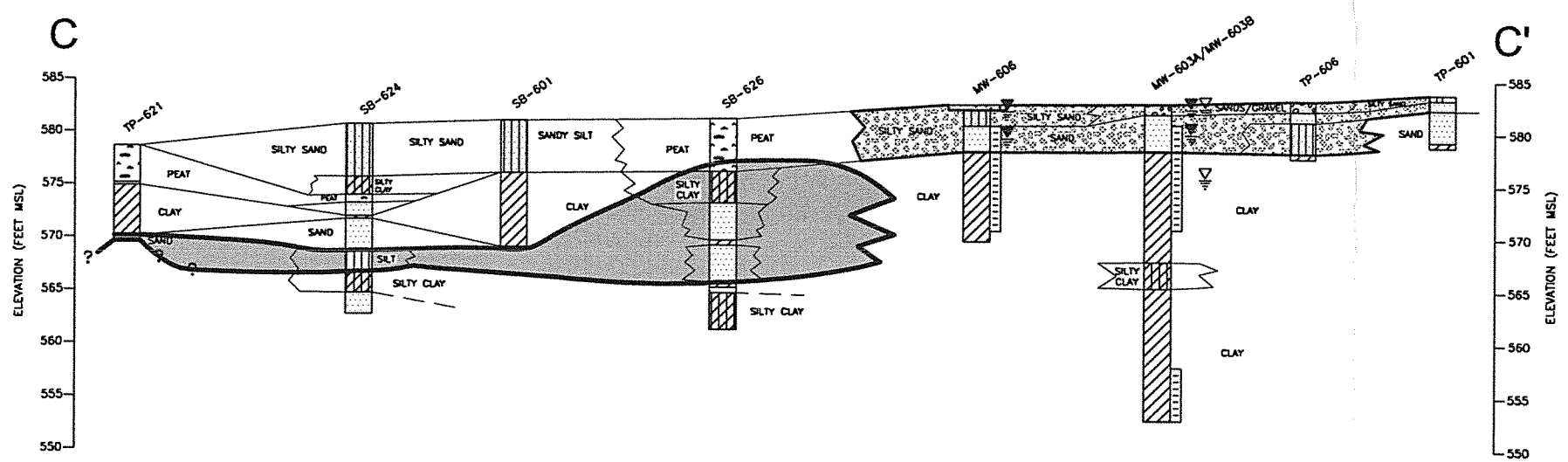
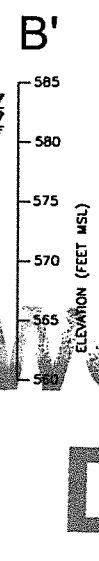
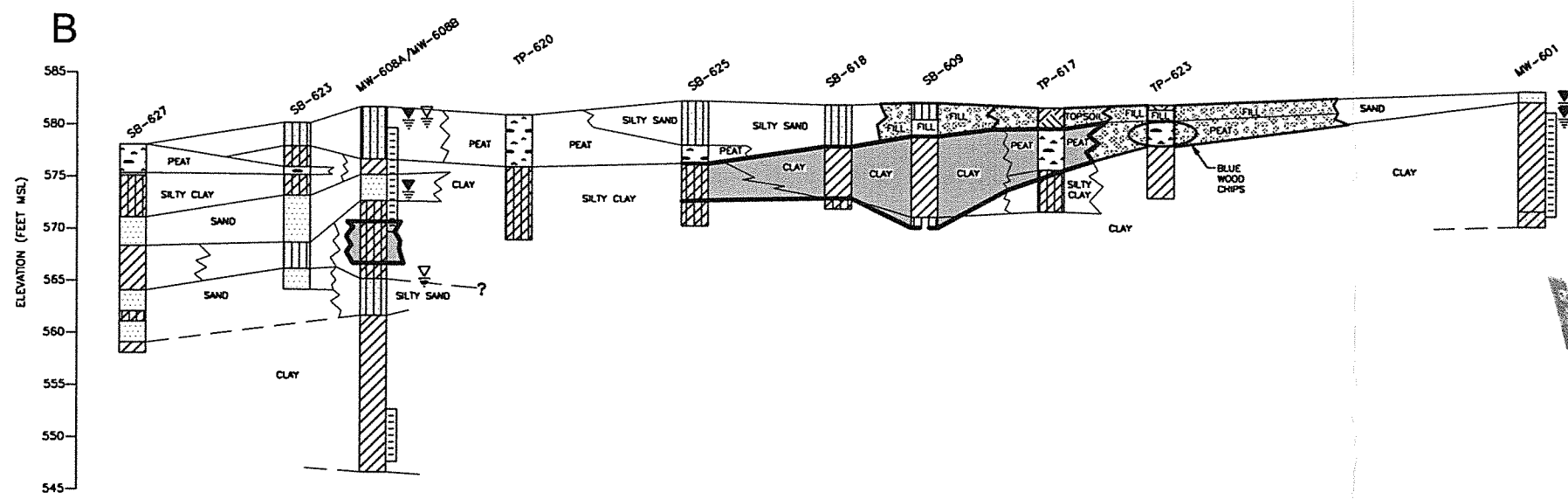
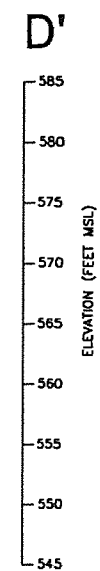
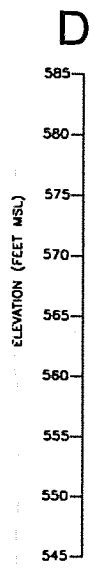
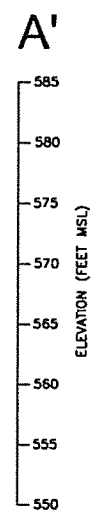
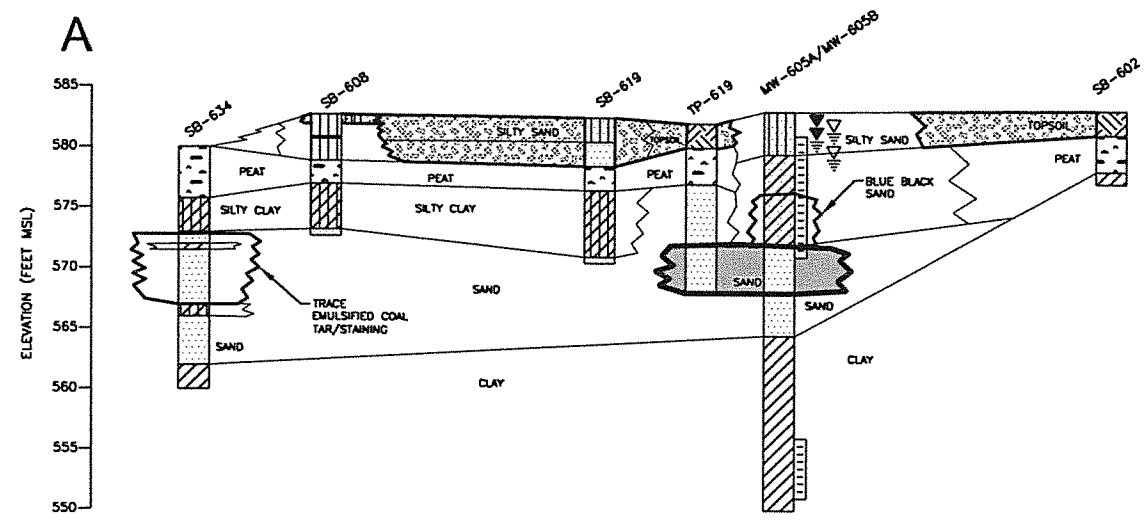
#### DISTRIBUTION OF SELECT PARAMETERS IN SITE SOILS

SITE INVESTIGATION AND RAOR  
FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE  
WISCONSIN PUBLIC SERVICE CORPORATION  
CITY OF TWO RIVERS, WISCONSIN

CAD FILE: 1569/2-2gw/1569-22-D02.DWG

REFERENCE FILES:

PROJECT NO.  
1569/2.2  
DRAWN BY: TAS  
TAS 12/05/03  
CHECKED BY:  
JMK 12/05/03  
APPROVED BY:  
XX/XX/XX  
SHEET NO.  
2



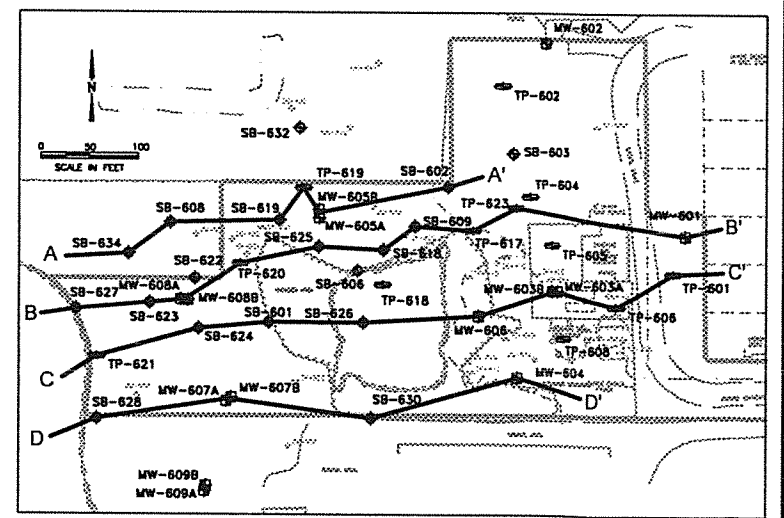
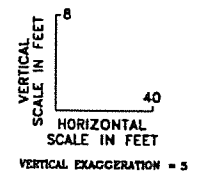
WORKING  
DRAFT

**LEGEND**

|  |                   |  |                                                |
|--|-------------------|--|------------------------------------------------|
|  | TOPSOIL           |  | SILTY CLAY                                     |
|  | PEAT              |  | CLAY                                           |
|  | CONCRETE          |  | SANDY CLAY                                     |
|  | SAND              |  | GRAVEL FILL                                    |
|  | SILTY SAND        |  | EMULSIFIED COAL TAR                            |
|  | SILT              |  | ASH/CINDERS, WOOD, GLASS, AND BRICK MIXED FILL |
|  | SCREENED INTERVAL |  |                                                |

PIEZOMETER WATER TABLE ELEVATION  
 MONITORING WELL WATER TABLE ELEVATION

NOTE: HISTORIC HIGH AND LOW WATER TABLE ELEVATIONS



|                                                                                       |                                                                                                                                                                                                          |                |                                |
|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------------|
| <br>N R T                                                                             | <b>GEOLOGIC CROSS SECTION A-A' THROUGH D-D'</b><br>SITE INVESTIGATION AND RAOR<br>FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE<br>WISCONSIN PUBLIC SERVICE CORPORATION<br>CITY OF TWO RIVERS, WISCONSIN |                | PROJECT NO.<br>1569/2.2        |
|                                                                                       |                                                                                                                                                                                                          |                | DRAWN BY: RLH/<br>TAS 12/15/03 |
|                                                                                       |                                                                                                                                                                                                          |                | CHECKED BY:<br>JMK             |
|                                                                                       |                                                                                                                                                                                                          |                | APPROVED BY:<br>XX/XX/XX       |
| CAD FILE: 1569/2.2gw/1569-22-D03.DWG<br>REFERENCE FILES: 1569/2.2/XREF/XS-MAP-INS.DWG |                                                                                                                                                                                                          | SHEET NO.<br>3 |                                |



## **APPENDIX B**

### **2013 GROUNDWATER QUALITY DATA TRANSMITTAL**



ENVIRONMENTAL CONSULTANTS

234 W. FLORIDA STREET, FIFTH FLOOR  
MILWAUKEE, WISCONSIN 53204  
(P) 414.837.3607  
(F) 414.837.3608

Ms. Margaret Gielniewski  
United States Environmental Protection Agency  
77 W. Jackson Boulevard  
Chicago, IL 60604-3590

February 17, 2014  
(1569)

RE: Groundwater Quality Data Transmittal, September 2013 Groundwater Monitoring Event  
Former Two Rivers Manufactured Gas Plant, 21st and School Streets, Two Rivers, Wisconsin  
USEPA ID# WIN000509953, BRRTS # 02-36-000255

Dear Ms. Gielniewski:

On behalf of Integrys Business Support, LLC, (IBS) managing Wisconsin Public Service Corporation's (WPSC) former Manufactured Gas Plant (MGP) sites, Natural Resource Technology, Inc. (NRT) is providing analytical results from the most recent groundwater sampling event performed at the Former Two Rivers MGP site in Two Rivers, Wisconsin.

Groundwater samples and water level measurements were collected September 27, 2013, and the samples were analyzed for petroleum volatile organic compounds (PVOCs) and polynuclear aromatic hydrocarbons (PAHs). Monitoring wells MW-602, MW610 and MW611, located on the US Oil Property, just north of the former MGP, were observed to be damaged and could not be sampled. These groundwater monitoring wells are side gradient to the groundwater plume, frequently non-detect for benzene and naphthalene and historically well below the groundwater screening levels. Replacement wells will be evaluated as part of the Site-Specific Work Plan when the site is initiated with the USEPA.

Analytical results and groundwater elevations from 2005 through 2013 are summarized on the enclosed tables and figures. Historic groundwater data tables (2005 and earlier) are included as Appendix A. The laboratory analytical report is included as Appendix B.

Please contact Mr. Naren Prasad of IBS or either of the undersigned if you have questions or comments regarding this report.

Sincerely,

NATURAL RESOURCE TECHNOLOGY, INC.

Handwritten signature of Eric Kovatch in black ink.

Eric Kovatch, PG  
Senior Hydrogeologist

Handwritten signature of Jennifer M. Hagen in black ink.

Jennifer M. Hagen, PE  
Senior Engineer/Project Manager

Enc.: Figure 1 – Site Location (1569-A01)  
Figure 2 – Site Layout (1569-4-B05)  
Figure 3 – Water Table Contours September 2013 (1569-10-B03)  
Figure 4 – Piezometric Surface Contours September 2013 (1569-10-B04)

Table 1 – Groundwater Analytical Results – PVOCs  
Table 2 – Groundwater Analytical Results – PAHs  
Table 3 – Groundwater Elevations and Monitoring Well Construction Details

Appendix A – Historic Analytical Data Tables  
Appendix B – Laboratory Analytical Report

WWW.NATURALRT.COM



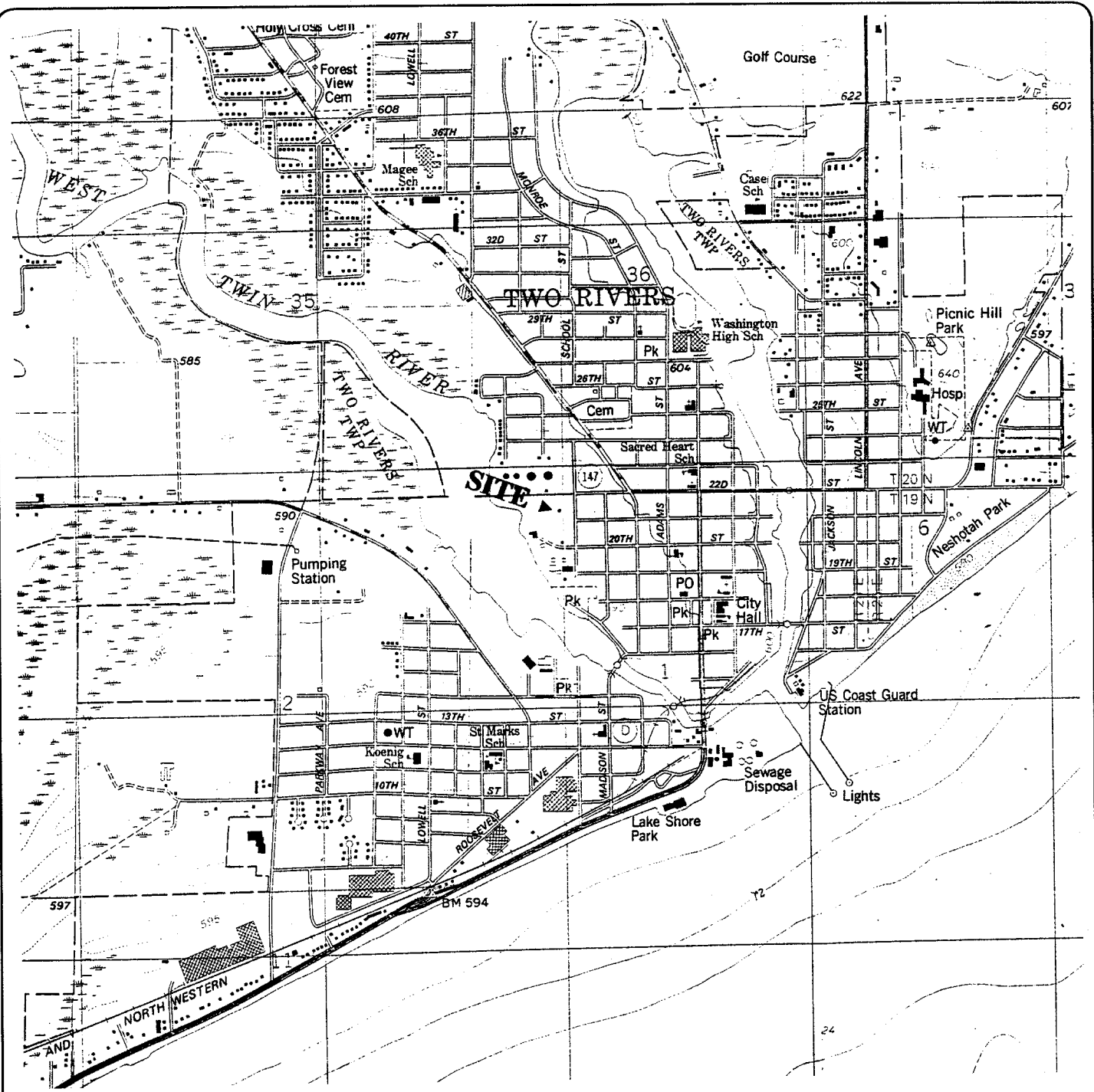
Ms. Margaret Gielniewski  
February 17, 2014  
Page 2



cc (w/enc.): Mr. Naren Prasad, Integrys Business Support, LLC (via email)  
Ms. Annette Weissbach, Wisconsin Department of Natural Resources (hard copy)  
Ms. Cheryl Bougie, Wisconsin Department of Natural Resources (three hard copies)  
Ms. Catherine Schripsema, CH2M Hill (via email)

[File:\1569 GW Quality Update transmittal 130217]

## FIGURES



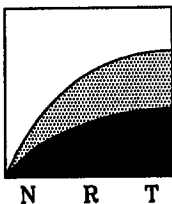
SOURCE: USGS 7.5 MINUTE QUADRANGLE,  
TWO RIVERS. DATED 1978.



0 2000 4000

SCALE IN FEET

CONTOUR INTERVAL 10 FEET



Natural  
Resource  
Technology

## SITE LOCATION MAP

FORMER TWO RIVERS MANUFACTURED GAS PLANT SITE  
WISCONSIN PUBLIC SERVICE CORPORATION  
CITY OF TWO RIVERS, WISCONSIN

DRAWN BY: TAS

APPROVED BY: EPK DATE: 07/07/03

PROJECT NO.  
1569

DRAWING NO.  
1569-A01

FIGURE NO.  
1





Y:\GIS\Projects\1511559\MXD\Figure 3\_Water Table Contours\_Sep13.mxd Author: tushman Date/Time: 2/17/2014, 10:42:31 AM

| MW605A/605AR | BEN                              | NAPH    | BTEX   | PAH       | CYN WAD |
|--------------|----------------------------------|---------|--------|-----------|---------|
| 12/08/94     | 140                              | 1,500   | 970    | 3,486     | 0.14    |
| 01/10/95     | 1,400                            | 2,300   | 4,330  | 3,589     | 0.013   |
| 06/24/02     | 65                               | 97      | 102    | 1,559     | <0.0084 |
| 08/03/04     | 3,300                            | 310,000 | 15,000 | 1,048,000 | --      |
| 10/04/05     | 7,600                            | 610,000 | 23,800 | 2,065,900 | --      |
| 09/22/06     | 1,500                            | 15      | 2,059  | 132       | --      |
| 10/17/07     | Did not sample (product present) |         |        |           |         |
| 10/02/08     | 6,880                            | 17      | 8,554  | 328       | --      |
| 09/30/09     | 6,460                            | 9,180   | 11,013 | 31,087    | --      |
| 09/28/10     | 2,790                            | 18.2    | 5,244  | 20.50     | --      |
| 09/20/11     | 3,730                            | 81.9    | 4,912  | 254.76    | --      |
| 09/20/12     | 58.2                             | 65.7    | 171    | 152.24    | --      |
| 09/27/13     | 4,210                            | < 0.2   | 5,451  | 93        | --      |

| MW610    | BEN          | NAPH   | BTEX | PAH  | CYN WAD |
|----------|--------------|--------|------|------|---------|
| 09/05/96 | nd           | nd     | nd   | nd   | --      |
| 10/11/96 | nd           | nd     | nd   | nd   | --      |
| 10/30/02 | <0.25        | 0.03   | nd   | 0.5  | <0.0027 |
| 07/02/03 | <0.30        | 0.03   | nd   | 0.5  | 0.0038  |
| 10/16/03 | <0.30        | <0.024 | nd   | 0.6  | 0.00106 |
| 08/04/04 | <0.14        | 0.03   | nd   | 0.3  | --      |
| 10/04/05 | <0.14        | 0.08   | nd   | 0.1  | --      |
| 09/22/06 | <0.14        | 0.06   | nd   | 0.3  | --      |
| 10/17/07 | <0.14        | <0.012 | nd   | nd   | --      |
| 10/02/08 | 0.54         | 0.30   | 0.5  | 0.6  | --      |
| 09/30/09 | 1.2          | 0.25   | 2.1  | 0.97 | --      |
| 09/28/10 | <0.41        | 0.13   | 0.77 | 0.20 | --      |
| 09/20/11 | well damaged |        |      |      |         |
| 09/20/12 | well damaged |        |      |      |         |
| 09/27/13 | well damaged |        |      |      |         |

| MW611    | BEN          | NAPH   | BTEX | PAH   | CYN WAD |
|----------|--------------|--------|------|-------|---------|
| 09/05/96 | nd           | nd     | nd   | nd    | --      |
| 10/11/96 | nd           | nd     | nd   | nd    | --      |
| 10/30/02 | <0.25        | <0.024 | nd   | nd    | <0.0027 |
| 07/02/03 | <0.30        | 0.03   | nd   | 0.03  | 0.0104  |
| 10/16/03 | <0.30        | <0.024 | nd   | nd    | 0.00072 |
| 08/04/04 | <0.14        | 0.03   | nd   | 0.03  | --      |
| 10/04/05 | <0.14        | 4.10   | nd   | 7.7   | --      |
| 09/22/06 | <0.14        | 0.57   | nd   | 1.1   | --      |
| 10/17/07 | <0.14        | 0.04   | nd   | 0.078 | --      |
| 10/02/08 | 0.25         | 0.03   | 0.6  | 0.21  | --      |
| 09/30/09 | 2.0          | 0.32   | 12   | 0.94  | --      |
| 09/28/10 | <0.41        | 0.12   | 4.7  | 0.16  | --      |
| 09/20/11 | well damaged |        |      |       |         |
| 09/20/12 | well damaged |        |      |       |         |
| 09/27/13 | well damaged |        |      |       |         |

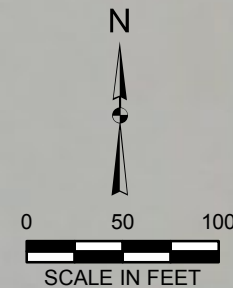
| MW602    | BEN          | NAPH    | BTEX | PAH   | CYN WAD |
|----------|--------------|---------|------|-------|---------|
| 12/08/94 | nd           | nd      | nd   | nd    | nd      |
| 01/11/95 | nd           | nd      | nd   | nd    | nd      |
| 06/24/02 | <0.48        | <0.027  | nd   | nd    | <0.0084 |
| 07/02/03 | <0.30        | 0.038   | nd   | 0.06  | <0.001  |
| 10/16/03 | <0.30        | <0.024  | nd   | 0.03  | 0.00068 |
| 08/03/04 | <0.14        | <0.022  | nd   | nd    | --      |
| 10/04/05 | <0.14        | 0.056   | nd   | 0.09  | --      |
| 09/22/06 | <0.14        | 0.023   | nd   | 0.07  | --      |
| 10/17/07 | <0.14        | < 0.012 | nd   | 0.078 | --      |
| 10/02/08 | 0.23         | < 0.016 | 0.2  | 0.3   | --      |
| 10/02/08 | 0.25         | 0.025   | 0.3  | 0.5   | --      |
| 09/30/09 | 0.76         | 1.2     | 0.76 | 4.4   | --      |
| 09/28/10 | <0.41        | 0.12    | nd   | 23.01 | --      |
| 09/20/11 | < 0.41       | 0.02    | nd   | 0.13  | --      |
| 09/20/12 | well damaged |         |      |       |         |
| 09/27/13 | well damaged |         |      |       |         |

| MW613    | BEN    | NAPH  | BTEX | PAH    | CYN WAD |
|----------|--------|-------|------|--------|---------|
| 08/04/04 | <0.41  | 0.57  | nd   | 1.1    | --      |
| 10/04/05 | <0.14  | 2.30  | nd   | 3.8    | --      |
| 09/22/06 | <0.14  | 0.24  | nd   | 0.3    | --      |
| 10/17/07 | 1.80   | 0.41  | 2.5  | 1.0    | --      |
| 10/02/08 | 0.81   | 2.20  | 1.9  | 4.9    | --      |
| 09/30/09 | 0.87   | 0.26  | 1.3  | 0.66   | --      |
| 09/28/10 | 22.1   | 2.3   | 23.8 | 3.19   | --      |
| 09/20/11 | < 0.41 | 0.02  | nd   | 2.42   | --      |
| 09/20/12 | < 0.41 | 0.091 | 4.3  | 0.18   | --      |
| 09/27/13 | < 0.5  | 0.45  | nd   | 0.6222 | --      |

| MW608A   | BEN    | NAPH | BTEX   | PAH   | CYN WAD |
|----------|--------|------|--------|-------|---------|
| 12/08/94 | 760    | 980  | 827    | 1,725 | nd      |
| 01/10/95 | 990    | 510  | 990    | 1,245 | nd      |
| 06/24/02 | 420    | 0.06 | 491    | 23    | <0.0084 |
| 07/02/03 | 2,400  | 120  | 2,766  | 619   | <0.0010 |
| 10/16/03 | 3,700  | 170  | 4,250  | 734   | 0.0032  |
| 08/03/04 | 1,300  | 330  | 2,501  | 845   | --      |
| 10/04/05 | 6,000  | 420  | 7,507  | 1,623 | --      |
| 09/22/06 | 3,800  | 100  | 5,671  | 359   | --      |
| 10/17/07 | 4,100  | 580  | 5,671  | 1,045 | --      |
| 10/02/08 | 2,200  | --   | 3,959  | --    | --      |
| 09/30/09 | 10,800 | 864  | 12,598 | 1,278 | --      |
| 09/28/10 | 10,600 | 966  | 12,798 | 1419  | --      |
| 09/20/11 | 2,780  | 978  | 3,918  | 1,393 | --      |
| 09/20/12 | 3,340  | 620  | 4,399  | 926   | --      |
| 09/27/13 | 4,130  | 490  | 5210.3 | 679.8 | --      |

| MW607A   | BEN   | NAPH  | BTEX   | PAH    | CYN WAD |
|----------|-------|-------|--------|--------|---------|
| 12/08/94 | 830   | 1,300 | 2,469  | 2,080  | 0.76    |
| 01/10/95 | 1,100 | 1,300 | 2,960  | 1,300  | 0.23    |
| 06/24/02 | 570   | 34    | 1,673  | 53     | 0.042   |
| 07/02/03 | 980   | 240   | 2,858  | 452    | 0.0090  |
| 10/16/03 | 560   | 260   | 1,905  | 557    | 0.00358 |
| 08/04/04 | 1,000 | 650   | 3,123  | 1,148  | --      |
| 10/04/05 | 360   | 18    | 659    | 100    | --      |
| 09/22/06 | 1,200 | 670   | 3,243  | 1,140  | --      |
| 10/17/07 | 620   | 360   | 1,566  | 670    | --      |
| 10/02/08 | 843   | 585   | 2,000  | 891    | --      |
| 09/30/09 | 922   | 460   | 2,837  | 803    | --      |
| 09/28/10 | 854   | 763   | 2,581  | 763    | --      |
| 09/20/11 | 1,030 | 507   | 1,948  | 727.1  | --      |
| 09/27/13 | 1290  | 79.2  | 2170.6 | 208.93 | --      |

| MW612    | BEN    | NAPH | BTEX  | PAH   | CYN WAD |
|----------|--------|------|-------|-------|---------|
| 08/04/04 | 4.3    | 2.40 | 4.3   | 134   | --      |
| 10/04/05 | 1.2    | 1.10 | 2.5   | 13    | --      |
| 09/22/06 | 4.8    | 0.65 | 6.1   | 19    | --      |
| 10/17/07 | 4.1    | 1.40 | 6.42  | 17.68 | --      |
| 10/02/08 | 1.1    | --   | 2.2   | --    | --      |
| 09/30/09 | 5.2    | 1.9  | 6.0   | 12    | --      |
| 09/28/10 | <0.41  | 0.61 | nd    | 0.70  | --      |
| 09/20/11 | < 0.41 | 0.83 | nd    | 8.31  | --      |
| 09/20/12 | 0.45   | 0.77 | 4.29  | 13.77 | --      |
| 09/27/13 | 23.1   | 1.5  | 26.07 | 4.94  | --      |



- MONITORING WELL (GROUNDWATER ELEVATION IN FT)
- MONITORING WELL (GROUNDWATER ELEVATION NOT USED FOR CONTOURING)
- GROUNDWATER ELEVATION CONTOUR
- INFERRED GROUNDWATER ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION
- APPROXIMATE PROPERTY BOUNDARY

| MW609A   | BEN | NAPH | BTEX  | PAH  | CYN WAD  |
|----------|-----|------|-------|------|----------|
| 09/05/96 | 45  | 8.9  | 105   | 52   | --       |
| 10/11/96 | 31  | 4.5  | 70    | 27   | --       |
| 06/24/02 | 72  | 2.4  | 122   | 5.1  | 0.024    |
| 07/02/03 | 67  | 3.3  | 140   | 3.9  | 0.0074   |
| 10/16/03 | 51  | 2.8  | 134   | 3.3  | <0.00048 |
| 08/04/04 | 35  | 2.8  | 128   | 12   | --       |
| 10/04/05 | 23  | 3.1  | 177   | 3.5  | --       |
| 09/22/06 | 20  | 5.5  | 275   | 7.1  | --       |
| 10/17/07 | 48  | 4.2  | 155   | 5.2  | --       |
| 10/02/08 | 44  | 4.4  | 119   | 5.2  | --       |
| 09/30/09 | 53  | 4.9  | 117   | 6.1  | --       |
| 09/28/10 | 101 | 5.2  | 162.3 | 5.33 | --       |
| 09/20/11 | 84  | 4.1  | 98.01 | 5.36 | --       |
| 09/20/12 | 212 | 4.2  | 237   | 5.78 | --       |
| 09/27/13 | 229 | 7.1  | 261.7 | 7.94 | --       |

| MW606/606R | BEN  | NAPH  | BTEX  | PAH    | CYN WAD |
|------------|------|-------|-------|--------|---------|
| 12/08/94   | 61   | 170   | 248   | 332    | 0.62    |
| 01/11/95   | 660  | 2,300 | 1,890 | 2,988  | 0.033   |
| 06/24/02   | 30   | 78    | 104   | 314    | 0.081   |
| 07/02/03   | 28   | 71    | 119   | 268    | 0.0171  |
| 10/16/03   | 38   | 3.3   | 99    | 152    | 0.0186  |
| 08/03/04   | 19   | 260   | 82    | 1,294  | --      |
| 10/04/05   | 1.5  | 2.6   | 2     | 70     | --      |
| 09/22/06   | 90   | <1.2  | 311   | 123    | --      |
| 10/16/07   | 3.3  | 1,400 | 83    | 5,997  | --      |
| 10/02/08   | 103  | 46    | 170   | 381    | --      |
| 09/30/09   | 7.0  | 314   | 65    | 1,593  | --      |
| 09/28/10   | 8.6  | 7.8   | 9.7   | 42.23  | --      |
| 09/20/11   | 30.2 | 1.10  | 45    | 26     | --      |
| 09/20/12   | 1.1  | 2.8   | 4.9   | 203.7  | --      |
| 09/27/13   | 20.6 | 6.8   | 34.6  | 47.093 | --      |

| MW601/601R | BEN    | NAPH   | BTEX | PAH  | CYN WAD |
|------------|--------|--------|------|------|---------|
| 12/08/94   | nd     | nd     | nd   | nd   | nd      |
| 01/11/95   | nd     | nd     | nd   | nd   | nd      |
| 06/24/02   | <0.48  | <0.027 | nd   | nd   | <0.0084 |
| 07/02/03   | <0.30  | 0.038  | nd   | 0.2  | <0.001  |
| 08/03/04   | 0.15   | 0.14   | 0.15 | 1.1  | --      |
| 10/04/05   | <0.14  | <0.047 | nd   | 0.03 | --      |
| 09/22/06   | <0.14  | 0.021  | nd   | 0.07 | --      |
| 10/16/07   | < 0.14 | 0.35   | nd   | 2.1  | --      |
| 10/02/08   | 0.53   | 0.35   | 0.5  | 1.4  | --      |
| 09/30/09   | <0.23  | 0.073  | nd   | 0.56 | --      |
| 09/28/10   | <0.41  | 0.033  | nd   | 0.38 | --      |
| 09/20/11   | < 0.41 | 0.20   | nd   | 0.17 | --      |
| 09/20/12   | < 0.41 | 0.021  | 4.25 | 0.17 | --      |
| 09/27/13   | < 0.5  | 0      | nd   | 1    | --      |

| MW603A   | BEN  | NAPH   | BTEX  | PAH   | CYN WAD |
|----------|------|--------|-------|-------|---------|
| 12/08/94 | 710  | 500    | 2,547 | 592   | 0.47    |
| 01/11/95 | 340  | 230    | 1,060 | 341   | 0.64    |
| 06/24/02 | 1100 | 360    | 2,863 | 598   | 0.11    |
| 07/02/03 | 500  | 280    | 1,166 | 453   | 0.0539  |
| 10/16/03 | 530  | 120    | 1,519 | 231   | 0.015   |
| 08/03/04 | 840  | 200    | 2,156 | 303   | --      |
| 10/04/05 | 290  | 11     | 652   | 39    | --      |
| 09/22/06 | 500  | 0.02   | 1,499 | 0.3   | --      |
| 10/17/07 | 270  | 47     | 660   | 116   | --      |
| 10/02/08 | 197  | < 2    | 249   | 61    | --      |
| 09/30/09 | 258  | 70     | 516   | 116   | --      |
| 09/28/10 | 348  | 35.5   | 692.3 | 40.41 | --      |
| 09/20/11 | 103  | < 0.48 | 115.1 | 41.78 | --      |
| 09/20/12 | 26.2 | 0.24   | 32.87 | 16.54 | --      |
| 09/27/13 | 74.2 | 2      | 216   | 30    | --      |

| MW604    | BEN  | NAPH  | BTEX   | PAH    | CYN WAD |
|----------|------|-------|--------|--------|---------|
| 12/08/94 | 200  | 1,300 | 697    | 1,793  | 0.22    |
| 01/11/95 | 240  | 1,200 | 692    | 1,610  | 0.05    |
| 06/24/02 | 91   | <14   | 243    | 411    | <0.0084 |
| 07/02/03 | 140  | 150   | 361    | 657    | 0.0048  |
| 10/16/03 | 140  | 12    | 377    | 526    | 0.00231 |
| 08/03/04 | 77   | 17    | 267    | 350    | --      |
| 10/04/05 | 120  | 84    | 352    | 235    | --      |
| 09/22/06 | 7.6  | 0.52  | 10     | 15     | --      |
| 10/16/07 | 44   | 0.11  | 129    | 65     | --      |
| 10/02/08 | 91   | < 4.1 | 190    | 169    | --      |
| 09/30/09 | 91   | 1.6   | 318    | 204    | --      |
| 09/28/10 | 128  | 107   | 376.1  | 443.80 | --      |
| 09/20/11 | 242  | 14.70 | 403.80 | 303.66 | --      |
| 09/20/12 | 74.8 | 3.5   | 235.3  | 219.48 | --      |
| 09/27/13 | 117  | 2.1   | 330.4  | 147.1  | --      |

NOTES:  
<2.0 : Parameter not detected above the Limit of Detection indicated.  
-- : Analysis was not performed  
nd : Analyte not detected  
na : No standards established for these parameters.  
Refer to analytical tables for laboratory flags and qualifiers.

WATER TABLE CONTOURS SEPTEMBER 2013

GROUNDWATER QUALITY DATA TRANSMITTAL  
FORMER TWO RIVERS MANUFACTURED GAS PLANT  
WISCONSIN PUBLIC SERVICE CORPORATION  
TWO RIVERS, WISCONSIN

DRAWN BY/DATE:  
TDC 1/30/14

REVIEWED BY/DATE:  
PMH 1/30/14

APPROVED BY/DATE:  
JMH 2/17/14

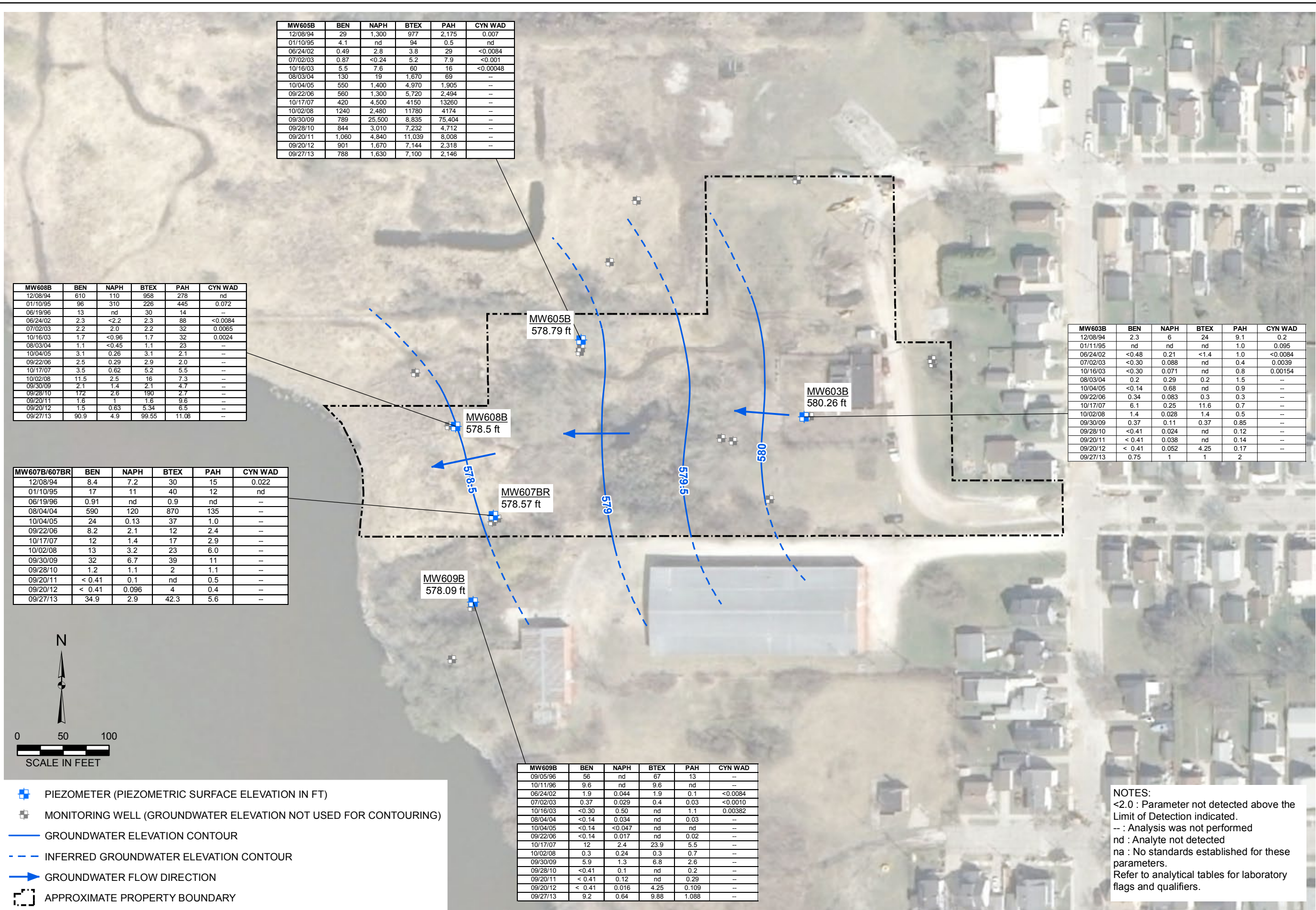
PROJECT NO: 1569

FIGURE NO: 3





Y:\GIS\Projects\1511559\MXD\Figure 4\_Piezometric Surface Contours\_Sep\_2013.mxd Author: tushman Date/Time: 2/17/2014, 10:42:57 AM



DRAWN BY/DATE:  
TDC 1/30/14  
REVIEWED BY/DATE:  
PMH 1/30/14  
APPROVED BY/DATE:  
JMH 2/17/14

PIEZOMETRIC SURFACE CONTOURS SEPTEMBER 2013

GROUNDWATER QUALITY DATA TRANSMITTAL  
FORMER TWO RIVERS MANUFACTURED GAS PLANT  
WISCONSIN PUBLIC SERVICE CORPORATION  
TWO RIVERS, WISCONSIN

PROJECT NO: 1569

FIGURE NO: 4



## TABLES

**Table 1. Groundwater Analytical Results - Petroleum Volatile Organic Compounds (PVOs, µg/L)**

2013 Groundwater Quality Update

Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site

21st and School Streets, Two Rivers, Wisconsin

BRRTS# : 0236000255

USEPA# : WIN000509953

| Sample Location    | Field Duplicate | Sample Date | Benzene (ug/l) | Ethylbenzene (ug/l) | Toluene (ug/l) | Xylene, o (ug/l) | Xylenes, m + p (ug/l) | 1,2,4-Trimethylbenzene (ug/l) | 1,3,5-Trimethylbenzene (ug/l) | Methyl-tert-butyl-ether (ug/l) |
|--------------------|-----------------|-------------|----------------|---------------------|----------------|------------------|-----------------------|-------------------------------|-------------------------------|--------------------------------|
| WI Screening Limit |                 |             | 5              | 700                 | 800            | 190              | NA                    | 15                            | 87                            | 60                             |
| MW601R             |                 | 10/04/05    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/16/07    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | 0.53           | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | < 0.23         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/20/11    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
|                    |                 | 09/20/12    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/27/13    | < 0.5          | < 0.5               | < 0.44         | < 0.5            | < 0.82                | < 0.5                         | < 0.5                         | < 0.49                         |
| MW602              |                 | 10/04/05    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | 0.23           | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | 0.76           | < 0.4               | < 0.36         | < 0.36           | < 0.74                | 0.41                          | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/20/11    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
| MW603A             |                 | 10/04/05    | <b>290</b>     | 220                 | 6.5            | 98               | 37                    | <b>41</b>                     | 0.67                          | < 0.36                         |
|                    |                 | 09/22/06    | <b>500</b>     | 600                 | 19             | <b>240</b>       | 140                   | <b>160</b>                    | 43                            | < 1.8                          |
|                    |                 | 10/17/07    | <b>270</b>     | 260                 | 8.3            | 100              | 22                    | <b>29</b>                     | 3.4                           | < 0.36                         |
|                    |                 | 10/02/08    | <b>197</b>     | 45.3                | 1.2            | 2.8              | 2.2                   | 1.1                           | 0.4                           | < 0.36                         |
|                    |                 | 09/30/09    | <b>258</b>     | 239                 | < 3.6          | 18.8             | < 7.4                 | 4.4                           | < 4                           | < 3.6                          |
|                    |                 | 09/28/10    | <b>348</b>     | 295                 | 4.7            | 44.6             | < 9                   | 10.3                          | 4.6                           | < 3                            |
|                    |                 | 09/20/11    | <b>103</b>     | 9.6                 | 1.1            | 1.4              | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
|                    |                 | 09/20/12    | <b>26.2</b>    | 3.2                 | < 0.67         | 1                | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/27/13    | <b>74.2</b>    | 115                 | 2.8            | 22.6             | 1.7                   | 6.2                           | 2.3                           | < 0.49                         |
| MW603B             |                 | 10/04/05    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | 0.34           | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | <b>6.1</b>     | 3.6                 | 0.4            | 1.5              | < 0.74                | 0.42                          | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | 1.4            | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | 0.37           | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/20/11    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
|                    |                 | 09/20/12    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/27/13    | 0.75           | 0.61                | < 0.44         | < 0.5            | < 0.82                | < 0.5                         | < 0.5                         | < 0.49                         |
| MW604              |                 | 10/04/05    | <b>120</b>     | 86                  | 15             | 82               | 49                    | <b>37</b>                     | 9.5                           | < 0.36                         |
|                    |                 | 09/22/06    | <b>7.6</b>     | 0.6                 | < 0.36         | 1.8              | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/16/07    | <b>44</b>      | 22                  | 4              | 39               | 20                    | <b>16</b>                     | 4.3                           | < 0.36                         |
|                    |                 | 10/02/08    | <b>90.9</b>    | 38.7                | 5.3            | 36               | 18.8                  | <b>19.1</b>                   | 3.8                           | < 0.36                         |
|                    |                 | 09/30/09    | <b>91.3</b>    | 84.6                | 10.8           | 79.4             | 52.3                  | <b>45.6</b>                   | 13.5                          | < 0.36                         |
|                    |                 | 09/28/10    | <b>128</b>     | 99.8                | 9.1            | 90.4             | 48.8                  | <b>48.3</b>                   | 11.5                          | < 0.61                         |
|                    |                 | 09/20/11    | <b>242</b>     | 87.1                | 3.9            | 50.7             | 20.1                  | <b>18</b>                     | 3.4                           | --                             |
|                    |                 | 09/20/12    | <b>74.8</b>    | 65.4                | 6              | 63.5             | 25.6                  | <b>34.1</b>                   | 8.4                           | < 1.2                          |
|                    |                 | 09/27/13    | <b>117</b>     | 90.7                | 10             | 94.7             | 18                    | <b>38.6</b>                   | 5.9                           | < 0.49                         |



**Table 1. Groundwater Analytical Results - Petroleum Volatile Organic Compounds (PVOs, µg/L)**

2013 Groundwater Quality Update

Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site

21st and School Streets, Two Rivers, Wisconsin

BRTS# : 0236000255

USEPA# : WIN000509953

| Sample Location    | Field Duplicate | Sample Date | Benzene (ug/l) | Ethylbenzene (ug/l) | Toluene (ug/l) | Xylene, o (ug/l) | Xylenes, m + p (ug/l) | 1,2,4-Trimethylbenzene (ug/l) | 1,3,5-Trimethylbenzene (ug/l) | Methyl-tert-butyl-ether (ug/l) |
|--------------------|-----------------|-------------|----------------|---------------------|----------------|------------------|-----------------------|-------------------------------|-------------------------------|--------------------------------|
| WI Screening Limit |                 |             | 5              | 700                 | 800            | 190              | NA                    | 15                            | 87                            | 60                             |
| MW605AR            |                 | 10/04/05    | 7600           | 4200                | 8400           | 1300             | 2300                  | 660                           | 140                           | < 45                           |
|                    |                 | 09/22/06    | 1500           | 92                  | 390            | 33               | 44                    | 17                            | 4.1                           | < 3.6                          |
|                    |                 | 10/02/08    | 6880           | 133                 | 1410           | 48.8             | 81.7                  | 22.3                          | < 19.8                        | < 18                           |
|                    |                 | 09/30/09    | 6460           | 615                 | 3390           | 199              | 349                   | 73.9                          | 23.3                          | < 18                           |
|                    |                 | 09/28/10    | 2790           | 381                 | 1710           | 136              | 227                   | 24.6                          | < 16.6                        | < 12.2                         |
|                    |                 | 09/20/11    | 3730           | 112                 | 1070           | < 83             | < 180                 | < 97                          | < 83                          | --                             |
|                    |                 | 09/20/12    | 58.2           | 59.2                | 9.4            | 14.8             | 29.5                  | 11.8                          | 3                             | < 0.61                         |
|                    |                 | 09/27/13    | 4210           | 95                  | 1090           | 19.5             | 36.8                  | < 12.5                        | < 12.5                        | < 12.3                         |
| MW605B             |                 | 10/04/05    | 550            | 1100                | 1700           | 620              | 1000                  | 200                           | 60                            | < 9                            |
|                    |                 | 09/22/06    | 560            | 1500                | 1900           | 660              | 1100                  | 230                           | 64                            | < 9                            |
|                    |                 | 10/17/07    | 420            | 940                 | 1300           | 570              | 920                   | 230                           | 75                            | < 18                           |
|                    |                 | 10/02/08    | 1240           | 2810                | 3690           | 1590             | 2450                  | 543                           | 201                           | < 18                           |
|                    |                 | 09/30/09    | 789            | 2730                | 2670           | 936              | 1710                  | 416                           | 110                           | < 36.1                         |
|                    |                 | 09/28/10    | 844            | 1750                | 2610           | 708              | 1320                  | 222                           | 73.4                          | < 30.5                         |
|                    |                 | 09/20/11    | 1060           | 3160                | 4050           | 949              | 1820                  | 266                           | 72.5                          | --                             |
|                    |                 | 09/20/12    | 901            | 1780                | 2580           | 653              | 1230                  | 196                           | 52                            | < 24.4                         |
| MW606R             |                 | 09/27/13    | 788            | 1920                | 2630           | 622              | 1140                  | 151                           | 42.4                          | < 19.7                         |
|                    |                 | 10/04/05    | 1.5            | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | 90             | 85                  | 9.5            | 81               | 45                    | 53                            | 12                            | < 0.36                         |
|                    |                 | 10/16/07    | 3.3            | 45                  | < 3.6          | 13               | 22                    | 49                            | 13                            | < 3.6                          |
|                    |                 | 10/02/08    | 103            | 36.6                | 12.6           | 8.5              | 9.6                   | 3.1                           | 0.93                          | < 0.36                         |
|                    |                 | 09/30/09    | 7              | 30.9                | 0.89           | 8.4              | 18                    | 24.7                          | 7.8                           | < 0.36                         |
|                    |                 | 09/28/10    | 8.6            | 1.1                 | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/20/11    | 30.2           | 9.7                 | 2.9            | 2.2              | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
| MW607A             |                 | 09/20/12    | 1.1            | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/27/13    | 20.6           | 8.3                 | 2              | 2.1              | 1.6                   | 0.53                          | < 0.5                         | < 0.49                         |
|                    |                 | 10/04/05    | 360            | 230                 | 5.7            | 53               | 10                    | 53                            | 2.3                           | < 0.36                         |
|                    |                 | 09/22/06    | 1200           | 1600                | 27             | 320              | 96                    | 310                           | 44                            | < 3.6                          |
|                    |                 | 10/17/07    | 620            | 740                 | 14             | 150              | 42                    | 150                           | 12                            | < 3.6                          |
|                    |                 | 10/02/08    | 843            | 798                 | 20.5           | 227              | 111                   | 181                           | 29.5                          | < 3.6                          |
|                    |                 | 09/30/09    | 922            | 1440                | 34.5           | 333              | 107                   | 268                           | 46.8                          | < 1.8                          |
|                    |                 | 09/28/10    | 854            | 1190                | 32.3           | 319              | 186                   | 209                           | 34.5                          | < 12.2                         |
| MW607BR            |                 | 09/20/11    | 1030           | 667                 | 14.3           | 165              | 71.3                  | 124                           | 23                            | --                             |
|                    |                 | 09/20/12    | 902            | 957                 | 23.9           | 253              | 80                    | 196                           | 44.9                          | < 6.1                          |
|                    |                 | 09/27/13    | 1290           | 695                 | 16.7           | 135              | 33.9                  | 100                           | 13.5                          | < 4.9                          |
|                    |                 | 10/04/05    | 24             | 8.5                 | < 0.36         | 3.4              | 1.1                   | 1.2                           | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | 8.2            | 3.1                 | < 0.36         | 0.63             | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | 12             | 3.5                 | < 0.36         | 0.94             | 0.78                  | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | 13             | 7.4                 | < 0.36         | 1.8              | 1.1                   | 1.4                           | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | 32             | 4                   | < 0.36         | 1                | 1.5                   | 0.47                          | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | 1.2            | 0.79                | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/20/11    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
|                    |                 | 09/20/12    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/27/13    | 34.9           | 6.2                 | < 0.44         | 1.2              | < 0.82                | 0.7                           | < 0.5                         | < 0.49                         |

**Table 1. Groundwater Analytical Results - Petroleum Volatile Organic Compounds (PVOs, µg/L)**

2013 Groundwater Quality Update

Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site

21st and School Streets, Two Rivers, Wisconsin

BRRTS# : 0236000255

USEPA# : WIN000509953

| Sample Location    | Field Duplicate | Sample Date | Benzene (ug/l) | Ethylbenzene (ug/l) | Toluene (ug/l) | Xylene, o (ug/l) | Xylenes, m + p (ug/l) | 1,2,4-Trimethylbenzene (ug/l) | 1,3,5-Trimethylbenzene (ug/l) | Methyl-tert-butyl-ether (ug/l) |
|--------------------|-----------------|-------------|----------------|---------------------|----------------|------------------|-----------------------|-------------------------------|-------------------------------|--------------------------------|
| WI Screening Limit |                 |             | 5              | 700                 | 800            | 190              | NA                    | 15                            | 87                            | 60                             |
| MW608A             |                 | 10/04/05    | <b>6000</b>    | <b>840</b>          | 37             | <b>240</b>       | 390                   | <b>47</b>                     | < 20                          | < 18                           |
|                    |                 | 09/22/06    | <b>3800</b>    | <b>980</b>          | 21             | <b>310</b>       | 560                   | <b>88</b>                     | 18                            | < 9                            |
|                    |                 | 10/17/07    | <b>4100</b>    | <b>900</b>          | 31             | <b>270</b>       | 370                   | <b>68</b>                     | 16                            | < 9                            |
|                    |                 | 10/02/08    | <b>2200</b>    | <b>941</b>          | 18.4           | <b>289</b>       | 511                   | <b>95.8</b>                   | 26.2                          | < 7.2                          |
|                    |                 | 09/30/09    | <b>10800</b>   | <b>1020</b>         | 65.9           | <b>276</b>       | 436                   | <b>59.4</b>                   | < 39.5                        | < 36.1                         |
|                    |                 | 09/28/10    | <b>10600</b>   | <b>1190</b>         | 96.7           | <b>376</b>       | 535                   | <b>61.9</b>                   | < 41.5                        | < 30.5                         |
|                    |                 | 09/20/11    | <b>2780</b>    | 666                 | 23.1           | 180              | 269                   | <b>57.4</b>                   | < 20.8                        | --                             |
|                    |                 | 09/20/12    | <b>3340</b>    | 635                 | 18.4           | 186              | 220                   | <b>73.9</b>                   | < 20.8                        | < 15.2                         |
|                    |                 | 09/27/13    | <b>4130</b>    | 677                 | 36.3           | 154              | 213                   | <b>37.7</b>                   | < 20                          | < 19.7                         |
| MW608B             |                 | 10/04/05    | 3.1            | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | 2.5            | < 0.4               | 0.41           | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | 3.5            | 0.62                | 0.64           | 0.44             | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | <b>11.5</b>    | 1.7                 | 0.99           | 0.77             | 1.1                   | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | 2.1            | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | <b>172</b>     | 9.4                 | 1.3            | 3.4              | 3.9                   | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/20/11    | 1.6            | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
|                    |                 | 09/20/12    | 1.5            | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/27/13    | <b>90.9</b>    | 4.9                 | 0.85           | 1.3              | 1.6                   | < 0.5                         | < 0.5                         | < 0.49                         |
| MW609A             |                 | 10/04/05    | <b>23</b>      | 110                 | 2.6            | 34               | 7.2                   | 4.3                           | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | <b>20</b>      | 190                 | 2.9            | 51               | 11                    | 13                            | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | <b>48</b>      | 80                  | 1.4            | 21               | 4.1                   | 6.9                           | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | <b>43.9</b>    | 54                  | 1.5            | 15.7             | 3.7                   | 6.6                           | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | <b>52.6</b>    | 43.1                | 1.2            | 16.8             | 3.4                   | 7.6                           | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | <b>101</b>     | 38.8                | 1.2            | 18.5             | 2.8                   | 9                             | < 0.83                        | 0.66                           |
|                    |                 | 09/20/11    | <b>84.3</b>    | 1                   | 0.81           | 11.9             | < 1.8                 | 5.3                           | < 0.83                        | --                             |
|                    |                 | 09/20/12    | <b>212</b>     | 1.2                 | 1.6            | 19.5             | 2.7                   | 9.2                           | < 0.83                        | < 0.61                         |
|                    |                 | 09/27/13    | <b>229</b>     | 1.4                 | 1.8            | 24.6             | 4.9                   | 8.9                           | < 1                           | < 0.99                         |
| MW609B             |                 | 10/04/05    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | <b>12</b>      | 10                  | < 0.36         | 1.9              | < 0.74                | 1.8                           | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | 0.3            | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | <b>5.9</b>     | 0.92                | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/20/11    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
|                    |                 | 09/20/12    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/27/13    | <b>9.2</b>     | 0.68                | < 0.44         | < 0.5            | < 0.82                | < 0.5                         | < 0.5                         | < 0.49                         |
| MW610              |                 | 10/04/05    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | 0.54           | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | 1.2            | 0.9                 | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | < 0.41         | < 0.54              | 0.77           | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |

**Table 1. Groundwater Analytical Results - Petroleum Volatile Organic Compounds (PVOs, µg/L)**

2013 Groundwater Quality Update

Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site

21st and School Streets, Two Rivers, Wisconsin

BRRTS# : 0236000255

USEPA# : WIN000509953

| Sample Location    | Field Duplicate | Sample Date | Benzene (ug/l) | Ethylbenzene (ug/l) | Toluene (ug/l) | Xylene, o (ug/l) | Xylenes, m + p (ug/l) | 1,2,4-Trimethylbenzene (ug/l) | 1,3,5-Trimethylbenzene (ug/l) | Methyl-tert-butyl-ether (ug/l) |
|--------------------|-----------------|-------------|----------------|---------------------|----------------|------------------|-----------------------|-------------------------------|-------------------------------|--------------------------------|
| WI Screening Limit |                 |             | 5              | 700                 | 800            | 190              | NA                    | 15                            | 87                            | 60                             |
| MW611              |                 | 10/04/05    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | 0.61           | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | 2              | 2.5                 | 7              | 0.76             | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | < 0.41         | < 0.54              | 4.7            | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
| MW612              |                 | 10/04/05    | 1.2            | 0.47                | < 0.36         | < 0.36           | 0.87                  | 0.57                          | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | 4.8            | < 0.4               | 0.36           | < 0.36           | 0.95                  | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | 4.1            | 1.8                 | < 0.36         | 0.52             | < 0.74                | 0.4                           | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | 1.1            | 0.67                | 0.41           | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | 5.2            | 0.78                | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/20/11    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
|                    |                 | 09/20/12    | 0.45           | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
| MW613              |                 | 09/27/13    | 23.1           | 2.3                 | < 0.44         | 0.67             | < 0.82                | < 0.5                         | < 0.5                         | < 0.49                         |
|                    |                 | 10/04/05    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | 1.8            | 0.66                | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | 0.81           | < 0.4               | 1.1            | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | 0.87           | 0.45                | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | 22.1           | 1.7                 | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/20/11    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
| QC01               | MW604           | 09/20/12    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/27/13    | < 0.5          | < 0.5               | < 0.44         | < 0.5            | < 0.82                | < 0.5                         | < 0.5                         | < 0.49                         |
|                    |                 | 10/04/05    | 120            | 88                  | 14             | 89               | 56                    | 42                            | 11                            | < 1.4                          |
|                    |                 | 09/22/06    | 7.7            | 0.7                 | < 0.36         | 1.8              | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | 101            | 43.5                | 5.5            | 39.2             | 20.8                  | 21.9                          | 4.2                           | < 0.36                         |
|                    |                 | 09/30/09    | 0.56           | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/28/10    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
| QC02               | MW601R          | 09/20/11    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
|                    |                 | 09/20/12    | 0.5            | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/27/13    | < 0.5          | < 0.5               | < 0.44         | < 0.5            | < 0.82                | < 0.5                         | < 0.5                         | < 0.49                         |
|                    |                 | 10/04/05    | 7600           | 3800                | 7600           | 1200             | 2200                  | 680                           | 160                           | < 45                           |
|                    |                 | 09/22/06    | 0.25           | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | 4.2            | 1.8                 | < 0.36         | 0.51             | < 0.74                | 0.48                          | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | 0.25           | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | 0.36           | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
| MW602              | MW603B          | 09/28/10    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/20/11    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
|                    |                 | 09/20/12    | 102            | 68.1                | 5.9            | 57               | 22.4                  | 26.3                          | 5                             | < 1.2                          |
|                    |                 | 09/27/13    | 112            | 92.4                | 10.2           | 97.1             | 18.7                  | 39.5                          | 6.1                           | < 0.49                         |

**Table 1. Groundwater Analytical Results - Petroleum Volatile Organic Compounds (PVOCs, µg/L)**

2013 Groundwater Quality Update

Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site

21st and School Streets, Two Rivers, Wisconsin

BRRTS# : 0236000255

USEPA# : WIN000509953

| Sample Location    | Field Duplicate | Sample Date | Benzene (ug/l) | Ethylbenzene (ug/l) | Toluene (ug/l) | Xylene, o (ug/l) | Xylenes, m + p (ug/l) | 1,2,4-Trimethylbenzene (ug/l) | 1,3,5-Trimethylbenzene (ug/l) | Methyl-tert-butyl-ether (ug/l) |
|--------------------|-----------------|-------------|----------------|---------------------|----------------|------------------|-----------------------|-------------------------------|-------------------------------|--------------------------------|
| WI Screening Limit |                 |             | 5              | 700                 | 800            | 190              | NA                    | 15                            | 87                            | 60                             |
| TB                 |                 | 10/04/05    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/22/06    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/17/07    | < 0.14         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 10/02/08    | < 0.23         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/30/09    | < 0.23         | < 0.4               | < 0.36         | < 0.36           | < 0.74                | < 0.39                        | < 0.4                         | < 0.36                         |
|                    |                 | 09/20/11    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | --                             |
|                    |                 | 09/20/12    | < 0.41         | < 0.54              | < 0.67         | < 0.83           | < 1.8                 | < 0.97                        | < 0.83                        | < 0.61                         |
|                    |                 | 09/27/13    | < 0.5          | < 0.5               | < 0.44         | < 0.5            | < 0.82                | < 0.5                         | < 0.5                         | < 0.49                         |
|                    |                 | 09/27/13    | < 0.5          | < 0.5               | < 0.44         | < 0.5            | < 0.82                | < 0.5                         | < 0.5                         | < 0.49                         |

[O:NDK 2/13 C:BNV 2/13]

Notes:

- 1) Parameters that attain or exceed the screening level are identified in bold.
- 2) The hierarchy for the WI Screening Level is MCL, WI NR 140, RSL.
- 3) Reference the laboratory analytical report for full list of compounds analyzed.

<2.0: Parameter not detected above the Limit of Detection indicated.

--: Analysis not performed.

QC: Quality Control duplicate sample.

TB: Trip Blank for QA/QC

Table 2. Groundwater Analytical Results - Polynuclear Aromatic Hydrocarbon (PAHs, µg/L)

2013 Groundwater Quality Update  
Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site  
21st and School Streets, Two Rivers, Wisconsin  
BRRTS# : 0236000255

USEPA# : WIN000509953

| Sample Location | Field Duplicate | Sample Date | 1-Methylnaphthalene (ug/l) | 2-Methylnaphthalene (ug/l) | Acenaphthene (ug/l) | Acenaphthylene (ug/l) | Anthracene (ug/l) | Benzo(a)anthracene (ug/l) | Benzo(a)pyrene (ug/l) | Benzo(b)fluoranthene (ug/l) | Benzo(ghi)perylene (ug/l) | Benzo(k)fluoranthene (ug/l) | Chrysene (ug/l) | Dibenz(a,h)anthracene (ug/l) | Fluoranthene (ug/l) | Fluorene (ug/l) | Indeno(1,2,3-cd)pyrene (ug/l) | Naphthalene (PAH) (ug/l) | Phenanthrene (ug/l) | Pyrene (ug/l) |
|-----------------|-----------------|-------------|----------------------------|----------------------------|---------------------|-----------------------|-------------------|---------------------------|-----------------------|-----------------------------|---------------------------|-----------------------------|-----------------|------------------------------|---------------------|-----------------|-------------------------------|--------------------------|---------------------|---------------|
| WI Action Limit |                 |             | 0.97                       | 27                         | 400                 | 400                   | 3000              | 0.029                     | 0.2                   | 0.2                         | 250                       | 0.29                        | 0.2             | 0.0029                       | 400                 | 400             | 0.029                         | 100                      | 3000                | 250           |
| MW601R          |                 | 10/04/05    | < 0.01                     | 0.017                      | < 0.0082            | < 0.0081              | < 0.012           | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | < 0.0091        | < 0.019                       | < 0.047                  | < 0.011             | 0.016         |
|                 |                 | 09/22/06    | < 0.01                     | 0.016                      | 0.0088              | < 0.0081              | < 0.012           | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | 0.0093          | < 0.019                       | 0.021                    | < 0.011             | 0.017         |
|                 |                 | 10/16/07    | 0.33                       | 0.066                      | 0.21                | 0.046                 | 0.1               | <b>0.055</b>              | 0.056                 | 0.026                       | 0.031                     | 0.034                       | 0.057           | < 0.019                      | 0.11                | 0.11            | 0.021                         | 0.35                     | 0.31                | 0.17          |
|                 |                 | 10/02/08    | 0.52                       | < 0.022                    | 0.2                 | 0.016                 | 0.032             | < 0.007                   | < 0.011               | < 0.01                      | < 0.013                   | < 0.016                     | < 0.014         | < 0.0087                     | 0.014               | 0.1             | < 0.0073                      | 0.35                     | 0.11                | 0.018         |
|                 |                 | 09/30/09    | 0.019                      | 0.011                      | 0.0087              | 0.03                  | 0.015             | <b>0.033</b>              | 0.07                  | 0.037                       | 0.045                     | 0.035                       | 0.04            | <b>0.0095</b>                | 0.024               | 0.007           | <b>0.032</b>                  | 0.073                    | 0.0096              | 0.057         |
|                 |                 | 09/28/10    | 0.012                      | 0.016                      | 0.0053              | 0.022                 | 0.021             | 0.021                     | 0.037                 | 0.022                       | 0.029                     | 0.025                       | 0.026           | <b>0.0061</b>                | 0.024               | < 0.0051        | 0.02                          | 0.033                    | 0.018               | 0.038         |
|                 |                 | 09/20/11    | 0.0072                     | 0.0095                     | 0.0061              | 0.01                  | 0.0094            | 0.0076                    | 0.015                 | 0.011                       | 0.013                     | 0.013                       | 0.019           | < 0.0032                     | 0.015               | < 0.0048        | 0.0087                        | 0.021                    | 0.0097              | 0.022         |
|                 |                 | 09/20/12    | 0.0067                     | 0.011                      | < 0.0045            | 0.011                 | 0.011             | 0.007                     | 0.013                 | 0.0079                      | 0.0097                    | 0.011                       | 0.011           | < 0.0032                     | 0.0092              | < 0.0048        | 0.0068                        | 0.021                    | < 0.0081            | 0.017         |
| MW602           |                 | 09/27/13    | 0.046                      | 0.028                      | 0.03                | 0.028                 | 0.028             | 0.023                     | 0.043                 | 0.023                       | 0.028                     | 0.034                       | 0.037           | <b>0.006</b>                 | 0.031               | 0.018           | 0.018                         | 0.11                     | 0.047               | 0.055         |
|                 |                 | 10/04/05    | < 0.01                     | 0.022                      | < 0.0082            | < 0.0081              | 0.014             | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | < 0.0091        | < 0.019                       | 0.056                    | < 0.011             | < 0.015       |
|                 |                 | 09/22/06    | < 0.01                     | 0.017                      | 0.0099              | < 0.0081              | 0.012             | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | < 0.0091        | < 0.019                       | 0.023                    | 0.012               | < 0.015       |
|                 |                 | 10/17/07    | 0.013                      | < 0.011                    | 0.017               | < 0.0081              | 0.016             | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | 0.011           | < 0.019                       | < 0.012                  | 0.021               | < 0.015       |
|                 |                 | 10/02/08    | 0.1                        | 0.011                      | 0.069               | 0.0087                | 0.024             | < 0.0035                  | < 0.0054              | < 0.0051                    | < 0.0062                  | < 0.0078                    | < 0.007         | < 0.0043                     | 0.0089              | 0.049           | < 0.0036                      | < 0.016                  | 0.067               | 0.0083        |
|                 |                 | 09/30/09    | 0.57                       | 0.41                       | 0.48                | 0.071                 | 0.2               | <b>0.065</b>              | 0.067                 | 0.032                       | 0.03                      | 0.031                       | 0.057           | < 0.0064                     | 0.12                | 0.29            | 0.025                         | 1.2                      | 0.56                | 0.18          |
|                 |                 | 09/28/10    | 0.091                      | 0.093                      | 0.27                | 1.4                   | 1.8               | <b>2.1</b>                | <b>2.2</b>            | <b>0.96</b>                 | 1.1                       | <b>1.2</b>                  | <b>2</b>        | <b>0.2</b>                   | 2.6                 | 0.23            | <b>0.75</b>                   | 0.12                     | 2.3                 | 3.8           |
| MW603A          |                 | 09/20/11    | 0.0064                     | 0.018                      | 0.0054              | < 0.0036              | 0.019             | 0.013                     | 0.0048                | 0.0042                      | < 0.0048                  | 0.007                       | 0.012           | < 0.0032                     | 0.018               | < 0.0048        | < 0.0047                      | 0.023                    | 0.016               | 0.024         |
|                 |                 | 10/04/05    | <b>16</b>                  | < 0.45                     | 6.1                 | 0.76                  | 0.47              | < 0.62                    | < 0.73                | < 0.63                      | < 0.77                    | < 0.77                      | < 0.76          | < 0.75                       | < 0.62              | 2.4             | < 0.75                        | 11                       | 1.8                 | < 0.58        |
|                 |                 | 09/22/06    | 0.011                      | < 0.011                    | 0.011               | 0.019                 | 0.017             | 0.022                     | 0.023                 | 0.026                       | 0.031                     | 0.024                       | 0.021           | < 0.019                      | 0.029               | < 0.0092        | 0.026                         | 0.016                    | 0.022               | 0.041         |
|                 |                 | 10/17/07    | <b>40</b>                  | 0.52                       | 14                  | 1.6                   | 1.5               | < 0.31                    | < 0.37                | < 0.31                      | < 0.39                    | < 0.39                      | < 0.38          | < 0.38                       | 0.63                | 5.4             | < 0.38                        | 47                       | 4.7                 | 0.96          |
|                 |                 | 10/02/08    | <b>37.1</b>                | < 1.3                      | 11.8                | 1                     | 1.2               | < 0.43                    | < 0.67                | < 0.64                      | < 0.78                    | < 0.97                      | < 0.87          | < 0.54                       | < 0.67              | 4.9             | < 0.45                        | < 2                      | 5.2                 | < 0.85        |
|                 |                 | 09/30/09    | <b>22.6</b>                | < 0.39                     | 10.2                | 1.3                   | 1.5               | < 0.36                    | < 0.29                | < 0.34                      | < 0.48                    | < 0.44                      | < 0.35          | < 0.32                       | 0.48                | 4.6             | < 0.47                        | 69.8                     | 4.5                 | 0.91          |
|                 |                 | 09/28/10    | <b>18.9</b>                | 0.076                      | 7.5                 | 0.6                   | 0.76              | <b>0.051</b>              | 0.031                 | 0.025                       | 0.017                     | 0.015                       | 0.061           | <b>0.006</b>                 | 0.38                | 2.7             | 0.014                         | 35.5                     | 2.1                 | 0.57          |
|                 |                 | 09/20/11    | <b>20.8</b>                | < 0.39                     | 9.4                 | 0.62                  | 1.3               | < 0.36                    | < 0.29                | < 0.34                      | < 0.48                    | < 0.44                      | < 0.35          | < 0.32                       | < 0.44              | 4.5             | < 0.47                        | < 0.48                   | 4.5                 | 0.66          |
| MW603B          |                 | 09/20/12    | <b>9.7</b>                 | < 0.077                    | 3.3                 | 0.33                  | 0.29              | < 0.072                   | < 0.057               | < 0.068                     | < 0.096                   | < 0.087                     | < 0.07          | < 0.064                      | 0.1                 | 1.4             | < 0.094                       | 0.24                     | 0.38                | 0.15          |
|                 |                 | 09/27/13    | <b>14.2</b>                | 0.26                       | 5.4                 | 0.84                  | 0.72              | <b>0.23</b>               | <b>0.28</b>           | <b>0.22</b>                 | 0.3                       | <b>0.31</b>                 | <b>0.39</b>     | < 0.16                       | 0.4                 | 2.5             | < 0.23                        | 2.2                      | 0.46                | 0.95          |
|                 |                 | 10/04/05    | 0.072                      | 0.066                      | 0.026               | 0.036                 | < 0.023           | < 0.031                   | < 0.037               | < 0.031                     | < 0.039                   | < 0.039                     | < 0.038         | < 0.038                      | < 0.031             | < 0.018         | < 0.038                       | 0.68                     | < 0.023             | < 0.029       |
|                 |                 | 09/22/06    | 0.078                      | 0.02                       | 0.04                | < 0.0081              | 0.015             | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | 0.026           | < 0.019                       | 0.083                    | 0.055               | < 0.015       |
|                 |                 | 10/17/07    | 0.2                        | 0.013                      | 0.078               | 0.016                 | 0.016             | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | 0.019               | 0.034           | < 0.019                       | 0.25                     | 0.049               | 0.028         |
|                 |                 | 10/02/08    | 0.22                       | < 0.011                    | 0.08                | 0.009                 | 0.016             | < 0.0035                  | < 0.0054              | < 0.0051                    | < 0.0062                  | < 0.0078                    | < 0.007         | < 0.0043                     | 0.0061              | 0.042           | < 0.0036                      | 0.028                    | 0.049               | 0.0072        |
|                 |                 | 09/30/09    | 0.049                      | 0.031                      | 0.051               | 0.01                  | 0.027             | <b>0.053</b>              | 0.048                 | 0.05                        | 0.025                     | 0.025                       | 0.049           | <b>0.0072</b>                | 0.083               | 0.037           | 0.022                         | 0.11                     | 0.088               | 0.083         |
|                 |                 | 09/28/10    | 0.0067                     | 0.0069                     | 0.0067              | 0.0053                | 0.0061            | 0.0054                    | 0.0048                | 0.0036                      | < 0.0051                  | < 0.0046                    | 0.0073          | < 0.0034                     | 0.0094              | 0.0071          | < 0.005                       | 0.024                    | 0.013               | 0.016         |
|                 |                 | 09/20/11    | 0.015                      | 0.0085                     | 0.013               | 0.0069                | < 0.0057          | < 0.0036                  | 0.003                 | < 0.0034                    | < 0.0048                  | < 0.0044                    | 0.0062          | < 0.0032                     | 0.011               | < 0.0048        | < 0.0047                      | 0.038                    | 0.015               | 0.019         |
|                 |                 | 09/20/12    | 0.01                       | 0.011                      | 0.0093              | 0.0058                | < 0.0057          | 0.0037                    | 0.0032                | < 0.0034                    | < 0.0048                  | < 0.0044                    | 0.0058          | < 0.0032                     | 0.0084              | 0.0083          | < 0.0047                      | 0.052                    | 0.015               | 0.014         |
|                 |                 | 09/27/13    | 0.33                       | 0.22                       | 0.24                | 0.03                  | 0.056             | 0.022                     | 0.019                 | < 0.017                     | < 0.024                   | < 0.022                     | 0.031           | < 0.016                      | 0.057               | 0.1             | < 0.023                       | 0.73                     | 0.18                | 0.1           |



Table 2. Groundwater Analytical Results - Polynuclear Aromatic Hydrocarbon (PAHs, µg/L)

2013 Groundwater Quality Update  
Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site  
21st and School Streets, Two Rivers, Wisconsin  
BRRTS# : 0236000255

USEPA# : WIN000509953

| Sample Location | Field Duplicate | Sample Date | 1-Methylnaphthalene (ug/l) | 2-Methylnaphthalene (ug/l) | Acenaphthene (ug/l) | Acenaphthylene (ug/l) | Anthracene (ug/l) | Benzo(a)anthracene (ug/l) | Benzo(a)pyrene (ug/l) | Benzo(b)fluoranthene (ug/l) | Benzo(ghi)perylene (ug/l) | Benzo(k)fluoranthene (ug/l) | Chrysene (ug/l) | Dibenz(a,h)anthracene (ug/l) | Fluoranthene (ug/l) | Fluorene (ug/l) | Indeno(1,2,3-cd)pyrene (ug/l) | Naphthalene (PAH) (ug/l) | Phenanthrene (ug/l) | Pyrene (ug/l) |
|-----------------|-----------------|-------------|----------------------------|----------------------------|---------------------|-----------------------|-------------------|---------------------------|-----------------------|-----------------------------|---------------------------|-----------------------------|-----------------|------------------------------|---------------------|-----------------|-------------------------------|--------------------------|---------------------|---------------|
| WI Action Limit |                 |             | 0.97                       | 27                         | 400                 | 400                   | 3000              | 0.029                     | 0.2                   | 0.2                         | 250                       | 0.29                        | 0.2             | 0.0029                       | 400                 | 400             | 0.029                         | 100                      | 3000                | 250           |
| MW604           |                 | 10/04/05    | 78                         | 3.4                        | 31                  | 2                     | 4                 | < 3.1                     | < 3.7                 | < 3.1                       | < 3.9                     | < 3.9                       | < 3.8           | < 3.8                        | < 3.1               | 15              | < 3.8                         | 84                       | 15                  | 3             |
|                 |                 | 09/22/06    | 2.6                        | < 0.11                     | 2.1                 | 2.4                   | 0.77              | 0.44                      | 0.25                  | < 0.16                      | < 0.19                    | < 0.19                      | 0.39            | < 0.19                       | 1.6                 | 0.47            | < 0.19                        | 0.52                     | 1.2                 | 2.1           |
|                 |                 | 10/16/07    | 19                         | 0.042                      | 19                  | 1                     | 3.2               | 0.072                     | 0.1                   | 0.05                        | 0.078                     | 0.049                       | 0.083           | < 0.019                      | 1.5                 | 10              | 0.05                          | 0.11                     | 8.5                 | 1.7           |
|                 |                 | 10/02/08    | 63.7                       | < 2.7                      | 33.7                | 1.8                   | 10.8              | < 0.87                    | < 1.3                 | < 1.3                       | < 1.6                     | < 1.9                       | < 1.7           | < 1.1                        | 3.7                 | 20.2            | < 0.9                         | < 4.1                    | 31.5                | 3.5           |
|                 |                 | 09/30/09    | 90.7                       | 2.9                        | 44                  | 2.2                   | 7.3               | 0.34                      | 0.37                  | 0.15                        | 0.2                       | 0.21                        | 0.32            | < 0.064                      | 2.5                 | 23.8            | 0.13                          | 1.6                      | 24                  | 3.3           |
|                 |                 | 09/28/10    | 152                        | 4                          | 72.8                | 2.8                   | 13.6              | < 0.38                    | < 0.3                 | < 0.36                      | < 0.51                    | < 0.46                      | < 0.37          | < 0.34                       | 3.2                 | 38.3            | < 0.5                         | 107                      | 46.6                | 3.5           |
|                 |                 | 09/20/11    | 149                        | 0.48                       | 73.7                | 2.7                   | 6.4               | 0.097                     | 0.079                 | < 0.068                     | < 0.096                   | < 0.087                     | 0.2             | < 0.064                      | 1.9                 | 34.2            | < 0.094                       | 14.7                     | 18.2                | 2             |
|                 |                 | 09/20/12    | 74.8                       | 2.1                        | 36.6                | 5.8                   | 8.7               | 3                         | 4.9                   | 1.9                         | 2.6                       | 2.8                         | 3.7             | 0.48                         | 5.9                 | 22.3            | 1.6                           | 3.5                      | 31.4                | 7.4           |
| MW605AR         |                 | 09/27/13    | 66                         | < 0.39                     | 31.6                | 1.6                   | 5                 | < 0.36                    | < 0.29                | < 0.34                      | < 0.48                    | < 0.44                      | < 0.35          | < 0.32                       | 1.9                 | 15.2            | < 0.47                        | 2.1                      | 20.8                | 2.9           |
|                 |                 | 10/04/05    | 220000                     | 290000                     | 44000               | 140000                | 71000             | 45000                     | 33000                 | 16000                       | 15000                     | 16000                       | 36000           | 3900                         | 76000               | 78000           | 12000                         | 610000                   | 250000              | 110000        |
|                 |                 | 09/22/06    | 26                         | 17                         | 8.5                 | 20                    | 6.5               | 2.2                       | 1.8                   | < 1.3                       | < 1.5                     | < 1.5                       | 2.1             | < 1.5                        | 6.2                 | 8.6             | < 1.5                         | 15                       | 10                  | 8.1           |
|                 |                 | 10/02/08    | 71.4                       | 61.7                       | 19.1                | 35.3                  | 11.5              | 6.3                       | 8.5                   | 3.6                         | 4.3                       | 5                           | 8.2             | < 0.86                       | 13.4                | 13.1            | 2.6                           | 16.5                     | 30.5                | 16.6          |
|                 |                 | 09/30/09    | 2850                       | 4070                       | 854                 | 2380                  | 1280              | 554                       | 446                   | 217                         | 229                       | 276                         | 679             | 46.9                         | 1120                | 1320            | 175                           | 9180                     | 3600                | 1810          |
|                 |                 | 09/28/10    | 25.7                       | 19.8                       | 14.2                | 3.7                   | 4.5               | 0.43                      | 0.45                  | 0.19                        | 0.23                      | 0.3                         | 0.55            | < 0.068                      | 1.8                 | 8.7             | 0.15                          | 18.2                     | 14.1                | 2.4           |
|                 |                 | 09/20/11    | 24.9                       | 22.9                       | 18.7                | 7.9                   | 11                | 4.3                       | 4.6                   | 2.4                         | 2.7                       | 2.8                         | 4.7             | 0.36                         | 7.8                 | 15.3            | 1.9                           | 81.9                     | 28.2                | 12.4          |
|                 |                 | 09/20/12    | 12.9                       | 4.5                        | 5.4                 | 8.1                   | 4.3               | 3.6                       | 5.3                   | 2.3                         | 3                         | 3                           | 4.6             | 0.54                         | 5.2                 | 3.4             | 1.9                           | 65.7                     | 11.7                | 6.8           |
| MW605B          |                 | 09/27/13    | 15.6                       | 0.76                       | 14.7                | 7.2                   | 5.6               | 3                         | 3.6                   | 1.5                         | 2                         | 2.2                         | 3.7             | 0.26                         | 5.5                 | 7.6             | 1.2                           | < 0.2                    | 10.1                | 8.9           |
|                 |                 | 10/04/05    | 200                        | 190                        | 38                  | 60                    | < 2.3             | < 3.1                     | < 3.7                 | < 3.1                       | < 3.9                     | < 3.9                       | < 3.8           | < 3.8                        | < 3.1               | 11              | < 3.8                         | 1400                     | 5.8                 | < 2.9         |
|                 |                 | 09/22/06    | 420                        | 450                        | 150                 | 69                    | < 47              | < 63                      | < 74                  | < 63                        | < 78                      | < 78                        | < 77            | < 76                         | < 63                | 40              | < 76                          | 1300                     | 65                  | < 59          |
|                 |                 | 10/17/07    | 1400                       | 2000                       | 730                 | 520                   | 680               | 190                       | 160                   | 74                          | 75                        | 82                          | 190             | 15                           | 410                 | 410             | 54                            | 4500                     | 1200                | 570           |
|                 |                 | 10/02/08    | 499                        | 593                        | 224                 | 68.9                  | 42.6              | < 6.9                     | < 10.8                | < 10.3                      | < 12.5                    | < 15.6                      | 19.1            | < 8.6                        | 30.8                | 64.7            | < 7.2                         | 2480                     | 119                 | 32.5          |
|                 |                 | 09/30/09    | 7270                       | 9560                       | 4160                | 3100                  | 3180              | 1210                      | 979                   | 566                         | 525                       | 478                         | 1420            | 129                          | 2410                | 2830            | 367                           | 25500                    | 7750                | 3970          |
|                 |                 | 09/28/10    | 409                        | 530                        | 302                 | 79                    | 216               | < 38.4                    | < 30.3                | < 36                        | < 51                      | < 46.3                      | 72              | < 33.9                       | 84                  | 104             | < 49.6                        | 3010                     | 294                 | 142           |
|                 |                 | 09/20/11    | 667                        | 798                        | 402                 | 112                   | 155               | < 45.3                    | < 35.7                | < 42.5                      | < 60.1                    | < 54.6                      | 133             | < 40                         | 128                 | 116             | < 58.5                        | 4840                     | 465                 | 192           |
| MW606R          |                 | 09/20/12    | 176                        | 220                        | 88.2                | 40.4                  | 14.8              | 2.4                       | 2.2                   | 0.95                        | 1.3                       | 1.3                         | 3.1             | < 0.32                       | 9.7                 | 22.7            | 0.81                          | 1670                     | 51                  | 13.1          |
|                 |                 | 09/27/13    | 159                        | 186                        | 81                  | 29.1                  | < 22.9            | < 14.5                    | < 11.4                | < 13.6                      | < 19.2                    | < 17.5                      | < 13.9          | < 12.8                       | < 17.6              | 26.1            | < 18.7                        | 1630                     | 35.1                | < 19          |
|                 |                 | 10/04/05    | 1.1                        | 0.63                       | 1.6                 | 2.9                   | 4.5               | 4.6                       | 3.9                   | 2                           | 2                         | 2.4                         | 4.6             | < 0.94                       | 11                  | 1.3             | 1.3                           | 2.6                      | 7.7                 | 16            |
|                 |                 | 09/22/06    | 35                         | < 1.1                      | 31                  | 1.6                   | 6.1               | < 1.6                     | < 1.8                 | < 1.6                       | < 1.9                     | < 1.9                       | < 1.9           | < 1.9                        | 2.2                 | 18              | < 1.9                         | < 1.2                    | 27                  | 2.4           |
|                 |                 | 10/16/07    | 670                        | 850                        | 520                 | 85                    | 370               | 90                        | 100                   | 41                          | 47                        | 61                          | 120             | 9.1                          | 250                 | 240             | 34                            | 1400                     | 780                 | 330           |
|                 |                 | 10/02/08    | 19                         | 2.7                        | 16.2                | 23.2                  | 17.5              | 25.1                      | 31.2                  | 14                          | 14.2                      | 18.4                        | 25.9            | 2.4                          | 35.3                | 6               | 9.8                           | 45.7                     | 30.6                | 44.1          |
|                 |                 | 09/30/09    | 78.4                       | 82                         | 74.4                | 43.1                  | 93.7              | 82.9                      | 73.8                  | 34.6                        | 29.4                      | 30.8                        | 62.3            | 5.6                          | 116                 | 51              | 21.5                          | 314                      | 198                 | 201           |
|                 |                 | 09/28/10    | 5.1                        | 2.7                        | 6.1                 | 2.3                   | 3.1               | 0.44                      | 0.24                  | 0.14                        | 0.11                      | 0.14                        | 0.46            | < 0.068                      | 2                   | 2.9             | < 0.099                       | 7.8                      | 6.1                 | 2.6           |
| MW607A          |                 | 09/20/11    | 3.5                        | 0.03                       | 5.2                 | 2.3                   | 1.8               | 0.47                      | 0.12                  | 0.059                       | 0.04                      | 0.084                       | 0.38            | 0.0088                       | 2.1                 | 2.3             | 0.029                         | 1.1                      | 3.6                 | 2.9           |
|                 |                 | 09/20/12    | 3                          | 0.72                       | 5.9                 | 9.1                   | 18                | 11.9                      | 12.5                  | 5.3                         | 5.3                       | 7.5                         | 13.3            | 1.1                          | 26.4                | 4.8             | 3.6                           | 2.8                      | 38.6                | 33.9          |
|                 |                 | 09/27/13    | 5.7                        | 0.093                      | 5.8                 | 2.4                   | 2.8               | 1.1                       | 1.5                   | 0.63                        | 0.71                      | 0.92                        | 1.3             | 0.15                         | 2.4                 | 3.7             | 0.49                          | 6.8                      | 6.7                 | 3.9           |
|                 |                 | 10/04/05    | 51                         | < 2.2                      | 29                  | 2.2                   | < 2.3             | < 3.1                     | < 3.7                 | < 3.1                       | < 3.9                     | < 3.9                       | < 3.8           | < 3.8                        | < 3.1               | < 1.8           | < 3.8                         | 18                       | < 2.3               | < 2.9         |
|                 |                 | 09/22/06    | 310                        | < 22                       | 160                 | < 16                  | < 23              | < 31                      | < 37                  | < 31                        | < 39                      | < 39                        | < 38            | < 38                         | < 31                | < 18            | < 38                          | 670                      | < 23                | < 29          |
|                 |                 | 10/17/07    | 200                        | 2                          | 100                 | 6.6                   | < 0.23            | < 0.31                    | < 0.37                | < 0.31                      | < 0.39                    | < 0.39                      | < 0.38          | < 0.38                       | < 0.31              | 0.93            | < 0.38                        | 360                      | 0.36                | < 0.29        |
|                 |                 | 10/02/08    | 197                        | < 10.9                     | 109                 | < 5.1                 | < 6.6             | < 3.5                     | < 5.5                 | < 5.2                       | < 6.4                     | < 7.9                       | < 7.1           | < 4.4                        | < 5.4               | < 6.4           | < 3.7                         | 585                      | < 7.6               | < 6.9         |
|                 |                 | 09/30/09    | 188                        | 6.5                        | 139                 | 7.6                   | < 0.11            | < 0.072                   | < 0.057               | < 0.068                     | < 0.096                   | < 0.087                     | < 0.07          | < 0.064                      | < 0.088             | 1.5             | < 0.094                       | 460                      | 0.2                 | < 0.095       |
|                 |                 | 09/28/10    | 164                        | 13.3                       | 126                 | 5.8                   | < 0.13            | < 0.079                   | < 0.062               | < 0.074                     | < 0.11                    | < 0.095                     | < 0.076         | < 0.07                       | < 0.096             | 2.1             | < 0.1                         | 763                      | < 0.18              | < 0.1         |
|                 |                 | 09/20/11    | 117                        | 14.5                       | 83                  | 3.3                   | < 0.11            | < 0.072                   | < 0.057               | < 0.068                     | < 0.096                   | < 0.087                     | < 0.07          | < 0.064                      | < 0.088             | 2.3             | < 0.094                       | 507                      | < 0.16              | < 0.095       |
|                 |                 | 09/20/12    | 200                        | 30.5                       | 142                 | 5.7                   | < 0.57            | < 0.36                    | < 0.29                | < 0.34                      | < 0.48                    | < 0.44                      | < 0.35          | < 0.32                       | < 0.44              | 3.7             | < 0.47                        | 866                      | < 0.81              | < 0.47        |
|                 |                 | 09/27/13    | 78.4                       | 2.5                        | 46.1                | 1.8                   | < 0.57            | < 0.36                    | < 0.29                | < 0.34                      | < 0.48                    | < 0.44                      | < 0.35          | < 0.32                       | < 0.44              | 0.93            | < 0.47                        | 79.2                     | < 0.81              | < 0.47        |



Table 2. Groundwater Analytical Results - Polynuclear Aromatic Hydrocarbon (PAHs, µg/L)

2013 Groundwater Quality Update

Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site

21st and School Streets, Two Rivers, Wisconsin

BRRTS# : 0236000255

USEPA# : WIN000509953

| Sample Location | Field Duplicate | Sample Date | 1-Methylnaphthalene (ug/l) | 2-Methylnaphthalene (ug/l) | Acenaphthene (ug/l) | Acenaphthylene (ug/l) | Anthracene (ug/l) | Benzo(a)anthracene (ug/l) | Benzo(a)pyrene (ug/l) | Benzo(b)fluoranthene (ug/l) | Benzo(ghi)perylene (ug/l) | Benzo(k)fluoranthene (ug/l) | Chrysene (ug/l) | Dibenz(a,h)anthracene (ug/l) | Fluoranthene (ug/l) | Fluorene (ug/l) | Indeno(1,2,3-cd)pyrene (ug/l) | Naphthalene (PAH) (ug/l) | Phenanthrene (ug/l) | Pyrene (ug/l) |
|-----------------|-----------------|-------------|----------------------------|----------------------------|---------------------|-----------------------|-------------------|---------------------------|-----------------------|-----------------------------|---------------------------|-----------------------------|-----------------|------------------------------|---------------------|-----------------|-------------------------------|--------------------------|---------------------|---------------|
| WI Action Limit |                 |             | 0.97                       | 27                         | 400                 | 400                   | 3000              | 0.029                     | 0.2                   | 0.2                         | 250                       | 0.29                        | 0.2             | 0.0029                       | 400                 | 400             | 0.029                         | 100                      | 3000                | 250           |
| MW607BR         |                 | 10/04/05    | 0.31                       | 0.054                      | 0.4                 | 0.021                 | < 0.012           | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | 0.032           | < 0.019                       | 0.13                     | 0.028               | < 0.015       |
|                 |                 | 09/22/06    | 0.14                       | 0.074                      | 0.13                | < 0.041               | < 0.058           | < 0.078                   | < 0.092               | < 0.078                     | < 0.096                   | < 0.097                     | < 0.095         | < 0.094                      | < 0.077             | < 0.045         | < 0.094                       | 2.1                      | < 0.057             | < 0.073       |
|                 |                 | 10/17/07    | 0.27                       | 0.4                        | 0.06                | 0.1                   | 0.031             | <b>0.062</b>              | 0.08                  | 0.04                        | 0.045                     | 0.046                       | 0.072           | < 0.019                      | 0.059               | 0.018           | <b>0.03</b>                   | 1.4                      | 0.045               | 0.11          |
|                 |                 | 10/02/08    | <b>1.5</b>                 | 0.14                       | 0.97                | 0.055                 | < 0.065           | < 0.035                   | < 0.054               | < 0.051                     | < 0.062                   | < 0.078                     | < 0.07          | < 0.043                      | < 0.053             | < 0.063         | < 0.036                       | 3.2                      | 0.1                 | < 0.068       |
|                 |                 | 09/30/09    | <b>1.2</b>                 | 1.3                        | 0.68                | 0.15                  | 0.12              | <b>0.058</b>              | 0.045                 | 0.023                       | 0.021                     | 0.022                       | 0.047           | <b>0.0049</b>                | 0.12                | 0.27            | 0.015                         | 6.7                      | 0.4                 | 0.17          |
|                 |                 | 09/28/10    | 0.23                       | 0.023                      | 0.17                | 0.012                 | < 0.0061          | < 0.0038                  | < 0.003               | < 0.0036                    | < 0.0051                  | < 0.0046                    | < 0.0037        | < 0.0034                     | < 0.0047            | < 0.0051        | < 0.005                       | 1.1                      | < 0.0086            | < 0.005       |
|                 |                 | 09/20/11    | 0.055                      | < 0.0039                   | 0.27                | 0.018                 | 0.0072            | < 0.0036                  | < 0.0029              | < 0.0034                    | < 0.0048                  | < 0.0044                    | 0.0055          | < 0.0032                     | 0.0097              | 0.015           | < 0.0047                      | 0.088                    | 0.012               | 0.013         |
|                 |                 | 09/20/12    | 0.029                      | < 0.0039                   | 0.18                | 0.016                 | 0.0069            | 0.0045                    | 0.0034                | < 0.0034                    | < 0.0048                  | < 0.0044                    | 0.0058          | < 0.0032                     | 0.013               | < 0.0048        | < 0.0047                      | 0.096                    | 0.011               | 0.015         |
|                 |                 | 09/27/13    | <b>1.5</b>                 | 0.061                      | 1                   | 0.05                  | < 0.029           | < 0.018                   | < 0.014               | < 0.017                     | < 0.024                   | < 0.022                     | < 0.017         | < 0.016                      | < 0.022             | 0.04            | < 0.023                       | 2.9                      | < 0.04              | < 0.024       |
| MW608A          |                 | 10/04/05    | <b>120</b>                 | <b>87</b>                  | 140                 | 20                    | 81                | <b>44</b>                 | <b>42</b>             | <b>20</b>                   | 19                        | <b>21</b>                   | <b>39</b>       | <b>4</b>                     | 87                  | 85              | <b>14</b>                     | <b>420</b>               | 250                 | 130           |
|                 |                 | 09/22/06    | <b>42</b>                  | <b>32</b>                  | 46                  | < 3.2                 | 14                | < 6.2                     | < 7.3                 | < 6.3                       | < 7.7                     | < 7.7                       | < 7.6           | < 7.5                        | 7.8                 | 28              | < 7.5                         | 100                      | 79                  | 10            |
|                 |                 | 10/17/07    | <b>110</b>                 | <b>78</b>                  | 98                  | 4                     | 34                | <b>2.7</b>                | <b>2.5</b>            | <b>1</b>                    | 1.1                       | <b>1.5</b>                  | <b>2.8</b>      | < 0.38                       | 12                  | 34              | <b>0.73</b>                   | <b>580</b>               | 66                  | 17            |
|                 |                 | 10/02/08    | --                         | --                         | --                  | --                    | --                | --                        | --                    | --                          | --                        | --                          | --              | --                           | --                  | --              | --                            | --                       | --                  | --            |
|                 |                 | 09/30/09    | <b>94.2</b>                | <b>87.7</b>                | 86.4                | 3.5                   | 15.3              | <b>1.8</b>                | <b>1.4</b>            | <b>1</b>                    | 0.77                      | <b>0.73</b>                 | <b>2</b>        | < 0.32                       | 7.2                 | 39.7            | <b>0.48</b>                   | <b>864</b>               | 59.6                | 12.3          |
|                 |                 | 09/28/10    | <b>130</b>                 | <b>113</b>                 | 123                 | 3.3                   | 13.9              | <b>1.3</b>                | <b>1.1</b>            | <b>0.46</b>                 | 0.49                      | <b>0.68</b>                 | <b>1.5</b>      | < 0.071                      | 7.6                 | 35              | <b>0.32</b>                   | <b>966</b>               | 50.4                | 11            |
|                 |                 | 09/20/11    | <b>80.8</b>                | <b>67.9</b>                | 83                  | < 7.2                 | 41.1              | < 7.2                     | < 5.7                 | < 6.8                       | < 9.6                     | < 8.7                       | < 7             | < 6.4                        | 10.5                | 40.6            | < 9.4                         | <b>978</b>               | 76.4                | 14.8          |
|                 |                 | 09/20/12    | <b>64.6</b>                | <b>50.3</b>                | 53.6                | 2.6                   | 11.8              | <b>2.2</b>                | <b>2.1</b>            | <b>0.87</b>                 | 0.97                      | <b>1.4</b>                  | <b>2.5</b>      | < 0.32                       | 10.4                | 27.5            | <b>0.64</b>                   | <b>620</b>               | 60.3                | 13.7          |
|                 |                 | 09/27/13    | <b>45.1</b>                | <b>29.5</b>                | 37.4                | < 3.6                 | 8                 | < 3.6                     | < 2.9                 | < 3.4                       | < 4.8                     | < 4.4                       | < 3.5           | < 3.2                        | 5.1                 | 16              | < 4.7                         | <b>490</b>               | 39.9                | 8.8           |
| MW608B          |                 | 10/04/05    | 0.35                       | < 0.056                    | 1                   | 0.046                 | < 0.058           | < 0.078                   | < 0.092               | < 0.078                     | < 0.096                   | < 0.097                     | < 0.095         | < 0.094                      | < 0.077             | 0.28            | < 0.094                       | 0.26                     | 0.19                | < 0.073       |
|                 |                 | 09/22/06    | 0.33                       | 0.044                      | 0.61                | 0.056                 | 0.043             | < 0.031                   | < 0.037               | < 0.031                     | < 0.039                   | < 0.039                     | < 0.038         | < 0.038                      | 0.05                | 0.23            | < 0.038                       | 0.29                     | 0.25                | 0.07          |
|                 |                 | 10/17/07    | 0.64                       | 0.1                        | 1.3                 | 0.14                  | 0.2               | <b>0.14</b>               | 0.14                  | < 0.078                     | < 0.096                   | 0.097                       | 0.15            | < 0.094                      | 0.27                | 0.5             | < 0.094                       | 0.62                     | 0.74                | 0.42          |
|                 |                 | 10/02/08    | 0.88                       | 0.41                       | 1.4                 | 0.12                  | 0.38              | < 0.035                   | < 0.054               | < 0.051                     | < 0.062                   | < 0.078                     | < 0.07          | < 0.043                      | 0.11                | 0.59            | < 0.036                       | 2.5                      | 0.82                | 0.12          |
|                 |                 | 09/30/09    | 0.41                       | 0.3                        | 0.94                | 0.11                  | 0.11              | <b>0.071</b>              | 0.086                 | 0.043                       | 0.047                     | 0.034                       | 0.058           | <b>0.0089</b>                | 0.12                | 0.37            | <b>0.032</b>                  | 1.4                      | 0.35                | 0.19          |
|                 |                 | 09/28/10    | 0.54                       | 0.23                       | 1.6                 | 0.076                 | 0.51              | <b>0.068</b>              | 0.055                 | 0.021                       | 0.026                     | 0.035                       | 0.068           | <b>0.0038</b>                | 0.38                | 0.77            | 0.017                         | 2.6                      | 1.3                 | 0.56          |
|                 |                 | 09/20/11    | 0.61                       | 0.072                      | 1.7                 | 0.089                 | 0.81              | <b>0.046</b>              | 0.054                 | 0.028                       | 0.041                     | 0.036                       | 0.063           | <b>0.0067</b>                | 0.45                | 0.89            | 0.028                         | 1                        | 2.8                 | 0.83          |
|                 |                 | 09/20/12    | 0.34                       | 0.05                       | 1                   | 0.18                  | 0.5               | 0.027                     | 0.018                 | 0.008                       | 0.0097                    | 0.012                       | 0.03            | < 0.0032                     | 0.44                | 0.7             | 0.0059                        | 0.63                     | 1.9                 | 0.69          |
|                 |                 | 09/27/13    | 0.66                       | 0.25                       | 1.3                 | 0.16                  | 0.45              | < 0.037                   | < 0.029               | < 0.034                     | < 0.049                   | < 0.044                     | < 0.035         | < 0.032                      | 0.35                | 0.67            | < 0.047                       | 4.9                      | 1.7                 | 0.64          |
| MW609A          |                 | 10/04/05    | 0.4                        | < 0.11                     | < 0.082             | < 0.081               | < 0.12            | < 0.16                    | < 0.18                | < 0.16                      | < 0.19                    | < 0.19                      | < 0.19          | < 0.19                       | < 0.15              | < 0.091         | < 0.19                        | 3.1                      | < 0.11              | < 0.15        |
|                 |                 | 09/22/06    | <b>1.2</b>                 | < 0.22                     | 0.39                | < 0.16                | < 0.23            | < 0.31                    | < 0.37                | < 0.31                      | < 0.39                    | < 0.39                      | < 0.38          | < 0.38                       | < 0.31              | < 0.18          | < 0.38                        | 5.5                      | < 0.23              | < 0.29        |
|                 |                 | 10/17/07    | 0.77                       | < 0.22                     | 0.22                | < 0.16                | < 0.23            | < 0.31                    | < 0.37                | < 0.31                      | < 0.39                    | < 0.39                      | < 0.38          | < 0.38                       | < 0.31              | < 0.18          | < 0.38                        | 4.2                      | < 0.23              | < 0.29        |
|                 |                 | 10/02/08    | 0.58                       | < 0.22                     | < 0.16              | < 0.1                 | < 0.13            | < 0.071                   | < 0.11                | < 0.1                       | < 0.13                    | < 0.16                      | < 0.14          | < 0.088                      | < 0.11              | < 0.13          | < 0.074                       | 4.4                      | 0.18                | < 0.14        |
|                 |                 | 09/30/09    | 0.71                       | 0.13                       | 0.4                 | < 0.072               | < 0.11            | < 0.072                   | < 0.057               | < 0.068                     | < 0.096                   | < 0.087                     | < 0.07          | < 0.064                      | < 0.088             | < 0.095         | < 0.094                       | 4.9                      | < 0.16              | < 0.095       |
|                 |                 | 09/28/10    | 0.62                       | 0.047                      | 0.22                | 0.018                 | 0.0065            | 0.0047                    | 0.004                 | 0.004                       | < 0.0051                  | 0.0047                      | 0.0042          | < 0.0034                     | 0.0081              | 0.0094          | < 0.005                       | 5.2                      | 0.01                | 0.0075        |
|                 |                 | 09/20/11    | 0.42                       | 0.026                      | 0.033               | 0.049                 | 0.036             | <b>0.053</b>              | 0.049                 | 0.03                        | 0.031                     | 0.031                       | 0.058           | <b>0.0042</b>                | 0.11                | 0.027           | 0.02                          | 4.1                      | 0.12                | 0.16          |
|                 |                 | 09/20/12    | 0.36                       | < 0.077                    | < 0.091             | < 0.072               | < 0.11            | < 0.072                   | < 0.057               | < 0.068                     | < 0.096                   | < 0.087                     | < 0.07          | < 0.064                      | < 0.088             | < 0.095         | < 0.094                       | 4.2                      | < 0.16              | < 0.095       |
|                 |                 | 09/27/13    | 0.7                        | < 0.077                    | 0.14                | < 0.072               | < 0.11            | < 0.072                   | < 0.057               | < 0.068                     | < 0.096                   | < 0.087                     | < 0.07          | < 0.064                      | < 0.088             | < 0.095         | < 0.094                       | 7.1                      | < 0.16              | < 0.095       |



Table 2. Groundwater Analytical Results - Polynuclear Aromatic Hydrocarbon (PAHs, µg/L)

2013 Groundwater Quality Update

Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site

21st and School Streets, Two Rivers, Wisconsin

BRRTS# : 0236000255

USEPA# : WIN000509953

| Sample Location | Field Duplicate | Sample Date | 1-Methylnaphthalene (ug/l) | 2-Methylnaphthalene (ug/l) | Acenaphthene (ug/l) | Acenaphthylene (ug/l) | Anthracene (ug/l) | Benzo(a)anthracene (ug/l) | Benzo(a)pyrene (ug/l) | Benzo(b)fluoranthene (ug/l) | Benzo(ghi)perylene (ug/l) | Benzo(k)fluoranthene (ug/l) | Chrysene (ug/l) | Dibenz(a,h)anthracene (ug/l) | Fluoranthene (ug/l) | Fluorene (ug/l) | Indeno(1,2,3-cd)pyrene (ug/l) | Naphthalene (PAH) (ug/l) | Phenanthrene (ug/l) | Pyrene (ug/l) |
|-----------------|-----------------|-------------|----------------------------|----------------------------|---------------------|-----------------------|-------------------|---------------------------|-----------------------|-----------------------------|---------------------------|-----------------------------|-----------------|------------------------------|---------------------|-----------------|-------------------------------|--------------------------|---------------------|---------------|
| WI Action Limit |                 |             | 0.97                       | 27                         | 400                 | 400                   | 3000              | 0.029                     | 0.2                   | 0.2                         | 250                       | 0.29                        | 0.2             | 0.0029                       | 400                 | 400             | 0.029                         | 100                      | 3000                | 250           |
| MW609B          |                 | 10/04/05    | < 0.01                     | < 0.047                    | < 0.0082            | < 0.0081              | < 0.012           | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | < 0.0091        | < 0.019                       | < 0.047                  | < 0.011             | < 0.015       |
|                 |                 | 09/22/06    | < 0.01                     | < 0.011                    | < 0.0082            | < 0.0082              | < 0.012           | < 0.016                   | < 0.019               | < 0.016                     | < 0.019                   | < 0.02                      | < 0.019         | < 0.019                      | < 0.016             | < 0.0091        | < 0.019                       | < 0.012                  | 0.017               | < 0.015       |
|                 |                 | 10/17/07    | 1.6                        | 0.071                      | 1                   | 0.061                 | 0.031             | < 0.016                   | < 0.019               | < 0.016                     | < 0.02                    | < 0.02                      | < 0.02          | < 0.019                      | 0.039               | 0.065           | < 0.019                       | 2.4                      | 0.15                | 0.056         |
|                 |                 | 10/02/08    | 0.063                      | 0.069                      | 0.068               | 0.0087                | 0.031             | < 0.0035                  | < 0.0055              | < 0.0052                    | < 0.0064                  | < 0.0079                    | < 0.0071        | < 0.0044                     | 0.015               | 0.051           | < 0.0037                      | 0.24                     | 0.13                | 0.017         |
|                 |                 | 09/30/09    | 0.41                       | 0.24                       | 0.32                | 0.051                 | 0.033             | 0.0063                    | 0.0058                | < 0.0034                    | < 0.0048                  | < 0.0044                    | 0.0058          | < 0.0032                     | 0.02                | 0.068           | < 0.0047                      | 1.3                      | 0.12                | 0.028         |
|                 |                 | 09/28/10    | 0.017                      | 0.012                      | 0.011               | 0.005                 | < 0.0061          | 0.0056                    | 0.0049                | 0.0043                      | < 0.0051                  | 0.0056                      | 0.0064          | < 0.0034                     | 0.0082              | < 0.0051        | < 0.005                       | 0.1                      | 0.011               | 0.01          |
|                 |                 | 09/20/11    | 0.029                      | 0.008                      | 0.019               | 0.0068                | 0.01              | 0.0064                    | 0.0065                | 0.0047                      | 0.0057                    | 0.0069                      | 0.011           | < 0.0032                     | 0.014               | 0.0059          | < 0.0047                      | 0.12                     | 0.022               | 0.017         |
|                 |                 | 09/20/12    | 0.019                      | 0.0068                     | 0.0078              | < 0.0036              | < 0.0057          | < 0.0036                  | < 0.0029              | < 0.0034                    | < 0.0048                  | < 0.0044                    | 0.0037          | < 0.0032                     | 0.005               | 0.0052          | < 0.0047                      | 0.016                    | 0.0086              | 0.0056        |
| MW610           |                 | 09/27/13    | 0.24                       | 0.028                      | 0.13                | < 0.0073              | < 0.012           | < 0.0073                  | < 0.0058              | < 0.0069                    | < 0.0097                  | < 0.0088                    | < 0.007         | < 0.0065                     | < 0.0089            | 0.022           | < 0.0094                      | 0.64                     | 0.028               | < 0.0096      |
|                 |                 | 10/04/05    | 0.015                      | < 0.047                    | < 0.0082            | < 0.0081              | < 0.012           | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | < 0.0091        | < 0.019                       | < 0.012                  | < 0.011             | < 0.015       |
|                 |                 | 09/22/06    | 0.057                      | 0.015                      | 0.034               | 0.0088                | 0.012             | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | 0.026           | < 0.019                       | 0.057                    | 0.046               | < 0.015       |
|                 |                 | 10/17/07    | < 0.01                     | < 0.011                    | < 0.0082            | < 0.0081              | < 0.012           | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | < 0.0091        | < 0.019                       | < 0.012                  | < 0.011             | < 0.015       |
|                 |                 | 10/02/08    | 0.13                       | < 0.022                    | 0.078               | 0.017                 | 0.014             | < 0.0071                  | < 0.011               | < 0.01                      | < 0.013                   | < 0.016                     | < 0.014         | < 0.0088                     | < 0.011             | 0.015           | < 0.0074                      | 0.3                      | 0.027               | < 0.014       |
|                 |                 | 09/30/09    | 0.11                       | 0.14                       | 0.062               | 0.04                  | 0.041             | 0.017                     | 0.029                 | 0.02                        | 0.018                     | 0.014                       | 0.017           | 0.007                        | 0.025               | 0.043           | 0.015                         | 0.25                     | 0.083               | 0.035         |
| MW611           |                 | 09/28/10    | 0.017                      | 0.013                      | 0.0098              | 0.011                 | 0.017             | < 0.0038                  | 0.0035                | < 0.0036                    | < 0.0051                  | < 0.0046                    | < 0.0037        | < 0.0034                     | < 0.0047            | < 0.0051        | < 0.005                       | 0.13                     | < 0.0086            | < 0.005       |
|                 |                 | 10/04/05    | 1.2                        | 1.5                        | 0.17                | 0.44                  | 0.032             | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | 0.13            | < 0.019                       | 4.1                      | 0.13                | < 0.015       |
|                 |                 | 09/22/06    | 0.18                       | 0.19                       | 0.074               | 0.026                 | < 0.023           | < 0.031                   | < 0.037               | < 0.031                     | < 0.039                   | < 0.039                     | < 0.038         | < 0.038                      | < 0.031             | 0.029           | < 0.038                       | 0.57                     | 0.038               | < 0.029       |
|                 |                 | 10/17/07    | 0.016                      | < 0.011                    | 0.012               | < 0.0081              | < 0.012           | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | < 0.0091        | < 0.019                       | 0.038                    | 0.012               | < 0.015       |
|                 |                 | 10/02/08    | 0.082                      | < 0.011                    | 0.034               | < 0.005               | 0.0082            | < 0.0035                  | < 0.0055              | < 0.0052                    | < 0.0063                  | < 0.0078                    | < 0.0071        | < 0.0043                     | < 0.0054            | 0.02            | < 0.0036                      | 0.029                    | 0.033               | < 0.0068      |
|                 |                 | 09/30/09    | 0.17                       | 0.029                      | 0.1                 | 0.014                 | 0.041             | 0.0089                    | 0.0098                | 0.004                       | 0.0057                    | 0.0056                      | 0.0085          | < 0.0032                     | 0.023               | 0.059           | < 0.0047                      | 0.32                     | 0.11                | 0.035         |
| MW612           |                 | 09/28/10    | 0.014                      | 0.016                      | 0.0049              | < 0.0038              | 0.0075            | < 0.0038                  | < 0.003               | < 0.0036                    | < 0.0051                  | < 0.0046                    | < 0.0037        | < 0.0034                     | < 0.0047            | < 0.0051        | < 0.005                       | 0.12                     | < 0.0086            | < 0.005       |
|                 |                 | 10/04/05    | 1.8                        | < 0.94                     | 1.8                 | 0.52                  | 0.52              | < 0.31                    | < 0.37                | < 0.31                      | < 0.39                    | < 0.39                      | < 0.38          | < 0.38                       | < 0.31              | 1.8             | < 0.38                        | 1.1                      | 5.5                 | < 0.29        |
|                 |                 | 09/22/06    | 5.5                        | < 0.22                     | 2.2                 | 0.56                  | 0.63              | < 0.31                    | < 0.37                | < 0.31                      | < 0.39                    | < 0.39                      | < 0.38          | < 0.38                       | < 0.31              | 2.8             | < 0.38                        | 0.65                     | 6.8                 | 0.3           |
|                 |                 | 10/17/07    | 2.2                        | < 0.22                     | 2.5                 | 0.65                  | 0.83              | < 0.31                    | < 0.37                | < 0.31                      | < 0.39                    | < 0.39                      | < 0.38          | < 0.38                       | 0.49                | 2.9             | < 0.38                        | 1.4                      | 6.2                 | 0.51          |
|                 |                 | 10/02/08    | --                         | --                         | --                  | --                    | --                | --                        | --                    | --                          | --                        | --                          | --              | --                           | --                  | --              | --                            | --                       | --                  | --            |
|                 |                 | 09/30/09    | 1                          | 0.5                        | 2.3                 | 0.26                  | 0.5               | < 0.072                   | < 0.057               | < 0.068                     | < 0.096                   | < 0.087                     | < 0.07          | < 0.064                      | 0.17                | 2.8             | < 0.094                       | 1.9                      | 2.4                 | 0.18          |
|                 |                 | 09/28/10    | 0.88                       | 0.033                      | 0.93                | 0.19                  | 0.3               | 0.012                     | 0.0075                | 0.0077                      | 0.0063                    | 0.0068                      | 0.013           | < 0.0032                     | 0.11                | 1.3             | < 0.0047                      | 0.61                     | 1.3                 | 0.11          |
|                 |                 | 09/20/11    | 0.33                       | < 0.0039                   | 1.7                 | 0.27                  | 0.37              | 0.0078                    | < 0.0029              | < 0.0034                    | < 0.0048                  | < 0.0044                    | 0.0095          | < 0.0032                     | 0.16                | 1.9             | < 0.0047                      | 0.83                     | 2.6                 | 0.13          |
| MW613           |                 | 09/20/12    | 6.3                        | 0.091                      | 1.9                 | 0.35                  | 0.27              | < 0.036                   | < 0.029               | < 0.034                     | < 0.048                   | < 0.044                     | < 0.035         | < 0.032                      | 0.096               | 2               | < 0.047                       | 0.77                     | 1.6                 | 0.092         |
|                 |                 | 09/27/13    | 0.4                        | 0.079                      | 1.2                 | 0.16                  | 0.18              | < 0.037                   | < 0.029               | < 0.034                     | < 0.049                   | < 0.044                     | < 0.035         | < 0.032                      | 0.079               | 1.1             | < 0.047                       | 1.5                      | 0.16                | 0.082         |
|                 |                 | 10/04/05    | 0.47                       | 0.68                       | 0.054               | 0.17                  | 0.013             | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | 0.046           | < 0.019                       | 2.3                      | 0.048               | < 0.015       |
|                 |                 | 09/22/06    | 0.01                       | < 0.011                    | < 0.0082            | < 0.0081              | < 0.012           | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | < 0.0091        | < 0.019                       | 0.24                     | < 0.011             | < 0.015       |
|                 |                 | 10/17/07    | 0.18                       | 0.15                       | 0.072               | 0.035                 | < 0.025           | < 0.033                   | < 0.039               | < 0.033                     | < 0.041                   | < 0.041                     | < 0.04          | < 0.04                       | < 0.033             | 0.027           | < 0.04                        | 0.41                     | 0.057               | 0.034         |
|                 |                 | 10/02/08    | 0.78                       | 0.93                       | 0.47                | 0.12                  | < 0.065           | < 0.035                   | < 0.054               | < 0.051                     | < 0.062                   | < 0.078                     | < 0.07          | < 0.043                      | < 0.053             | 0.16            | < 0.036                       | 2.2                      | 0.2                 | < 0.068       |
|                 |                 | 09/30/09    | 0.08                       | 0.062                      | 0.049               | 0.015                 | 0.016             | 0.01                      | 0.0094                | 0.0078                      | 0.0071                    | 0.0066                      | 0.011           | < 0.0032                     | 0.016               | 0.029           | 0.0048                        | 0.26                     | 0.056               | 0.025         |
|                 |                 | 09/28/10    | 0.62                       | 0.35                       | 0.66                | < 0.033               | 0.11              | < 0.033                   | < 0.026               | < 0.031                     | < 0.044                   | < 0.04                      | < 0.032         | < 0.029                      | < 0.041             | 0.15            | < 0.043                       | 2.3                      | 0.28                | < 0.044       |
|                 |                 | 09/20/11    | 0.01                       | 0.0097                     | 0.046               | 0.083                 | 0.11              | 0.18                      | 0.18                  | 0.078                       | 0.099                     | 0.11                        | 0.18            | 0.016                        | 0.37                | 0.035           | 0.069                         | 0.024                    | 0.32                | 0.5           |
|                 |                 | 09/20/12    | 0.0098                     | 0.01                       | 0.0095              | < 0.0036              | < 0.0057          | < 0.0036                  | < 0.0029              | < 0.0034                    | < 0.0048                  | < 0.0044                    | < 0.0035        | < 0.0032                     | < 0.0044            | < 0.0048        | < 0.0047                      | 0.091                    | < 0.0081            | < 0.0047      |
|                 |                 | 09/27/13    | 0.055                      | 0.047                      | 0.028               | 0.0064                | < 0.0057          | < 0.0036                  | < 0.0029              | < 0.0034                    | < 0.0048                  | < 0.0044                    | < 0.0035        | < 0.0032                     | < 0.0044            | 0.012           | < 0.0047                      | 0.45                     | 0.017               | 0.0068        |





Table 2. Groundwater Analytical Results - Polynuclear Aromatic Hydrocarbon (PAHs, µg/L)

2013 Groundwater Quality Update  
Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site  
21st and School Streets, Two Rivers, Wisconsin  
BRRTS# : 0236000255

USEPA# : WIN000509953

| Sample Location | Field Duplicate | Sample Date | 1-Methylnaphthalene (ug/l) | 2-Methylnaphthalene (ug/l) | Acenaphthene (ug/l) | Acenaphthylene (ug/l) | Anthracene (ug/l) | Benzo(a)anthracene (ug/l) | Benzo(a)pyrene (ug/l) | Benzo(b)fluoranthene (ug/l) | Benzo(ghi)perylene (ug/l) | Benzo(k)fluoranthene (ug/l) | Chrysene (ug/l) | Dibenz(a,h)anthracene (ug/l) | Fluoranthene (ug/l) | Fluorene (ug/l) | Indeno(1,2,3-cd)pyrene (ug/l) | Naphthalene (PAH) (ug/l) | Phenanthrene (ug/l) | Pyrene (ug/l) |
|-----------------|-----------------|-------------|----------------------------|----------------------------|---------------------|-----------------------|-------------------|---------------------------|-----------------------|-----------------------------|---------------------------|-----------------------------|-----------------|------------------------------|---------------------|-----------------|-------------------------------|--------------------------|---------------------|---------------|
| WI Action Limit |                 |             | 0.97                       | 27                         | 400                 | 400                   | 3000              | 0.029                     | 0.2                   | 0.2                         | 250                       | 0.29                        | 0.2             | 0.0029                       | 400                 | 400             | 0.029                         | 100                      | 3000                | 250           |
| QC01            | MW604           | 10/04/05    | 59                         | < 4.7                      | 25                  | 1.4                   | 5.3               | < 1.6                     | < 1.8                 | < 1.6                       | < 1.9                     | < 1.9                       | < 1.9           | < 1.9                        | 2.6                 | 14              | < 1.9                         | 75                       | 21                  | 3.5           |
|                 | MW604           | 09/22/06    | 56                         | < 4.5                      | 18                  | < 3.2                 | < 4.6             | < 6.2                     | < 7.3                 | < 6.3                       | < 7.7                     | < 7.7                       | < 7.6           | < 7.5                        | < 6.2               | 7.4             | < 7.5                         | 93                       | 12                  | < 5.8         |
|                 | MW602           | 10/17/07    | 0.015                      | < 0.011                    | 0.019               | < 0.0081              | 0.018             | < 0.016                   | < 0.018               | < 0.016                     | < 0.019                   | < 0.019                     | < 0.019         | < 0.019                      | < 0.015             | 0.013           | < 0.019                       | < 0.012                  | 0.023               | < 0.015       |
|                 | MW604           | 10/02/08    | 70.8                       | < 4.3                      | 34.6                | < 2                   | 10.8              | < 1.4                     | < 2.2                 | < 2.1                       | < 2.5                     | < 3.1                       | < 2.8           | < 1.7                        | 3.5                 | 21              | < 1.4                         | < 6.6                    | 31.5                | 3.2           |
|                 | MW602           | 09/30/09    | 0.53                       | 0.39                       | 0.45                | 0.064                 | 0.17              | 0.056                     | 0.059                 | 0.023                       | 0.027                     | 0.03                        | 0.048           | < 0.0064                     | 0.099               | 0.25            | 0.02                          | 1.1                      | 0.49                | 0.16          |
|                 | MW602           | 09/28/10    | 0.029                      | 0.035                      | 0.021               | 0.0085                | 0.022             | 0.0063                    | 0.0056                | < 0.0036                    | < 0.0051                  | < 0.0046                    | 0.0068          | < 0.0034                     | 0.013               | 0.013           | < 0.005                       | 0.11                     | 0.031               | 0.015         |
|                 | MW601R          | 09/20/11    | 0.0066                     | 0.009                      | 0.0059              | 0.0066                | 0.0066            | 0.0063                    | 0.0096                | 0.0057                      | 0.0093                    | 0.0086                      | 0.012           | < 0.0032                     | 0.01                | < 0.0048        | 0.006                         | 0.019                    | < 0.0081            | 0.019         |
|                 | MW612           | 09/20/12    | 6.6                        | 0.1                        | 2.3                 | 0.44                  | 0.39              | < 0.072                   | < 0.057               | < 0.068                     | < 0.096                   | < 0.087                     | < 0.07          | < 0.064                      | 0.13                | 2.5             | < 0.094                       | 0.96                     | 1.8                 | 0.12          |
| QC02            | MW601R          | 09/27/13    | 0.2                        | 0.2                        | 0.15                | 0.07                  | 0.074             | 0.05                      | 0.079                 | 0.042                       | 0.058                     | 0.069                       | 0.082           | < 0.013                      | 0.077               | 0.074           | 0.037                         | 1.3                      | 0.17                | 0.15          |
|                 | MW605AR         | 10/04/05    | 20000                      | 22000                      | 3400                | 11000                 | 6200              | 3700                      | 2700                  | 1200                        | 1200                      | 1300                        | 2900            | 310                          | 5900                | 5900            | 920                           | 50000                    | 19000               | 8700          |
|                 | MW603B          | 09/22/06    | 3.3                        | < 0.11                     | 2.3                 | 2.6                   | 1                 | 0.45                      | 0.18                  | < 0.16                      | < 0.19                    | < 0.19                      | 0.4             | < 0.19                       | 1.8                 | 0.53            | < 0.19                        | 0.65                     | 2                   | 2.5           |
|                 | MW612           | 10/17/07    | 3.3                        | < 0.22                     | 2.9                 | 0.95                  | 1.2               | < 0.31                    | < 0.37                | < 0.31                      | < 0.39                    | < 0.39                      | < 0.38          | < 0.38                       | 0.7                 | 3.5             | < 0.38                        | 1.5                      | 8.2                 | 0.74          |
|                 | MW602           | 10/02/08    | 0.15                       | 0.019                      | 0.083               | 0.0055                | 0.023             | < 0.0035                  | < 0.0054              | < 0.0051                    | < 0.0062                  | < 0.0078                    | < 0.007         | < 0.0043                     | 0.0092              | 0.062           | < 0.0036                      | 0.025                    | 0.078               | 0.0069        |
|                 | MW603B          | 09/30/09    | 0.11                       | 0.07                       | 0.11                | 0.016                 | 0.038             | 0.0097                    | 0.0074                | 0.0052                      | 0.0055                    | 0.0048                      | 0.0092          | < 0.0032                     | 0.024               | 0.068           | < 0.0047                      | 0.22                     | 0.13                | 0.033         |
|                 | MW608B          | 09/28/10    | 0.0065                     | 0.0074                     | 0.0059              | 0.0066                | 0.0098            | 0.0073                    | 0.005                 | 0.0048                      | < 0.0051                  | < 0.0046                    | 0.011           | < 0.0034                     | 0.013               | 0.0073          | < 0.005                       | 0.034                    | 0.015               | 0.022         |
|                 | MW602           | 09/20/11    | 0.0078                     | 0.019                      | 0.011               | < 0.0036              | 0.013             | < 0.0036                  | < 0.0029              | < 0.0034                    | < 0.0048                  | < 0.0044                    | < 0.0035        | < 0.0032                     | 0.0053              | < 0.0048        | < 0.0047                      | 0.02                     | 0.0095              | < 0.0047      |
|                 | MW604           | 09/20/12    | 77.9                       | 3.5                        | 36.5                | 7.3                   | 10.9              | 4.1                       | 6.8                   | 2.6                         | 3.5                       | 3.7                         | 4.9             | 0.69                         | 8                   | 24              | 2.2                           | 28.2                     | 39.1                | 10            |
|                 | MW604           | 09/27/13    | 37                         | < 0.39                     | 21.7                | 1.1                   | 4                 | < 0.37                    | < 0.29                | < 0.34                      | < 0.49                    | < 0.44                      | < 0.35          | < 0.32                       | 1.5                 | 10.5            | < 0.47                        | < 0.49                   | 15                  | 2.3           |

Notes:

1) Parameters that attain or exceed the screening level are identified in bold.

2) The hierarchy for the WI Screening Level is MCL, WI NR 140, RSL.

3) Reference the laboratory analytical report for full list of compounds analyzed.

<2.0: Parameter not detected above the Limit of Detection indicated.

--: Analysis not performed.

QC: Quality Control duplicate sample.

TB: Trip Blank for QA/QC

O:NDK 2/13 C:DNV 2/13



**Table 3. Groundwater Elevations and Monitoring Well Construction Details**  
**Groundwater Quality Update Transmittal**  
**Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site**  
**21st and School Streets, Two Rivers, Wisconsin**  
**BRRTS# 0236000255                      USEPA# WIN000509953**

| Sample Location                  | Date     | TOC Elevation (NGVD)                | Ground Surface Elevation (NGVD) | Total Well Depth from TOC (feet) | Well Screen Length (feet) | Top of Screen Elevation (NGVD) | Bottom of Screen Elevation (NGVD) | Depth to Water from TOC (feet) | Groundwater Elevation (NGVD) | Middle of Screen Elevation (NGVD) | Vertical Gradient |
|----------------------------------|----------|-------------------------------------|---------------------------------|----------------------------------|---------------------------|--------------------------------|-----------------------------------|--------------------------------|------------------------------|-----------------------------------|-------------------|
| MW601                            | 12/07/94 | 586.25                              | 583.85                          | 13.54                            | 10                        | 582.71                         | 572.71                            | 3.40                           | 582.85                       | --                                | --                |
|                                  | 12/08/94 |                                     |                                 |                                  |                           |                                |                                   | 3.40                           | 582.85                       | --                                | --                |
|                                  | 12/21/94 |                                     |                                 |                                  |                           |                                |                                   | 3.53                           | 582.72                       | --                                | --                |
|                                  | 01/10/95 |                                     |                                 |                                  |                           |                                |                                   | 4.33                           | 581.92                       | --                                | --                |
|                                  | 01/30/95 |                                     |                                 |                                  |                           |                                |                                   | 3.80                           | 582.45                       | --                                | --                |
|                                  | 06/24/02 |                                     |                                 |                                  |                           |                                |                                   | 3.20                           | 583.05                       | --                                | --                |
|                                  | 07/02/03 |                                     |                                 |                                  |                           |                                |                                   | 4.95                           | 581.30                       | --                                | --                |
|                                  | 10/16/03 |                                     |                                 |                                  |                           |                                |                                   | * (bent)                       | *                            |                                   |                   |
| <b>Monitoring Well Abandoned</b> |          |                                     |                                 |                                  |                           |                                |                                   |                                |                              |                                   |                   |
| MW601R                           | 08/03/04 | 586.44                              | 583.89                          | 15.55                            | 10                        | 580.89                         | 570.89                            | 3.80                           | 582.64                       | --                                | --                |
|                                  | 10/04/05 |                                     |                                 |                                  |                           |                                |                                   | 4.39                           | 582.05                       | --                                | --                |
|                                  | 09/22/06 |                                     |                                 |                                  |                           |                                |                                   | 4.04                           | 582.40                       | --                                | --                |
|                                  | 10/16/07 |                                     |                                 |                                  |                           |                                |                                   | 3.91                           | 582.53                       | --                                | --                |
|                                  | 11/15/07 | Trimmed well approximately 6 inches |                                 |                                  |                           |                                |                                   |                                |                              |                                   |                   |
|                                  | 10/02/08 |                                     |                                 |                                  |                           |                                |                                   | 5.00                           | 580.94                       | --                                | --                |
|                                  | 09/30/09 |                                     |                                 |                                  |                           |                                |                                   | 4.02                           | 581.92                       | --                                | --                |
|                                  | 09/28/10 |                                     |                                 |                                  |                           |                                |                                   | 4.28                           | 581.66                       | --                                | --                |
|                                  | 09/20/11 |                                     |                                 |                                  |                           |                                |                                   | 5.42                           | 580.52                       | --                                | --                |
|                                  | 09/20/12 |                                     |                                 |                                  |                           |                                |                                   | 4.90                           | 581.04                       | --                                | --                |
|                                  | 09/27/13 |                                     |                                 |                                  |                           |                                |                                   | 4.97                           | 580.97                       | --                                | --                |
| MW602                            | 12/07/94 | 586.83                              | 584.35                          | 14.18                            | 10                        | 582.65                         | 572.65                            | 3.45                           | 583.38                       | --                                | --                |
|                                  | 12/21/94 |                                     |                                 |                                  |                           |                                |                                   | 3.38                           | 583.45                       | --                                | --                |
|                                  | 01/10/95 |                                     |                                 |                                  |                           |                                |                                   | 4.64                           | 582.19                       | --                                | --                |
|                                  | 01/30/95 |                                     |                                 |                                  |                           |                                |                                   | 3.92                           | 582.91                       | --                                | --                |
|                                  | 06/24/02 |                                     |                                 |                                  |                           |                                |                                   | 3.50                           | 583.33                       | --                                | --                |
|                                  | 07/02/03 |                                     |                                 |                                  |                           |                                |                                   | 4.85                           | 581.98                       | --                                | --                |
|                                  | 10/16/03 |                                     |                                 |                                  |                           |                                |                                   | 4.85                           | 581.98                       | --                                | --                |
|                                  | 08/03/04 |                                     |                                 |                                  |                           |                                |                                   | 4.09                           | 582.74                       | --                                | --                |
|                                  | 10/04/05 |                                     |                                 |                                  |                           |                                |                                   | 4.91                           | 581.92                       | --                                | --                |
|                                  | 09/22/06 |                                     |                                 |                                  |                           |                                |                                   | 4.04                           | 582.79                       | --                                | --                |
|                                  | 10/17/07 |                                     |                                 |                                  |                           |                                |                                   | 3.22                           | 583.61                       | --                                | --                |
|                                  | 10/02/08 |                                     |                                 |                                  |                           |                                |                                   | 5.52                           | 581.31                       | --                                | --                |
|                                  | 09/30/09 |                                     |                                 |                                  |                           |                                |                                   | 4.22                           | 582.61                       | --                                | --                |
|                                  | 09/28/10 |                                     |                                 |                                  |                           |                                |                                   | 4.31                           | 582.52                       | --                                | --                |
|                                  | 09/20/11 |                                     |                                 |                                  |                           |                                |                                   | 5.22                           | 581.61                       | --                                | --                |
|                                  | 09/20/12 |                                     |                                 |                                  |                           |                                |                                   | Well Damaged                   |                              | --                                | --                |
|                                  | 09/27/13 |                                     |                                 |                                  |                           |                                |                                   | Well Damaged                   |                              | --                                | --                |
| MW603A                           | 12/07/94 | 585.53                              | 582.95                          | 14.50                            | 10                        | 581.03                         | 571.03                            | 3.23                           | 582.30                       | --                                | 1.2E-02 D         |
|                                  | 12/21/94 |                                     |                                 |                                  |                           |                                |                                   | 3.73                           | 581.80                       | --                                | -7.7E-03 U        |
|                                  | 01/10/95 |                                     |                                 |                                  |                           |                                |                                   | 4.43                           | 581.10                       | --                                | -2.7E-02 U        |
|                                  | 01/30/95 |                                     |                                 |                                  |                           |                                |                                   | ***                            | ***                          | --                                | ***               |
|                                  | 06/24/02 |                                     |                                 |                                  |                           |                                |                                   | 4.00                           | 581.53                       | --                                | -3.4E-02 U        |
|                                  | 07/02/03 |                                     |                                 |                                  |                           |                                |                                   | 4.44                           | 581.09                       | --                                | -7.9E-04 U        |
|                                  | 10/16/03 |                                     |                                 |                                  |                           |                                |                                   | 5.65                           | 579.88                       | --                                | 1.7E-01 D         |
|                                  | 08/03/04 |                                     |                                 |                                  |                           |                                |                                   | 3.61                           | 581.92                       | --                                | 1.3E-02 D         |
|                                  | 10/04/05 |                                     |                                 |                                  |                           |                                |                                   | 4.15                           | 581.38                       | --                                | 2.8E-02 D         |
|                                  | 09/22/06 |                                     |                                 |                                  |                           |                                |                                   | 3.95                           | 581.58                       | --                                | 5.8E-03 D         |
|                                  | 10/17/07 |                                     |                                 |                                  |                           |                                |                                   | 3.59                           | 581.94                       | --                                | 2.6E-02 D         |
|                                  | 10/02/08 |                                     |                                 |                                  |                           |                                |                                   | 6.25                           | 579.28                       | --                                | -2.8E-02 U        |
|                                  | 09/30/09 |                                     |                                 |                                  |                           |                                |                                   | 4.18                           | 581.35                       | --                                | -2.0E-03 U        |
|                                  | 09/28/10 |                                     |                                 |                                  |                           |                                |                                   | 4.06                           | 581.47                       | --                                | 1.2E-03 D         |
|                                  | 09/20/11 |                                     |                                 |                                  |                           |                                |                                   | 6.04                           | 579.49                       | --                                | -1.9E-02 U        |
|                                  | 09/20/12 |                                     |                                 |                                  |                           |                                |                                   | 5.18                           | 580.35                       | --                                | -6.5E-03 U        |
|                                  | 09/27/13 |                                     |                                 |                                  |                           |                                |                                   | 5.18                           | 580.35                       | --                                | 3.7E-03 D         |

**Table 3. Groundwater Elevations and Monitoring Well Construction Details**  
**Groundwater Quality Update Transmittal**  
**Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site**  
**21st and School Streets, Two Rivers, Wisconsin**  
**BRRTS# 0236000255                      USEPA# WIN000509953**

| Sample Location                  | Date     | TOC Elevation (NGVD) | Ground Surface Elevation (NGVD) | Total Well Depth from TOC (feet) | Well Screen Length (feet) | Top of Screen Elevation (NGVD) | Bottom of Screen Elevation (NGVD) | Depth to Water from TOC (feet) | Groundwater Elevation (NGVD) | Middle of Screen Elevation (NGVD) | Vertical Gradient |
|----------------------------------|----------|----------------------|---------------------------------|----------------------------------|---------------------------|--------------------------------|-----------------------------------|--------------------------------|------------------------------|-----------------------------------|-------------------|
| MW603B                           | 12/07/94 | 585.25               | 582.85                          | 31.99                            | 5                         | 558.26                         | 553.26                            | 3.26                           | 581.99                       | 555.76                            |                   |
|                                  | 12/08/94 |                      |                                 |                                  |                           |                                |                                   | 3.25                           | 582.00                       |                                   |                   |
|                                  | 12/21/94 |                      |                                 |                                  |                           |                                |                                   | 3.46                           | 581.79                       |                                   |                   |
|                                  | 01/10/95 |                      |                                 |                                  |                           |                                |                                   | 3.97                           | 581.28                       |                                   |                   |
|                                  | 01/30/95 |                      |                                 |                                  |                           |                                |                                   | ***                            | ***                          |                                   |                   |
|                                  | 06/24/02 |                      |                                 |                                  |                           |                                |                                   | 2.85                           | 582.40                       |                                   |                   |
|                                  | 07/02/03 |                      |                                 |                                  |                           |                                |                                   | 4.14                           | 581.11                       |                                   |                   |
|                                  | 10/16/03 |                      |                                 |                                  |                           |                                |                                   | 9.57                           | 575.68                       |                                   |                   |
|                                  | 08/03/04 |                      |                                 |                                  |                           |                                |                                   | 3.67                           | 581.58                       |                                   |                   |
|                                  | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 4.59                           | 580.66                       |                                   |                   |
|                                  | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 3.82                           | 581.43                       |                                   |                   |
|                                  | 10/17/07 |                      |                                 |                                  |                           |                                |                                   | 3.99                           | 581.26                       |                                   |                   |
|                                  | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | 5.30                           | 579.95                       |                                   |                   |
|                                  | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 3.85                           | 581.40                       |                                   |                   |
|                                  | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 3.81                           | 581.44                       |                                   |                   |
| MW604                            | 12/08/94 | 586.57               | 584.35                          | 14.22                            | 10                        | 582.35                         | 572.35                            | 4.81                           | 581.76                       | --                                | --                |
|                                  | 12/21/94 |                      |                                 |                                  |                           |                                |                                   | 4.97                           | 581.60                       | --                                | --                |
|                                  | 01/10/95 |                      |                                 |                                  |                           |                                |                                   | 5.42                           | 581.15                       | --                                | --                |
|                                  | 01/30/95 |                      |                                 |                                  |                           |                                |                                   | 4.87                           | 581.70                       | --                                | --                |
|                                  | 06/24/02 |                      |                                 |                                  |                           |                                |                                   | 4.30                           | 582.27                       | --                                | --                |
|                                  | 07/02/03 |                      |                                 |                                  |                           |                                |                                   | 5.25                           | 581.32                       | --                                | --                |
|                                  | 10/16/03 |                      |                                 |                                  |                           |                                |                                   | 7.80                           | 578.77                       | --                                | --                |
|                                  | 08/03/04 |                      |                                 |                                  |                           |                                |                                   | 4.84                           | 581.73                       | --                                | --                |
|                                  | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 5.64                           | 580.93                       | --                                | --                |
|                                  | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 4.14                           | 582.43                       | --                                | --                |
|                                  | 10/16/07 |                      |                                 |                                  |                           |                                |                                   | 4.91                           | 581.66                       | --                                | --                |
|                                  | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | 6.50                           | 580.07                       | --                                | --                |
|                                  | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 5.18                           | 581.39                       | --                                | --                |
|                                  | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 5.35                           | 581.22                       | --                                | --                |
|                                  | 09/20/11 |                      |                                 |                                  |                           |                                |                                   | 6.90                           | 579.67                       | --                                | --                |
| MW605A                           | 09/20/12 |                      |                                 |                                  |                           |                                |                                   | 5.87                           | 580.70                       | --                                | --                |
|                                  | 09/27/13 |                      |                                 |                                  |                           |                                |                                   | 6.03                           | 580.54                       | --                                | --                |
|                                  | 12/08/94 | 585.65               | 583.05                          | 14.37                            | 10                        | 581.28                         | 571.28                            | 4.04                           | 581.61                       | --                                | 1.0E-02 D         |
|                                  | 12/21/94 |                      |                                 |                                  |                           |                                |                                   | 4.04                           | 581.61                       | --                                | 1.4E-02 D         |
|                                  | 01/10/95 |                      |                                 |                                  |                           |                                |                                   | 4.98                           | 580.67                       | --                                | -5.2E-03 U        |
|                                  | 01/30/95 |                      |                                 |                                  |                           |                                |                                   | 4.22                           | 581.43                       | --                                | 6.1E-03 D         |
|                                  | 06/24/02 |                      |                                 |                                  |                           |                                |                                   | 3.72                           | 581.93                       | --                                | 1.5E-02 D         |
| MW605AR                          | 07/02/03 |                      |                                 |                                  |                           |                                |                                   | *(obstruction)                 | *                            |                                   |                   |
|                                  | 10/16/03 |                      |                                 |                                  |                           |                                |                                   | *(obstruction)                 | *                            |                                   |                   |
| <b>Monitoring Well Abandoned</b> |          |                      |                                 |                                  |                           |                                |                                   |                                |                              |                                   |                   |
| MW605AR                          | 08/03/04 | 585.48               | 583.16                          | 15.32                            | 10                        | 580.16                         | 570.16                            | 4.86                           | 580.62                       | --                                | -2.1E-03 U        |
|                                  | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 6.88                           | 578.60                       | --                                | -2.6E-02 U        |
|                                  | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 5.11                           | 580.37                       | --                                | -3.5E-02 U        |
|                                  | 10/17/07 |                      |                                 |                                  |                           |                                |                                   | 5.97                           | 579.51                       | --                                | -1.3E-02 U        |
|                                  | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | 6.99                           | 578.49                       | --                                | -7.9E-02 U        |
|                                  | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 5.35                           | 580.13                       | --                                | 5.1E-02 D         |
|                                  | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 5.30                           | 580.18                       | --                                | -1.2E-02 U        |
|                                  | 09/20/11 |                      |                                 |                                  |                           |                                |                                   | 6.23                           | 579.25                       | --                                | -1.2E-02 U        |
|                                  | 09/20/12 |                      |                                 |                                  |                           |                                |                                   | 6.35                           | 579.13                       | --                                | -5.3E-02 U        |
|                                  | 09/27/13 |                      |                                 |                                  |                           |                                |                                   | 7.01                           | 578.47                       | --                                | -1.3E-02 U        |

**Table 3. Groundwater Elevations and Monitoring Well Construction Details**  
**Groundwater Quality Update Transmittal**  
**Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site**  
**21st and School Streets, Two Rivers, Wisconsin**  
**BRRTS# 0236000255                      USEPA# WIN000509953**

| Sample Location                  | Date     | TOC Elevation (NGVD) | Ground Surface Elevation (NGVD) | Total Well Depth from TOC (feet)                    | Well Screen Length (feet) | Top of Screen Elevation (NGVD) | Bottom of Screen Elevation (NGVD) | Depth to Water from TOC (feet) | Groundwater Elevation (NGVD) | Middle of Screen Elevation (NGVD) | Vertical Gradient |
|----------------------------------|----------|----------------------|---------------------------------|-----------------------------------------------------|---------------------------|--------------------------------|-----------------------------------|--------------------------------|------------------------------|-----------------------------------|-------------------|
| MW605B                           | 12/08/94 | 585.80               | 583.05                          | 34.71                                               | 5                         | 556.09                         | 551.09                            | 4.48                           | 581.32                       | 553.59                            |                   |
|                                  | 12/21/94 |                      |                                 |                                                     |                           |                                |                                   | 4.59                           | 581.21                       |                                   |                   |
|                                  | 01/10/95 |                      |                                 |                                                     |                           |                                |                                   | 4.99                           | 580.81                       |                                   |                   |
|                                  | 01/30/95 |                      |                                 |                                                     |                           |                                |                                   | 4.54                           | 581.26                       |                                   |                   |
|                                  | 06/24/02 |                      |                                 |                                                     |                           |                                |                                   | 4.30                           | 581.50                       |                                   |                   |
|                                  | 07/02/03 |                      |                                 |                                                     |                           |                                |                                   | 5.43                           | 580.37                       |                                   |                   |
|                                  | 10/16/03 |                      |                                 |                                                     |                           |                                |                                   | 6.49                           | 579.31                       |                                   |                   |
|                                  | 08/03/04 |                      |                                 |                                                     |                           |                                |                                   | 5.12                           | 580.68                       |                                   |                   |
|                                  | 10/04/05 |                      |                                 |                                                     |                           |                                |                                   | 6.55                           | 579.25                       |                                   |                   |
|                                  | 09/22/06 |                      |                                 |                                                     |                           |                                |                                   | 4.48                           | 581.32                       |                                   |                   |
|                                  | 10/17/07 |                      |                                 |                                                     |                           |                                |                                   | 5.94                           | 579.86                       |                                   |                   |
|                                  | 10/02/08 |                      |                                 |                                                     |                           |                                |                                   | 6.52                           | 579.28                       |                                   |                   |
|                                  | 09/30/09 |                      |                                 |                                                     |                           |                                |                                   | 5.35                           | 580.45                       |                                   |                   |
|                                  | 09/28/10 |                      |                                 |                                                     |                           |                                |                                   | 5.29                           | 580.51                       |                                   |                   |
|                                  | 09/20/11 |                      |                                 |                                                     |                           |                                |                                   | 6.25                           | 579.55                       |                                   |                   |
|                                  | 09/20/12 |                      |                                 |                                                     |                           |                                |                                   | 5.32                           | 580.48                       |                                   |                   |
|                                  | 09/27/13 |                      |                                 |                                                     |                           |                                |                                   | 7.01                           | 578.79                       |                                   |                   |
| MW606                            | 12/08/94 | 585.15               | 582.75                          | 14.59                                               | 10                        | 580.56                         | 570.56                            | 3.38                           | 581.77                       | --                                | --                |
|                                  | 12/21/94 |                      |                                 |                                                     |                           |                                |                                   | 3.51                           | 581.64                       | --                                | --                |
|                                  | 01/10/95 |                      |                                 |                                                     |                           |                                |                                   | 3.99                           | 581.16                       | --                                | --                |
|                                  | 01/30/95 |                      |                                 |                                                     |                           |                                |                                   | ice                            | ice                          | --                                | --                |
|                                  | 06/24/02 |                      |                                 | (6.10 - well vandalized, possibly filled with sand) |                           |                                |                                   | 3.00                           | 582.15                       | --                                | --                |
|                                  | 07/02/03 |                      |                                 |                                                     |                           |                                |                                   | 4.06                           | 581.09                       | --                                | --                |
|                                  | 10/16/03 |                      |                                 |                                                     |                           |                                |                                   | 5.62                           | 579.53                       | --                                | --                |
| <b>Monitoring Well Abandoned</b> |          |                      |                                 |                                                     |                           |                                |                                   |                                |                              |                                   |                   |
| MW606R                           | 08/03/04 | 585.78               | 582.99                          | 16.79                                               | 10                        | 578.99                         | 568.99                            | 3.91                           | 581.87                       | --                                | --                |
|                                  | 10/04/05 |                      |                                 |                                                     |                           |                                |                                   | 4.95                           | 580.83                       | --                                | --                |
|                                  | 09/22/06 |                      |                                 |                                                     |                           |                                |                                   | 5.00                           | 580.78                       | --                                | --                |
|                                  | 10/16/07 |                      |                                 |                                                     |                           |                                |                                   | 4.49                           | 581.29                       | --                                | --                |
|                                  | 10/02/08 |                      |                                 |                                                     |                           |                                |                                   | 6.61                           | 579.17                       | --                                | --                |
|                                  | 09/30/09 |                      |                                 |                                                     |                           |                                |                                   | 4.31                           | 581.47                       | --                                | --                |
|                                  | 09/28/10 |                      |                                 |                                                     |                           |                                |                                   | 4.50                           | 581.28                       | --                                | --                |
|                                  | 09/20/11 |                      |                                 |                                                     |                           |                                |                                   | 6.84                           | 578.94                       | --                                | --                |
|                                  | 09/20/12 |                      |                                 |                                                     |                           |                                |                                   | 5.20                           | 580.58                       | --                                | --                |
|                                  | 09/27/13 |                      |                                 |                                                     |                           |                                |                                   | 6.38                           | 579.40                       | --                                | --                |
| MW607A                           | 12/08/94 | 584.61               | 581.65                          | 15.86                                               | 10                        | 578.75                         | 568.75                            | 4.18                           | 580.43                       | --                                | -4.6E-03 U        |
|                                  | 12/21/94 |                      |                                 |                                                     |                           |                                |                                   | 4.31                           | 580.30                       | --                                | -9.6E-03 U        |
|                                  | 01/10/95 |                      |                                 |                                                     |                           |                                |                                   | 4.87                           | 579.74                       | --                                | -1.9E-02 U        |
|                                  | 01/30/95 |                      |                                 |                                                     |                           |                                |                                   | 4.41                           | 580.20                       | --                                | -1.5E-02 U        |
|                                  | 06/24/02 |                      |                                 |                                                     |                           |                                |                                   | 4.20                           | 580.41                       | --                                | -2.6E-02 U        |
|                                  | 07/02/03 |                      |                                 |                                                     |                           |                                |                                   | 5.29                           | 579.32                       | --                                | -5.9E-02 U        |
|                                  | 10/16/03 |                      |                                 |                                                     |                           |                                |                                   | 6.10                           | 578.51                       | --                                | -3.8E-03 U        |
|                                  | 08/03/04 |                      |                                 |                                                     |                           |                                |                                   | 4.80                           | 579.81                       | --                                | -1.5E-02 U        |
|                                  | 10/04/05 |                      |                                 |                                                     |                           |                                |                                   | 5.91                           | 578.70                       | --                                | -7.5E-03 U        |
|                                  | 09/22/06 |                      |                                 |                                                     |                           |                                |                                   | 5.08                           | 579.53                       | --                                | -4.7E-03 U        |
|                                  | 10/17/07 |                      |                                 |                                                     |                           |                                |                                   | 5.28                           | 579.33                       | --                                | -1.4E-03 U        |
|                                  | 10/02/08 |                      |                                 |                                                     |                           |                                |                                   | 6.63                           | 577.98                       | --                                | -2.6E-02 U        |
|                                  | 09/30/09 |                      |                                 |                                                     |                           |                                |                                   | 5.20                           | 579.41                       | --                                | -1.9E-02 U        |
|                                  | 09/28/10 |                      |                                 |                                                     |                           |                                |                                   | 5.31                           | 579.30                       | --                                | -1.8E-02 U        |
|                                  | 09/20/11 |                      |                                 |                                                     |                           |                                |                                   | 7.00                           | 577.61                       | --                                | -3.3E-02 U        |
|                                  | 09/20/12 |                      |                                 |                                                     |                           |                                |                                   | 6.22                           | 578.39                       | --                                | -1.8E-02 U        |
|                                  | 09/27/13 |                      |                                 |                                                     |                           |                                |                                   | 6.68                           | 577.93                       | --                                | -2.5E-02 U        |

**Table 3. Groundwater Elevations and Monitoring Well Construction Details**  
**Groundwater Quality Update Transmittal**  
**Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site**  
**21st and School Streets, Two Rivers, Wisconsin**  
**BRRTS# 0236000255                      USEPA# WIN000509953**

| Sample Location           | Date     | TOC Elevation (NGVD) | Ground Surface Elevation (NGVD) | Total Well Depth from TOC (feet) | Well Screen Length (feet) | Top of Screen Elevation (NGVD) | Bottom of Screen Elevation (NGVD) | Depth to Water from TOC (feet) | Groundwater Elevation (NGVD) | Middle of Screen Elevation (NGVD) | Vertical Gradient |
|---------------------------|----------|----------------------|---------------------------------|----------------------------------|---------------------------|--------------------------------|-----------------------------------|--------------------------------|------------------------------|-----------------------------------|-------------------|
| MW607B                    | 12/08/94 | 584.26               | 581.75                          | 34.70                            | 5                         | 554.56                         | 549.56                            | 3.70                           | 580.56                       | 552.06                            |                   |
|                           | 12/21/94 |                      |                                 |                                  |                           |                                |                                   | 3.69                           | 580.57                       |                                   |                   |
|                           | 01/10/95 |                      |                                 |                                  |                           |                                |                                   | 3.99                           | 580.27                       |                                   |                   |
|                           | 01/30/95 |                      |                                 |                                  |                           |                                |                                   | 3.65                           | 580.61                       |                                   |                   |
|                           | 06/24/02 |                      |                                 |                                  |                           |                                |                                   | 3.10                           | 581.16                       |                                   |                   |
|                           | 07/02/03 |                      |                                 |                                  |                           |                                |                                   | 3.32                           | 580.94                       |                                   |                   |
|                           | 10/16/03 |                      |                                 |                                  |                           |                                |                                   | 5.65                           | 578.61                       |                                   |                   |
| Monitoring Well Abandoned |          |                      |                                 |                                  |                           |                                |                                   |                                |                              |                                   |                   |
| MW607BR                   | 08/03/04 | 584.59               | 581.70                          | 34.9                             | 5                         | 554.69                         | 549.69                            | 4.36                           | 580.23                       | 552.19                            |                   |
|                           | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 5.69                           | 578.90                       |                                   |                   |
|                           | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 4.93                           | 579.66                       |                                   |                   |
|                           | 10/17/07 |                      |                                 |                                  |                           |                                |                                   | 5.22                           | 579.37                       |                                   |                   |
|                           | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | 5.94                           | 578.65                       |                                   |                   |
|                           | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 4.67                           | 579.92                       |                                   |                   |
|                           | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 4.80                           | 579.79                       |                                   |                   |
|                           | 09/20/11 |                      |                                 |                                  |                           |                                |                                   | 6.15                           | 578.44                       |                                   |                   |
|                           | 09/20/12 |                      |                                 |                                  |                           |                                |                                   | 5.73                           | 578.86                       |                                   |                   |
|                           | 09/27/13 |                      |                                 |                                  |                           |                                |                                   | 6.02                           | 578.57                       |                                   |                   |
| MW608A                    | 12/08/94 | 583.37               | 581.15                          | 15.19                            | 10                        | 578.18                         | 568.18                            | 2.80                           | 580.57                       | --                                | 5.1E-01 D         |
|                           | 12/21/94 |                      |                                 |                                  |                           |                                |                                   | 2.87                           | 580.50                       | --                                | -4.8E-03 U        |
|                           | 01/10/95 |                      |                                 |                                  |                           |                                |                                   | 3.32                           | 580.05                       | --                                | -1.2E-02 U        |
|                           | 01/30/95 |                      |                                 |                                  |                           |                                |                                   | 2.92                           | 580.45                       | --                                | -7.8E-03 U        |
|                           | 06/24/02 |                      |                                 |                                  |                           |                                |                                   | 2.70                           | 580.67                       | --                                | -5.1E-03 U        |
|                           | 07/02/03 |                      |                                 |                                  |                           |                                |                                   | 3.93                           | 579.44                       | --                                | -9.2E-03 U        |
|                           | 10/16/03 |                      |                                 |                                  |                           |                                |                                   | 9.77                           | 573.60                       | --                                | -2.3E-01 U        |
|                           | 08/03/04 |                      |                                 |                                  |                           |                                |                                   | 3.52                           | 579.85                       | --                                | -1.0E-02 U        |
|                           | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 4.96                           | 578.41                       | --                                | -9.5E-03 U        |
|                           | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 3.76                           | 579.61                       | --                                | 2.5E-03 D         |
|                           | 10/17/07 |                      |                                 |                                  |                           |                                |                                   | 4.21                           | 579.16                       | --                                | -1.8E-03 U        |
|                           | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | 5.50                           | 577.87                       | --                                | -2.5E-02 U        |
|                           | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 3.90                           | 579.47                       | --                                | -1.3E-02 U        |
|                           | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 4.08                           | 579.29                       | --                                | -1.7E-02 U        |
|                           | 09/20/11 |                      |                                 |                                  |                           |                                |                                   | 5.70                           | 577.67                       | --                                | -1.1E-02 U        |
|                           | 09/20/12 |                      |                                 |                                  |                           |                                |                                   | 5.06                           | 578.31                       | --                                | -2.6E-02 U        |
|                           | 09/27/13 |                      |                                 |                                  |                           |                                |                                   | 5.45                           | 577.92                       | --                                | -2.2E-02 U        |
| MW608B                    | 12/08/94 | 584.15               | 581.75                          | 35.54                            | 5                         | 553.61                         | 548.61                            | 18.65                          | 565.50                       | 551.11                            |                   |
|                           | 12/21/94 |                      |                                 |                                  |                           |                                |                                   | 3.51                           | 580.64                       |                                   |                   |
|                           | 01/10/95 |                      |                                 |                                  |                           |                                |                                   | 3.76                           | 580.39                       |                                   |                   |
|                           | 01/30/95 |                      |                                 |                                  |                           |                                |                                   | 3.47                           | 580.68                       |                                   |                   |
|                           | 06/24/02 |                      |                                 |                                  |                           |                                |                                   | 3.33                           | 580.82                       |                                   |                   |
|                           | 07/02/03 |                      |                                 |                                  |                           |                                |                                   | 4.45                           | 579.70                       |                                   |                   |
|                           | 10/16/03 |                      |                                 |                                  |                           |                                |                                   | 5.43                           | 578.72                       |                                   |                   |
|                           | 08/03/04 |                      |                                 |                                  |                           |                                |                                   | 4.01                           | 580.14                       |                                   |                   |
|                           | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 5.48                           | 578.67                       |                                   |                   |
|                           | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 4.61                           | 579.54                       |                                   |                   |
|                           | 10/17/07 |                      |                                 |                                  |                           |                                |                                   | 4.94                           | 579.21                       |                                   |                   |
|                           | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | 5.60                           | 578.55                       |                                   |                   |
|                           | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 4.31                           | 579.84                       |                                   |                   |
|                           | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 4.38                           | 579.77                       |                                   |                   |
|                           | 09/20/11 |                      |                                 |                                  |                           |                                |                                   | 6.19                           | 577.96                       |                                   |                   |
|                           | 09/20/12 |                      |                                 |                                  |                           |                                |                                   | 5.14                           | 579.01                       |                                   |                   |
|                           | 09/27/13 |                      |                                 |                                  |                           |                                |                                   | 5.65                           | 578.50                       |                                   |                   |

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**Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site**  
**21st and School Streets, Two Rivers, Wisconsin**  
**BRRTS# 0236000255                      USEPA# WIN000509953**

| Sample Location | Date     | TOC Elevation (NGVD) | Ground Surface Elevation (NGVD) | Total Well Depth from TOC (feet) | Well Screen Length (feet) | Top of Screen Elevation (NGVD) | Bottom of Screen Elevation (NGVD) | Depth to Water from TOC (feet) | Groundwater Elevation (NGVD) | Middle of Screen Elevation (NGVD) | Vertical Gradient |
|-----------------|----------|----------------------|---------------------------------|----------------------------------|---------------------------|--------------------------------|-----------------------------------|--------------------------------|------------------------------|-----------------------------------|-------------------|
| MW609A          | 12/08/94 | 584.81               | 582.00                          | 14.70                            | 10                        | 580.11                         | 570.11                            | --                             | --                           | --                                | --                |
|                 | 12/21/94 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 01/10/95 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 01/30/95 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 06/24/02 |                      |                                 |                                  |                           |                                |                                   | 4.80                           | 580.01                       | --                                | -3.2E-02 U        |
|                 | 07/02/03 |                      |                                 |                                  |                           |                                |                                   | 6.43                           | 578.38                       | --                                | -5.0E-02 U        |
|                 | 10/16/03 |                      |                                 |                                  |                           |                                |                                   | 6.53                           | 578.28                       | --                                | -2.0E-02 U        |
|                 | 08/03/04 |                      |                                 |                                  |                           |                                |                                   | 5.54                           | 579.27                       | --                                | -3.4E-02 U        |
|                 | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 6.43                           | 578.38                       | --                                | -2.2E-02 U        |
|                 | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 6.13                           | 578.68                       | --                                | -3.2E-02 U        |
|                 | 10/17/07 |                      |                                 |                                  |                           |                                |                                   | 6.14                           | 578.67                       | --                                | -2.9E-02 U        |
|                 | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | *                              | *                            |                                   |                   |
|                 | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 5.68                           | 579.13                       | --                                | -3.1E-02 U        |
|                 | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 6.13                           | 578.68                       | --                                | -4.4E-02 U        |
|                 | 09/20/11 |                      |                                 |                                  |                           |                                |                                   | 6.72                           | 578.09                       | --                                | -1.1E-02 U        |
|                 | 09/20/12 |                      |                                 |                                  |                           |                                |                                   | 6.53                           | 578.28                       | --                                | -1.8E-02 U        |
|                 | 09/27/13 |                      |                                 |                                  |                           |                                |                                   | 6.60                           | 578.21                       | --                                | 4.9E-03 D         |
| MW609B          | 12/08/94 | 584.69               | 582.00                          | 33.00                            | 5                         | 556.69                         | 551.69                            | --                             | --                           | 554.19                            |                   |
|                 | 12/21/94 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           |                                   |                   |
|                 | 01/10/95 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           |                                   |                   |
|                 | 01/30/95 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           |                                   |                   |
|                 | 06/24/02 |                      |                                 |                                  |                           |                                |                                   | 3.85                           | 580.84                       |                                   |                   |
|                 | 07/02/03 |                      |                                 |                                  |                           |                                |                                   | 5.10                           | 579.59                       |                                   |                   |
|                 | 10/16/03 |                      |                                 |                                  |                           |                                |                                   | 5.94                           | 578.75                       |                                   |                   |
|                 | 08/03/04 |                      |                                 |                                  |                           |                                |                                   | 4.56                           | 580.13                       |                                   |                   |
|                 | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 5.78                           | 578.91                       |                                   |                   |
|                 | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 5.22                           | 579.47                       |                                   |                   |
|                 | 10/17/07 |                      |                                 |                                  |                           |                                |                                   | 5.31                           | 579.38                       |                                   |                   |
|                 | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | 6.18                           | 578.51                       |                                   |                   |
|                 | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 4.80                           | 579.89                       |                                   |                   |
|                 | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 4.93                           | 579.76                       |                                   |                   |
|                 | 09/20/11 |                      |                                 |                                  |                           |                                |                                   | 6.35                           | 578.34                       |                                   |                   |
|                 | 09/20/12 |                      |                                 |                                  |                           |                                |                                   | 5.99                           | 578.70                       |                                   |                   |
|                 | 09/27/13 |                      |                                 |                                  |                           |                                |                                   | 6.60                           | 578.09                       |                                   |                   |
| MW610           | 12/08/94 | 585.96               | 583.00                          | 12                               | 10                        | 583.96                         | 573.96                            | --                             | --                           | --                                | --                |
|                 | 12/21/94 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 01/10/95 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 01/30/95 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 10/30/02 |                      |                                 |                                  |                           |                                |                                   | 4.42                           | 581.54                       | --                                | --                |
|                 | 07/02/03 |                      |                                 |                                  |                           |                                |                                   | 4.72                           | 581.24                       | --                                | --                |
|                 | 10/16/03 |                      |                                 |                                  |                           |                                |                                   | 6.33                           | 579.63                       | --                                | --                |
|                 | 08/03/04 |                      |                                 |                                  |                           |                                |                                   | 4.53                           | 581.43                       | --                                | --                |
|                 | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 6.68                           | 579.28                       | --                                | --                |
|                 | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 4.90                           | 581.06                       | --                                | --                |
|                 | 10/17/07 |                      |                                 |                                  |                           |                                |                                   | 5.45                           | 580.51                       | --                                | --                |
|                 | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | 6.80                           | 579.16                       | --                                | --                |
|                 | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 5.03                           | 580.93                       | --                                | --                |
|                 | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 5.15                           | 580.81                       | --                                | --                |
|                 | 09/20/11 |                      |                                 |                                  |                           |                                |                                   | Well Damaged                   |                              |                                   |                   |

**Table 3. Groundwater Elevations and Monitoring Well Construction Details**  
**Groundwater Quality Update Transmittal**  
**Wisconsin Public Service Corporation - Former Two Rivers Manufactured Gas Plant Site**  
**21st and School Streets, Two Rivers, Wisconsin**  
**BRRTS# 0236000255                      USEPA# WIN000509953**

| Sample Location | Date     | TOC Elevation (NGVD) | Ground Surface Elevation (NGVD) | Total Well Depth from TOC (feet) | Well Screen Length (feet) | Top of Screen Elevation (NGVD) | Bottom of Screen Elevation (NGVD) | Depth to Water from TOC (feet) | Groundwater Elevation (NGVD) | Middle of Screen Elevation (NGVD) | Vertical Gradient |
|-----------------|----------|----------------------|---------------------------------|----------------------------------|---------------------------|--------------------------------|-----------------------------------|--------------------------------|------------------------------|-----------------------------------|-------------------|
| MW611           | 12/08/94 | 586.17               | 583.70                          | 12                               | 10                        | 584.17                         | 576.17                            | --                             | --                           | --                                | --                |
|                 | 12/21/94 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 01/10/95 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 01/30/95 |                      |                                 |                                  |                           |                                |                                   | --                             | --                           | --                                | --                |
|                 | 10/30/02 |                      |                                 |                                  |                           |                                |                                   | 3.90                           | 582.27                       | --                                | --                |
|                 | 07/02/03 |                      |                                 |                                  |                           |                                |                                   | 4.49                           | 581.68                       | --                                | --                |
|                 | 10/16/03 |                      |                                 |                                  |                           |                                |                                   | 5.92                           | 580.25                       | --                                | --                |
|                 | 08/03/04 |                      |                                 |                                  |                           |                                |                                   | 4.20                           | 581.97                       | --                                | --                |
|                 | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 6.38                           | 579.79                       | --                                | --                |
|                 | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 5.41                           | 580.76                       | --                                | --                |
|                 | 10/17/07 |                      |                                 |                                  |                           |                                |                                   | 4.69                           | 581.48                       | --                                | --                |
|                 | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | 6.40                           | 579.77                       | --                                | --                |
|                 | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 4.53                           | 581.64                       | --                                | --                |
|                 | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 4.77                           | 581.40                       | --                                | --                |
|                 | 09/20/11 |                      |                                 |                                  |                           |                                |                                   | Well Damaged                   |                              |                                   |                   |
| MW612           | 08/03/04 | 586.37               | 583.59                          | 16.8                             | 10                        | 579.57                         | 569.57                            | 7.10                           | 579.27                       | --                                | --                |
|                 | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 8.46                           | 577.91                       | --                                | --                |
|                 | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 7.96                           | 578.41                       | --                                | --                |
|                 | 10/17/07 |                      |                                 |                                  |                           |                                |                                   | 8.53                           | 577.84                       | --                                | --                |
|                 | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | 8.21                           | 578.16                       | --                                | --                |
|                 | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 7.24                           | 579.13                       | --                                | --                |
|                 | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 7.88                           | 578.49                       | --                                | --                |
|                 | 09/20/11 |                      |                                 |                                  |                           |                                |                                   | 8.42                           | 577.95                       | --                                | --                |
|                 | 09/20/12 |                      |                                 |                                  |                           |                                |                                   | 8.90                           | 577.47                       | --                                | --                |
| MW613           | 08/03/04 | 584.47               | 581.41                          | 16.8                             | 10                        | 577.67                         | 567.67                            | 4.30                           | 580.17                       | --                                | --                |
|                 | 10/04/05 |                      |                                 |                                  |                           |                                |                                   | 5.85                           | 578.62                       | --                                | --                |
|                 | 09/22/06 |                      |                                 |                                  |                           |                                |                                   | 4.61                           | 579.86                       | --                                | --                |
|                 | 10/17/07 |                      |                                 |                                  |                           |                                |                                   | 4.94                           | 579.53                       | --                                | --                |
|                 | 10/02/08 |                      |                                 |                                  |                           |                                |                                   | 6.02                           | 578.45                       | --                                | --                |
|                 | 09/30/09 |                      |                                 |                                  |                           |                                |                                   | 4.55                           | 579.92                       | --                                | --                |
|                 | 09/28/10 |                      |                                 |                                  |                           |                                |                                   | 4.71                           | 579.76                       | --                                | --                |
|                 | 09/20/11 |                      |                                 |                                  |                           |                                |                                   | 6.24                           | 578.23                       | --                                | --                |
|                 | 09/20/12 |                      |                                 |                                  |                           |                                |                                   | 5.70                           | 578.77                       | --                                | --                |
|                 | 09/27/13 |                      |                                 |                                  |                           |                                |                                   | 6.13                           | 578.34                       | --                                | --                |

(JTB/EPK/PAH 2/03, HMS/GRL 8/04, HMS/PAR 10/05, PAR/JCB 1/07, RJG/JMK 1/09, CJM/AMM 12/11, RJG/ETE 9/12, PMH/JJW 1/14)

**NOTES:**

**TOC** : Top of well casing

**NGVD** : All elevations relative to National Vertical Geodetic Datum.

**U** : Upward vertical hydraulic gradient

**D** : Downward vertical hydraulic gradient

**ice** : Ice present on the inside of the well casing prohibited groundwater elevation measurement.

1. Depth to water measurements collected prior to groundwater sampling.

-- : not applicable

\* : not measured

\*\*\* : Measurement was not collected, area was inaccessible

**APPENDIX A**

**HISTORIC ANALYTICAL DATA TABLES**



1569 Tables 3 through 5 0510 - Table 3 BTEX, CN, Phen, Metals

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Table 3. Groundwater Analytical Results - BTEX, Cyanide, Phenol, & Metals  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location                                  | Sample Date               | BTEX (µg/L)                                   |         |              |                 |            | VOCs (µg/L)            |                        |                         |             |                  |                 | Phenol/Cyanide (mg/L) |          |                       |                 | Metals (mg/L)      |         |          |          |          |         |           |         |          |         | Nitrogen mg/L | Manganese, mg/L | Sulfate, mg/L | Sulfide, mg/L |
|--------------------------------------------------|---------------------------|-----------------------------------------------|---------|--------------|-----------------|------------|------------------------|------------------------|-------------------------|-------------|------------------|-----------------|-----------------------|----------|-----------------------|-----------------|--------------------|---------|----------|----------|----------|---------|-----------|---------|----------|---------|---------------|-----------------|---------------|---------------|
|                                                  |                           | Benzene                                       | Toluene | Ethylbenzene | Xylenes (total) | Total BTEX | 1,2,4-Trimethylbenzene | 1,3,5-Trimethylbenzene | Methyl-tert-butyl-ether | Naphthalene | Isopropylbenzene | n-Propylbenzene | p-Isopropyltoluene    | Phenole  | Cyanide (dissociable) | Cyanide (total) | Cyanide (amenable) | Arsenic | Barium   | Cadmium  | Chromium | Iron    | Lead      | Mercury | Selenium | Silver  |               |                 |               |               |
| Wisconsin Groundwater Quality Standards (NR 140) |                           |                                               |         |              |                 |            |                        |                        |                         |             |                  |                 |                       |          |                       |                 |                    |         |          |          |          |         |           |         |          |         |               |                 |               |               |
| Preventive Action Limit                          |                           | 0.5                                           | 200     | 140          | 1,000           | ns         | 96*                    | 96 *                   | 12                      | 8           | ns               | ns              | ns                    | 1.2      | 0.04                  | ns              | ns                 | 0.001   | 0.4      | 0.0005   | 0.01     | 0.15    | 0.0015    | 0.0002  | 0.01     | 0.01    | 2             | 0.025           | 125           | ns            |
| Enforcement Standard                             |                           | 5                                             | 1,000   | 700          | 10,000          | ns         | 480 *                  | 480 *                  | 60                      | 40          | ns               | ns              | ns                    | 6        | 0.2                   | ns              | ns                 | 0.01    | 2        | 0.005    | 0.1      | 0.3     | 0.015     | 0.002   | 0.05     | 0.05    | 10            | 0.05            | 250           | ns            |
| MW605AR<br>(QC-1)                                | 8/3/2004                  | 3,300                                         | 5,500   | 3,200        | 3,000           | 15,000     | 480                    | 130                    | <45                     | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | 4.9     | -         | -       | -        | -       | <0.063        | 2.7             | 12            | -             |
|                                                  | 8/3/2004                  | 3,500K                                        | 5,000K  | 2,300K       | 2,110K          | 12,910     | 360 K                  | 97 K,Q                 | <36                     | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | 4.3     | -         | -       | -        | -       | 0.063 Q       | 3.2             | 5.9           | -             |
|                                                  | 10/4/2005                 | 7,600K                                        | 8,400K  | 4,200K       | 3,600K          | 23,800     | 660 K                  | 140 K,Q                | <45K                    | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 10/4/2005                 | 7,600K                                        | 7,600K  | 3,800K       | 3,400K          | 22,400     | 680 K                  | 160 K,Q                | <45                     | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
| MW605B                                           | 12/8/1994                 | 29                                            | 88      | 320          | 540             | 977        | -                      | -                      | -                       | -           | -                | -               | nd                    | 0.007    | 0.009                 | nr              | nd                 | 0.076   | nd       | nd       | -        | nd      | nd        | nd      | nd       | -       | -             | -               | -             | -             |
|                                                  | 1/10/1995                 | 4.1                                           | 8.9     | 1.5          | 79              | 94         | -                      | -                      | -                       | -           | -                | -               | nd                    | nd       | 0.011                 | 0.011           | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 6/24/2002                 | 0.49 Q                                        | <0.68   | 1.7 Q        | 1.6 Q           | 3.8        | 3.6                    | <0.94                  | -                       | -           | -                | -               | -                     | <0.0084  | 0.012                 | 0.012 A         | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 7/2/2003                  | 0.87 Q                                        | 0.60 Q  | 1.7 Q        | 2.0 Q           | 5.2        | 4.0                    | <0.52                  | <0.58                   | -           | -                | -               | -                     | <0.001   | -                     | -               | <0.0081            | 0.063   | <0.00053 | <0.00093 | 0.28     | <0.0013 | <0.000030 | <0.0048 | <0.0011  | <0.047  | -             | -               | 1.4 Q         |               |
|                                                  | 10/16/2003                | 5.5                                           | 16      | 20           | 18.9            | 60         | 7.1                    | 0.77 Q                 | <0.58                   | -           | -                | -               | -                     | <0.00048 | -                     | -               | <0.0058            | 0.062   | <0.00041 | <0.0011  | 55 Q     | <0.0012 | <0.000030 | <0.0036 | <0.0038  | 0.059 Q | -             | -               | <0.97         |               |
|                                                  | 8/3/2004                  | 130 K                                         | 530 K   | 540 K        | 470 K           | 1,670      | 52 K                   | 12 K,Q                 | <3.6 K                  | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | 0.028 Q | -         | -       | -        | -       | 0.095 Q       | 0.53            | 0.47 Q        | -             |
|                                                  | 10/4/2005                 | 550                                           | 1,700   | 1,100        | 1,620           | 4,970      | 200                    | 60                     | <9.0                    | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
| MW606                                            | 12/8/1994                 | 61                                            | 19      | 88           | 80              | 248        | -                      | -                      | -                       | -           | -                | -               | 0.032                 | 0.62     | 1.2                   | nr              | nd                 | 0.18    | nd       | nd       | -        | 0.0031  | nd        | nd      | nd       | -       | -             | -               | -             | -             |
|                                                  | 1/11/1995                 | 660                                           | 300     | 340          | 590             | 1,890      | -                      | -                      | -                       | -           | -                | -               | nd                    | 0.033    | 0.8                   | 0.57            | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 6/24/2002                 | 30                                            | 7.3     | 38           | 29              | 104        | 9.8                    | 3.6                    | -                       | -           | -                | -               | -                     | 0.081    | 1.5                   | 1.5 A           | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 7/2/2003                  | 28                                            | 9.3     | 43           | 39              | 119        | 14                     | 4.3                    | <0.58                   | -           | -                | -               | -                     | 0.0171   | -                     | -               | <0.0081            | 0.19    | <0.00053 | <0.00093 | 11       | <0.0013 | <0.000030 | <0.0048 | <0.0011  | 0.056 Q | -             | -               | 2.9 Q         |               |
|                                                  | 10/16/2003                | 38                                            | 3.9     | 37           | 20.5            | 99         | 3.3                    | 0.86 Q                 | <0.58                   | -           | -                | -               | -                     | 0.0186   | -                     | -               | <0.0058            | 0.38    | <0.00041 | <0.0011  | 16       | <0.0012 | <0.000030 | <0.0036 | <0.0038  | 0.070 Q | -             | -               | 5.4           |               |
| Monitoring Well Abandoned                        |                           |                                               |         |              |                 |            |                        |                        |                         |             |                  |                 |                       |          |                       |                 |                    |         |          |          |          |         |           |         |          |         |               |                 |               |               |
| MW606R                                           | 8/3/2004                  | 19 K                                          | 2.7 K,Q | 34 K         | 26 K            | 82         | 29 K                   | 8.9 K                  | <1.8                    | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | 2.9     | -         | -       | -        | -       | 0.09 Q        | 2.5             | 40            | -             |
|                                                  | 10/4/2005                 | 1.5                                           | <0.36   | <0.40        | <0.74           | 1.5        | <0.39                  | <0.40                  | <0.36                   | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
| MW607A                                           | 12/8/1994                 | 830                                           | 19      | 1,300        | 320             | 2,469      | -                      | -                      | -                       | -           | -                | -               | nd                    | 0.76     | 1.1                   | nr              | nd                 | 0.17    | nd       | nd       | -        | nd      | nd        | nd      | nd       | -       | -             | -               | -             | -             |
|                                                  | 1/10/1995                 | 1,100                                         | <100    | 1,400        | 460             | 2,960      | -                      | -                      | -                       | -           | -                | -               | 0.041                 | 0.23     | 1.5                   | 1.1             | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 6/24/2002                 | 570                                           | 19      | 910          | 174             | 1,673      | 110                    | 6.9 Q                  | -                       | 380         | 36               | 8.4 Q           | <2.8                  | -        | 0.042                 | 0.56            | 0.089 A            | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 7/2/2003                  | 980                                           | 28      | 1,500        | 350             | 2,858      | 160                    | 12 Q                   | <5.8                    | -           | -                | -               | -                     | 0.0090   | -                     | -               | <0.0081            | 0.26    | <0.00053 | <0.00093 | 8.1      | <0.0013 | <0.000030 | <0.0048 | <0.0011  | <0.047  | -             | -               | <0.97         |               |
|                                                  | 10/16/2003                | 560                                           | 18      | 1,100        | 227             | 1,905      | 140                    | 7.4                    | <1.4                    | -           | -                | -               | -                     | 0.00358  | -                     | -               | <0.0081            | 0.2     | <0.00053 | 0.0036   | 14       | 0.0023  | <0.000030 | <0.0048 | <0.0011  | <0.047  | -             | -               | <0.97         |               |
|                                                  | 8/4/2004                  | 1,000                                         | 33      | 1,700        | 390             | 3,123      | 270                    | 31                     | <1.8                    | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | 10      | -         | -       | -        | -       | <0.063        | 1.3             | 80            | -             |
| MW607B                                           | 10/4/2005                 | 360                                           | 5.7     | 230          | 63              | 659        | 53                     | 2.3                    | <0.36                   | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 12/8/1994                 | 8.4                                           | 1.2     | 2            | 18              | 30         | -                      | -                      | -                       | -           | -                | -               | nd                    | 0.022    | 0.053                 | nr              | nd                 | 0.058   | 0.0014   | nd       | -        | nd      | nd        | nd      | nd       | -       | -             | -               | -             | -             |
|                                                  | 1/10/1995                 | 17                                            | 3.8     | 11           | 7.8             | 40         | -                      | -                      | -                       | -           | -                | -               | nd                    | nd       | 0.035                 | 0.035           | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 6/19/1996                 | 0.91                                          | nd      | nd           | nd              | 0.9        | -                      | -                      | -                       | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 6/24/2002                 | Unable to sample due to bailer stuck in well. |         |              |                 |            |                        |                        |                         |             |                  |                 |                       |          |                       |                 |                    |         |          |          |          |         |           |         |          |         |               |                 |               |               |
| MW607B                                           | 7/2/2003                  | Unable to sample due to bailer stuck in well. |         |              |                 |            |                        |                        |                         |             |                  |                 |                       |          |                       |                 |                    |         |          |          |          |         |           |         |          |         |               |                 |               |               |
|                                                  | 10/16/2003                | Unable to sample due to bailer stuck in well. |         |              |                 |            |                        |                        |                         |             |                  |                 |                       |          |                       |                 |                    |         |          |          |          |         |           |         |          |         |               |                 |               |               |
|                                                  | Monitoring Well Abandoned |                                               |         |              |                 |            |                        |                        |                         |             |                  |                 |                       |          |                       |                 |                    |         |          |          |          |         |           |         |          |         |               |                 |               |               |
| MW607BR                                          | 8/4/2004                  | 590                                           | 1.8 Q   | 220          | 58              | 870        | 9.5                    | 1.8 Q                  | <0.9                    | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | 0.06    | -         | -       | -        | -       | <0.063        | 6               | 5.3           | -             |
|                                                  | 10/4/2005                 | 24                                            | <0.36   | 8.5          | 4.5 Q           | 37         | 1.2Q                   | <0.40                  | <0.36                   | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
| MW608A<br>(QC-2)                                 | 12/8/1994                 | 760                                           | 9.4     | 34           | 24              | 827        | -                      | -                      | -                       | -           | -                | -               | 0.03                  | nd       | 0.006                 | nr              | nd                 | 0.23    | nd       | nd       | -        | nd      | nd        | nd      | nd       | -       | -             | -               | -             | -             |
|                                                  | 1/10/1995                 | 990                                           | <100    | <100         | <300            | 990        | -                      | -                      | -                       | -           | -                | -               | 0.024                 | nd       | 0.01                  | 0.01            | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 6/24/2002                 | 420                                           | 2.9 Q   | 22           | 49              | 491        | 15                     | 3.5 Q                  | -                       | -           | -                | -               | -                     | <0.0084  | 0.012                 | <0.0023         | -                  | -       | -        | -        | -        | -       | -         | -       | -        | -       | -             | -               | -             | -             |
|                                                  | 7/2/2003                  | 2,400                                         | 7.6 Q   | 180          | 178             | 2,766      | 19 Q                   | <5.2                   | <5.8                    | -           | -                | -               | -                     | <0.0010  | -                     | -               | <0.0058            | 0.079   | <0.00041 | <0.0011  | 5        | <0.0012 | <0.000030 | 0.0028  | <0.0038  | 0.051 Q | -             | -               | <0.97         |               |
|                                                  | 10/16/2003                | 3,700                                         | <14     | 290          | 260             | 4,250      | 31 Q                   | <13                    | <14                     | -           | -                | -               | -                     | 0.0032   | -                     | -               | <0.0081            | 0.091   | <0.00053 | 0.003 Q  | 8.5      | <0.0013 | <0.000030 | <0.0048 | <0.0011  | 0.060 Q | -             | -               | <0.97         |               |
|                                                  | 8/3/2004                  | 1,300                                         | 11      | 650          | 540             | 2,501      | 35                     | 7.7                    | <1.8                    | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | 6.2     | -         | -       | -        | -       | <0.063        | 1.3             | 0.76 Q        | -             |
|                                                  | 8/3/2004                  | 1,300                                         | 11      | 660          | 560             | 2,531      | 36                     | 8.3 Q                  | <3.6                    | -           | -                | -               | -                     | -        | -                     | -               | -                  | -       | -        | -        | -        | 5.9     | -         | -       | -        | -       | <0.063        | 1.5             | 0.69 Q        | -             |
| MW608B                                           | 10/4/2005                 | 6,000                                         | 37 Q    | 840          | 630             | 7,507      | 47Q                    | &                      |                         |             |                  |                 |                       |          |                       |                 |                    |         |          |          |          |         |           |         |          |         |               |                 |               |               |

Table 3. Groundwater Analytical Results - BTEX, Cyanide, Phenol, & Metals  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location                                  | Sample Date | BTEX (µg/L)                                                                     |         |              |                 |            | VOCs (µg/L)            |                        |                         |             |                  |                 | Pheno/Cyanide (mg/L) |         |                       |                 | Metals (mg/L)      |          |        |          |           |      |         |           |          |          | Nitrogen mg/L | Manganese, mg/L | Sulfate, mg/L | Sulfide, mg/L |
|--------------------------------------------------|-------------|---------------------------------------------------------------------------------|---------|--------------|-----------------|------------|------------------------|------------------------|-------------------------|-------------|------------------|-----------------|----------------------|---------|-----------------------|-----------------|--------------------|----------|--------|----------|-----------|------|---------|-----------|----------|----------|---------------|-----------------|---------------|---------------|
|                                                  |             | Benzene                                                                         | Toluene | Ethylbenzene | Xylenes (total) | Total BTEX | 1,2,4-Trimethylbenzene | 1,3,5-Trimethylbenzene | Methyl-tert-butyl-ether | Naphthalene | Isopropylbenzene | n-Propylbenzene | p-Isopropyltoluene   | Phenols | Cyanide (dissociable) | Cyanide (total) | Cyanide (amenable) | Arsenic  | Barium | Cadmium  | Chromium  | Iron | Lead    | Mercury   | Selenium | Silver   |               |                 |               |               |
| Wisconsin Groundwater Quality Standards (NR 140) |             |                                                                                 |         |              |                 |            |                        |                        |                         |             |                  |                 |                      |         |                       |                 |                    |          |        |          |           |      |         |           |          |          |               |                 |               |               |
| Preventive Action Limit                          |             | 0.5                                                                             | 200     | 140          | 1,000           | ns         | 96*                    | 96*                    | 12                      | 8           | ns               | ns              | ns                   | 1.2     | 0.04                  | ns              | ns                 | 0.001    | 0.4    | 0.0005   | 0.01      | 0.15 | 0.0015  | 0.0002    | 0.01     | 0.01     | 2             | 0.025           | 125           | ns            |
| Enforcement Standard                             |             | 5                                                                               | 1,000   | 700          | 10,000          | ns         | 480*                   | 480*                   | 60                      | 40          | ns               | ns              | ns                   | 6       | 0.2                   | ns              | ns                 | 0.01     | 2      | 0.005    | 0.1       | 0.3  | 0.015   | 0.002     | 0.05     | 0.05     | 10            | 0.05            | 250           | ns            |
| MW609A<br><br>(MW-Z)                             | 9/5/1996    | 45                                                                              | 3.7     | 4.4          | 52              | 105        | -                      | -                      | -                       | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 10/11/1996  | 31                                                                              | 2.3     | 5.9          | 31              | 70         | -                      | -                      | -                       | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 10/11/1996  | 28                                                                              | 2.2     | 8.4          | 36              | 75         | -                      | -                      | -                       | -           | -                | -               | -                    | 0.022   | 0.2                   | 8.5             | 4.9                | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 6/24/2002   | 72                                                                              | 2.5     | 24           | 23.6            | 122        | 2.1 Q                  | <0.94                  | -                       | -           | -                | -               | -                    | -       | 0.024 Q               | 0.73            | 0.045 A            | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 7/2/2003    | 67                                                                              | 2.7     | 31           | 38.9            | 140        | 2.3                    | <0.52                  | <0.58                   | -           | -                | -               | -                    | -       | 0.0074                | -               | -                  | <0.0081  | 0.15   | <0.00053 | 0.0025 Q  | 12   | 0.0076  | <0.000030 | <0.0048  | <0.0011  | <0.047        | -               | -             | 1.5 Q         |
|                                                  | 10/16/2003  | 51                                                                              | 2.3     | 45           | 36.1            | 134        | 2.2 Q                  | <0.52                  | <0.58                   | -           | -                | -               | -                    | -       | <0.00048              | -               | -                  | <0.0058  | 0.15   | <0.00041 | <0.0011   | 11   | <0.0012 | <0.000030 | <0.0036  | <0.0038  | 0.061 Q       | -               | -             | <0.97         |
|                                                  | 8/4/2004    | 35                                                                              | 2.1     | 60           | 30.5            | 128        | 2.3                    | <0.4                   | <0.36                   | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | 12   | -       | -         | -        | -        | <0.063        | 2               | 15            | -             |
|                                                  | 10/4/2005   | 23                                                                              | 2.6     | 110          | 41.2            | 177        | 4.3                    | <0.40                  | <0.36                   | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
| MW609 B                                          | 9/5/1996    | 56                                                                              | 3.7     | 3.7          | 3.7             | 67         | -                      | -                      | -                       | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 10/11/1996  | 9.6                                                                             | nd      | nd           | nd              | 9.6        | -                      | -                      | -                       | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 6/24/2002   | 1.9                                                                             | <0.68   | <0.82        | <1.7            | 1.9        | <0.92                  | <0.94                  | -                       | -           | -                | -               | -                    | -       | <0.0084               | 0.0068 Q        | 0.73 A             | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 7/2/2003    | 0.37 Q                                                                          | <0.58   | <0.60        | <1.2            | 0.4        | <0.66                  | <0.52                  | <0.58                   | -           | -                | -               | -                    | -       | <0.0010               | -               | -                  | <0.0081  | 0.066  | <0.00053 | 0.0015 Q  | 0.51 | <0.0013 | <0.000030 | <0.0048  | <0.0011  | <0.047        | -               | -             | 3.2           |
|                                                  | 10/16/2003  | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | -           | -                | -               | -                    | -       | 0.00382               | -               | -                  | <0.0081  | 0.058  | <0.00053 | 0.0012 Q  | 0.52 | <0.0013 | <0.000030 | <0.0048  | <0.0011  | 0.067 Q       | -               | -             | <0.97         |
|                                                  | 8/4/2004    | <0.14                                                                           | <0.36   | <0.40        | <1.2            | nd         | <0.39                  | <0.40                  | <0.36                   | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | <17  | -       | -         | -        | -        | <0.063        | 8.4             | 1.6           | -             |
|                                                  | 10/4/2005   | <0.14                                                                           | <0.36   | <0.40        | <0.74           | nd         | <0.39                  | <0.40                  | <0.36                   | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 10/4/2005   | <0.14                                                                           | <0.36   | <0.40        | <0.74           | nd         | <0.39                  | <0.40                  | <0.36                   | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
| MW610<br><br>(QC-1)                              | 9/5/1996    | nd                                                                              | nd      | nd           | nd              | nd         | -                      | -                      | -                       | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 10/11/1996  | nd                                                                              | nd      | nd           | nd              | nd         | -                      | -                      | -                       | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 6/24/2002   | Well not sampled - Located on US Oil property and access could not be obtained. |         |              |                 |            |                        |                        |                         |             |                  |                 |                      |         |                       |                 |                    |          |        |          |           |      |         |           |          |          |               |                 |               |               |
|                                                  | 10/30/2002  | <0.25                                                                           | <0.84   | <0.53        | <1.9            | nd         | <0.69                  | <0.64                  | -                       | -           | -                | -               | -                    | -       | <0.0027               | 0.0030 Q        | 0.0030 Q           | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 7/2/2003    | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | -           | -                | -               | -                    | -       | 0.0038                | -               | -                  | <0.0081  | 0.1    | <0.00053 | 0.0028    | 3.3  | <0.0013 | <0.000030 | <0.0048  | <0.0011  | <0.047        | -               | -             | 1.2 Q         |
|                                                  | 7/2/2003    | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | -           | -                | -               | -                    | -       | 0.0017                | -               | -                  | <0.0081  | 0.1    | <0.00053 | 0.00095 Q | 4.5  | <0.0013 | <0.000030 | <0.0048  | <0.0011  | <0.047        | -               | -             | <0.97 Q       |
|                                                  | 10/16/2003  | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | -           | -                | -               | -                    | -       | 0.00106               | -               | -                  | <0.0081  | 0.13   | <0.00053 | 0.0010 Q  | 32   | <0.0013 | <0.000030 | <0.0048  | <0.0011  | 0.069 Q       | -               | -             | 2.2 Q         |
|                                                  | 8/4/2004    | <0.14                                                                           | <0.36   | <0.40        | <1.2            | nd         | <0.39                  | <0.40                  | <0.36                   | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | 1.8  | -       | -         | -        | -        | <0.063        | 1.8             | 7             | -             |
| MW611<br><br>(QC-2)                              | 9/5/1996    | nd                                                                              | nd      | nd           | nd              | nd         | -                      | -                      | -                       | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 10/11/1996  | nd                                                                              | nd      | nd           | nd              | nd         | -                      | -                      | -                       | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 6/24/2002   | Well not sampled - Located on US Oil property and access could not be obtained. |         |              |                 |            |                        |                        |                         |             |                  |                 |                      |         |                       |                 |                    |          |        |          |           |      |         |           |          |          |               |                 |               |               |
|                                                  | 10/30/2002  | <0.25                                                                           | <0.84   | <0.53        | <1.9            | nd         | <0.69                  | <0.64                  | -                       | -           | -                | -               | -                    | -       | <0.0027               | <0.0027         | <0.0027            | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
|                                                  | 7/2/2003    | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | -           | -                | -               | -                    | -       | 0.0104                | -               | -                  | <0.0081  | 0.074  | <0.00053 | <0.00093  | 1.2  | <0.0013 | <0.000030 | 0.0016 Q | <0.0011  | 0.090 Q       | -               | -             | 2.6 Q         |
|                                                  | 7/2/2003    | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | -           | -                | -               | -                    | -       | <0.0010               | -               | -                  | <0.0058  | 0.072  | <0.00041 | <0.0011   | 1.3  | <0.0012 | <0.000030 | 0.0019 Q | <0.0038  | <0.047        | -               | -             | 1.0 Q         |
|                                                  | 10/16/2003  | <0.30                                                                           | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | -           | -                | -               | -                    | -       | 0.00072               | -               | -                  | <0.0081  | 0.083  | <0.00053 | <0.00093  | 1.1  | <0.0013 | <0.000030 | <0.0048  | <0.0011  | 0.056 Q       | -               | -             | 1.8 Q         |
|                                                  | 8/4/2004    | <0.14                                                                           | <0.36   | <0.40        | <1.2            | nd         | <0.39                  | <0.40                  | <0.36                   | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | 2.7  | -       | -         | -        | -        | <0.063        | 1.7             | 2.5           | -             |
| MW612                                            | 8/4/2004    | 4.3                                                                             | <0.67   | <0.54        | <2.63           | 4.3        | <0.97                  | <0.83                  | <0.61                   | 3           | 2.8              | 6.2             | <0.67                | -       | -                     | -               | -                  | 0.0037 Q | 0.38   | <0.00028 | <0.00052  | 7.9  | <0.0015 | <0.000028 | 0.0018   | <0.00057 | <0.063        | 7.4             | 24            | -             |
|                                                  | 10/4/2005   | 1.2                                                                             | <0.36   | 0.47 Q       | 0.87 Q          | 2.5        | 0.57Q                  | <0.40                  | <0.36                   | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |
| MW613                                            | 8/4/2004    | <0.41                                                                           | <0.67   | <0.54        | <2.63           | nd         | <0.97                  | <0.83                  | <0.61                   | <0.74       | <0.59            | <0.81           | <0.67                | -       | -                     | -               | -                  | <0.0035  | 0.12   | <0.0003  | 0.99 Q    | 5.8  | <0.0011 | <0.000028 | <0.0048  | <0.00076 | <0.063        | 4.4             | 0.97 Q        | -             |
|                                                  | 10/4/2005   | <0.14                                                                           | <0.36   | <0.40        | <1.1            | nd         | <0.39                  | <0.40                  | <0.36                   | -           | -                | -               | -                    | -       | -                     | -               | -                  | -        | -      | -        | -         | -    | -       | -         | -        | -        | -             | -               | -             | -             |



Table 3. Groundwater Analytical Results - BTEX, Cyanide, Phenol, & Metals  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location                                  | Sample Date | BTEX (µg/L) |         |              |                 |            | VOCs (µg/L)            |                        |                         |            |                  |                 | Phenol/Cyanide (mg/L) |         |                       |                 | Metals (mg/L)      |         |        |         |          |      |        |         |          |        |               |                 |               |               |   |
|--------------------------------------------------|-------------|-------------|---------|--------------|-----------------|------------|------------------------|------------------------|-------------------------|------------|------------------|-----------------|-----------------------|---------|-----------------------|-----------------|--------------------|---------|--------|---------|----------|------|--------|---------|----------|--------|---------------|-----------------|---------------|---------------|---|
|                                                  |             | Benzene     | Toluene | Ethylbenzene | Xylenes (total) | Total BTEX | 1,2,4-Trimethylbenzene | 1,3,5-Trimethylbenzene | Methyl-tert-butyl-ether | Napthalene | Isopropylbenzene | n-Propylbenzene | p-Isopropyltoluene    | Phenols | Cyanide (dissociable) | Cyanide (total) | Cyanide (amenable) | Arsenic | Barium | Cadmium | Chromium | Iron | Lead   | Mercury | Selenium | Silver | Nitrogen mg/L | Manganese, mg/L | Sulfate, mg/L | Sulfide, mg/L |   |
| Wisconsin Groundwater Quality Standards (NR 140) |             |             |         |              |                 |            |                        |                        |                         |            |                  |                 |                       |         |                       |                 |                    |         |        |         |          |      |        |         |          |        |               |                 |               |               |   |
| Preventive Action Limit                          |             | 0.5         | 200     | 140          | 1,000           | ns         | 96*                    | 96 *                   | 12                      | 8          | ns               | ns              | ns                    | 1.2     | 0.04                  | ns              | ns                 | 0.001   | 0.4    | 0.0005  | 0.01     | 0.15 | 0.0015 | 0.0002  | 0.01     | 0.01   | 2             | 0.025           | 125           | ns            |   |
| Enforcement Standard                             |             | 5           | 1,000   | 700          | 10,000          | ns         | 480 *                  | 480 *                  | 60                      | 40         | ns               | ns              | ns                    | 6       | 0.2                   | ns              | ns                 | 0.01    | 2      | 0.005   | 0.1      | 0.3  | 0.015  | 0.002   | 0.05     | 0.05   | 10            | 0.05            | 250           | ns            |   |
| Trip Blank                                       | 12/8/1994   | nd          | nd      | nd           | nd              | nd         | -                      | -                      | -                       | -          | -                | -               | -                     | -       | -                     | -               | nr                 | -       | -      | -       | -        | -    | -      | -       | -        | -      | -             | -               | -             | -             |   |
|                                                  | 1/11/1995   | nd          | nd      | nd           | nd              | nd         | -                      | -                      | -                       | -          | -                | -               | -                     | -       | -                     | -               | nr                 | -       | -      | -       | -        | -    | -      | -       | -        | -      | -             | -               | -             | -             |   |
|                                                  | 6/19/1996   | nd          | nd      | nd           | nd              | nd         | -                      | -                      | -                       | -          | -                | -               | -                     | -       | -                     | -               | -                  | -       | -      | -       | -        | -    | -      | -       | -        | -      | -             | -               | -             | -             |   |
|                                                  | 9/5/1996    | nd          | nd      | nd           | nd              | nd         | -                      | -                      | -                       | -          | -                | -               | -                     | -       | -                     | -               | -                  | -       | -      | -       | -        | -    | -      | -       | -        | -      | -             | -               | -             | -             |   |
|                                                  | 10/11/1996  | nd          | nd      | nd           | nd              | nd         | -                      | -                      | -                       | -          | -                | -               | -                     | -       | -                     | -               | -                  | -       | -      | -       | -        | -    | -      | -       | -        | -      | -             | -               | -             | -             |   |
|                                                  | 7/2/2003    | <0.30       | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | -          | -                | -               | -                     | -       | -                     | -               | -                  | -       | -      | -       | -        | -    | -      | -       | -        | -      | -             | -               | -             | -             | - |
|                                                  | 10/16/2003  | <0.30       | <0.58   | <0.60        | <1.2            | nd         | <0.66                  | <0.52                  | <0.58                   | -          | -                | -               | -                     | -       | -                     | -               | -                  | -       | -      | -       | -        | -    | -      | -       | -        | -      | -             | -               | -             | -             |   |
|                                                  | 8/3/2004    | <0.41       | <0.67   | <0.54        | <2.63           | nd         | <0.97                  | <0.83                  | <0.61                   | <0.74      | <0.59            | <0.81           | <0.67                 | -       | -                     | -               | -                  | -       | -      | -       | -        | -    | -      | -       | -        | -      | -             | -               | -             | -             |   |
|                                                  | 10/4/2005   | <0.14       | <0.36   | <0.40        | <0.74           | nd         | <0.39                  | <0.40                  | <0.36                   | -          | -                | -               | -                     | -       | -                     | -               | -                  | -       | -      | -       | -        | -    | -      | -       | -        | -      | -             | -               | -             | -             | - |

(O-JTB/C-EPK/PAH 8/02, 12/02, 2/03)(U-JMK/PAH 10/03)(U-PAR/HMS 11/03)(U-HMS/GRL 8/26/04)(U-HMS/PAH 10/05)

Notes:  
  
VOCs : Volatile Organic Compounds.  
Cyanide: Dissociable cyanide analyzed by Method OIA-1677 in July and October 2003.  
1) Concentrations equaling/exceeding the enforcement standard (ES) are shown in bold.  
2) Concentrations equaling/exceeding the preventive action limit (PAL) are italicized.  
µg/L : Micrograms per liter  
mg/L : Milligrams per liter  
-- : Analysis was not performed  
nd : Analysis was not detected.  
<0.30 : Analyte not detected above method detection limit shown for parameter.

ns : NR140 ES or PAL standards have not been established.  
(MW-B) : Field duplicate sample with field identity shown in parentheses  
Q: Analyte detected between the limit of detection (LOD) and limit of quantitation (LOQ).  
K: Detection limit may be elevated due to the presence of an unrequested analyte  
A: Analyte present in method blank at 0.0029 mg/L.  
\*: Quality standards for Trimethylbenzenes combined.



Table 4. Groundwater Analytical Results - PAHs  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location                                  | Sample Date | PAHs (µg/L)                                 |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
|--------------------------------------------------|-------------|---------------------------------------------|----------------|------------|-------------------|----------------|----------------------|--------------------|----------------------|----------|-----------------------|--------------|----------|--------------------------|---------------------|---------------------|-------------|--------------|---------|------------|
|                                                  |             | Acenaphthene                                | Acenaphthylene | Anthracene | Benz(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(ghi)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno (1,2,3-cd) pyrene | 1-Methylnaphthalene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene  | Total PAHs |
| Wisconsin Groundwater Quality Standards (NR 140) |             |                                             |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
| Preventive Action Limit                          |             | ns                                          | 0.5            | 600        | ns                | 0.02           | 0.02                 | ns                 | ns                   | 0.02     | ns                    | 80           | 80       | ns                       | ns                  | ns                  | 8           | ns           | 50      | ns         |
| Enforcement Standard                             |             | ns                                          | 5              | 3,000      | ns                | 0.2            | 0.2                  | ns                 | ns                   | 0.2      | ns                    | 400          | 400      | ns                       | ns                  | ns                  | 40          | ns           | 250     | ns         |
| MW601                                            | 12/8/1994   | nd                                          | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | nd      | nd         |
|                                                  | 1/11/1995   | nd                                          | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | nd      | nd         |
|                                                  | 6/24/2002   | <0.018                                      | <0.023         | <0.020     | <0.019            | 0.014 Q        | <0.014               | <0.015             | <0.013               | <0.018   | <0.017                | <0.028       | <0.021   | <0.014                   | <0.027              | <0.028              | <0.027      | <0.019       | <0.020  | nd         |
|                                                  | 7/2/2003    | <0.018                                      | <0.019         | <0.020     | 0.016 Q           | 0.015 Q        | <0.013               | 0.020 Q            | <0.019               | 0.022 Q  | <0.016                | 0.021 Q      | <0.017   | <0.021                   | <0.018              | 0.021 Q             | 0.038 Q     | 0.020 Q      | 0.032 Q | 0.2        |
|                                                  | 10/16/2003  | Unable to sample due to bent riser section. |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
| Monitoring Well Abandoned                        |             |                                             |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
| MW601R                                           | 8/3/2004    | 0.047 Q                                     | 0.047 Q        | 0.034 Q    | 0.038 Q           | 0.051 Q        | 0.026 Q              | 0.042 Q            | 0.028 Q              | 0.043 Q  | <0.022                | 0.053 Q      | 0.028 Q  | 0.023 Q                  | 0.13                | 0.19                | 0.14        | 0.09         | 0.095   | 1.1        |
|                                                  | 10/4/2005   | <0.0082                                     | <0.0081        | <0.012     | <0.016            | <0.018         | <0.016Z              | <0.019             | <0.019Z              | <0.019   | <0.019                | <0.015       | <0.0091  | <0.019                   | <0.010              | 0.017 Q             | <0.047      | <0.011       | 0.016 Q | 0.03       |
| MW602<br><br>(QA/QC-1)                           | 12/8/1994   | nd                                          | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | nd      | nd         |
|                                                  | 1/11/1995   | nd                                          | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | nd      | nd         |
|                                                  | 6/24/2002   | <0.018                                      | <0.023         | <0.020     | <0.019            | <0.012         | <0.014               | <0.015             | <0.013               | <0.018   | <0.017                | <0.028       | <0.021   | <0.014                   | <0.027              | <0.028              | <0.027      | <0.019       | <0.020  | nd         |
|                                                  | 6/24/2002   | <0.018                                      | <0.023         | <0.020     | <0.019            | <0.012         | <0.014               | <0.015             | <0.013               | <0.018   | <0.017                | <0.028       | <0.021   | <0.014                   | <0.027              | <0.028              | 0.027 Q     | <0.019       | <0.020  | 0.03       |
|                                                  | 7/2/2003    | <0.018                                      | <0.019         | <0.020     | <0.012            | <0.014         | <0.013               | <0.016             | <0.019               | <0.014   | <0.016                | <0.013       | <0.017   | <0.021                   | <0.018              | 0.019 Q             | 0.038 Q     | <0.016       | <0.017  | 0.06       |
|                                                  | 10/16/2003  | <0.018                                      | <0.019         | <0.020     | <0.012            | <0.014         | <0.013               | <0.016             | <0.019               | <0.014   | <0.016                | <0.013       | <0.017   | <0.021                   | 0.025 Q             | <0.017              | <0.024      | <0.016       | <0.017  | 0.03       |
|                                                  | 8/3/2004    | <0.019                                      | <0.019         | <0.018     | <0.02             | <0.018         | <0.018               | <0.021             | <0.019               | <0.016   | <0.022                | <0.016       | <0.022   | <0.017                   | <0.02               | <0.023              | <0.022      | <0.02        | <0.016  | nd         |
| 10/4/2005                                        | <0.0082     | <0.0081                                     | 0.014 Q        | <0.016     | <0.018            | <0.016Z        | <0.019               | <0.019Z            | <0.019               | <0.019   | <0.015                | <0.0091      | <0.019   | <0.010                   | 0.022 Q             | 0.056 Q             | <0.011      | <0.015       | 0.09    |            |
| MW603A<br><br>(MW-6D)<br><br><br><br>(QC-1)      | 12/8/1994   | nd                                          | nd             | 5          | 1.2               | 0.32           | 0.15                 | nd                 | nd                   | 2.2      | nd                    | 7.6          | 42       | nd                       | --                  | --                  | 500         | 31           | 2.2     | 592        |
|                                                  | 1/11/1995   | 70                                          | nd             | 2.5        | 1.3               | 0.24           | 0.03                 | 0.56               | nd                   | 0.39     | nd                    | 7.3          | 10       | 0.14                     | --                  | --                  | 230         | 15           | 4       | 341        |
|                                                  | 1/11/1995   | 44                                          | nd             | 1.7        | 0.57              | 0.2            | nd                   | nd                 | nd                   | 0.13     | nd                    | 4.1          | 6.8      | nd                       | --                  | --                  | 230         | 11           | 1.8     | 300        |
|                                                  | 6/24/2002   | 39 Q,D                                      | 5.2            | 4.1        | <1.1              | <0.72          | <0.84                | <0.90              | <0.78                | <1.1     | <1.0                  | <1.7         | 18       | <0.84                    | 130 D               | 24                  | 360 D       | 18           | <1.2    | 598        |
|                                                  | 7/2/2003    | 36 Q                                        | <19            | <20        | <12               | <14            | <13                  | <16                | <19                  | <14      | <16                   | <13          | <17      | <21                      | 100                 | 19 Q                | 280         | 18 Q         | <17     | 453        |
|                                                  | 10/16/2003  | 25                                          | <4.8           | <5.0       | <3.0              | <3.5           | <3.2                 | <4.0               | <4.8                 | <3.5     | <4.0                  | <3.2         | 12 Q     | <5.2                     | 56                  | 6.8 Q               | 120         | 11 Q         | <4.2    | 231        |
|                                                  | 10/16/2003  | 28                                          | 3.8 Q          | 3.1 Q      | <1.2              | <1.4           | <1.3                 | <1.6               | <1.9                 | <1.4     | <1.6                  | 1.8 Q        | 14       | <2.1                     | 58 D                | 7.0                 | 120 D       | 9.8          | 2.7 Q   | 248        |
|                                                  | 8/3/2004    | 26 Q                                        | <15            | <14        | <16               | <14            | <14                  | <17                | <15                  | <13      | <18                   | <13          | <17      | <14                      | 77                  | <18                 | 200         | <16          | <13     | 303        |
| 10/4/2005                                        | 6.1         | 0.76 Q                                      | 0.47 Q         | <0.62      | <0.73             | <0.63          | <0.77                | <0.77              | <0.76                | <0.75    | <0.62                 | 2.4          | <0.75    | 16                       | <0.45               | 11                  | 1.8         | <0.58        | 39      |            |



Table 4. Groundwater Analytical Results - PAHs  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location                                  | Sample Date                     | PAHs (µg/L)                                 |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |           |            |       |
|--------------------------------------------------|---------------------------------|---------------------------------------------|----------------|------------|-------------------|----------------|----------------------|--------------------|----------------------|----------|-----------------------|--------------|----------|--------------------------|---------------------|---------------------|-------------|--------------|-----------|------------|-------|
|                                                  |                                 | Acenaphthene                                | Acenaphthylene | Anthracene | Benz(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(ghi)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno (1,2,3-cd) pyrene | 1-Methylnaphthalene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene    | Total PAHs |       |
| Wisconsin Groundwater Quality Standards (NR 140) |                                 |                                             |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |           |            |       |
| Preventive Action Limit                          |                                 | ns                                          | 0.5            | 600        | ns                | 0.02           | 0.02                 | ns                 | ns                   | 0.02     | ns                    | 80           | 80       | ns                       | ns                  | ns                  | 8           | ns           | 50        | ns         |       |
| Enforcement Standard                             |                                 | ns                                          | 5              | 3,000      | ns                | 0.2            | 0.2                  | ns                 | ns                   | 0.2      | ns                    | 400          | 400      | ns                       | ns                  | ns                  | 40          | ns           | 250       | ns         |       |
| MW603B<br>(MW-A)<br><br>(QA/QC-2)<br><br>(QC-2)  | 12/8/1994                       | nd                                          | nd             | 0.91       | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | 0.63         | 0.91     | nd                       | --                  | --                  | 6           | 0.62         | nd        | 9.1        |       |
|                                                  | 12/8/1994                       | nd                                          | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | 0.63         | 0.89     | nd                       | --                  | --                  | 6.9         | 1.8          | nd        | 10         |       |
|                                                  | 1/11/1995                       | nd                                          | nd             | nd         | 0.12              | nd             | nd                   | nd                 | nd                   | 0.11     | nd                    | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | 0.53      | 0.8        |       |
|                                                  | 6/24/2002                       | 0.029 Q                                     | <0.023         | <0.020     | 0.054 Q           | 0.019 Q        | 0.020 Q              | 0.015 Q            | 0.013 Q              | 0.045 Q  | <0.017                | 0.072 Q      | 0.033 Q  | <0.014                   | 0.069 Q             | 0.032 Q             | 0.21        | 0.08         | 0.13      | 0.8        |       |
|                                                  | 6/24/2002                       | 0.025 Q                                     | 0.050 Q        | 0.028 Q    | 0.085             | 0.031 Q        | 0.033 Q              | 0.023 Q            | 0.022 Q              | 0.072    | <0.017                | 0.10         | 0.038 Q  | 0.016 Q                  | 0.063 Q             | 0.074 Q             | 0.18        | 0.1          | 0.17      | 1.1        |       |
|                                                  | 7/2/2003                        | 0.018 Q                                     | <0.019         | <0.020     | 0.025 Q           | <0.014         | 0.016 Q              | <0.016             | <0.019               | 0.027 Q  | <0.016                | 0.036 Q      | <0.017   | <0.021                   | 0.041 Q             | <0.017              | 0.088       | 0.043 Q      | 0.066     | 0.4        |       |
|                                                  | 10/16/2003                      | 0.026 Q                                     | 0.037 Q        | 0.024 Q    | 0.069             | 0.041 Q        | 0.040 Q              | 0.041 Q            | 0.038 Q              | 0.081    | <0.016                | 0.075        | 0.034 Q  | 0.028 Q                  | 0.024 Q             | <0.017              | 0.071 Q     | 0.078        | 0.13      | 0.8        |       |
|                                                  | 10/16/2003                      | 0.039 Q                                     | 0.025 Q        | <0.020     | 0.039 Q           | 0.025 Q        | 0.023 Q              | 0.026 Q            | 0.022 Q              | 0.048    | <0.016                | 0.050        | 0.027 Q  | 0.022 Q                  | 0.059 Q             | <0.017              | 0.094       | 0.064        | 0.088     | 0.7        |       |
|                                                  | 8/3/2004                        | 0.023 Q                                     | 0.060 Q        | 0.035 Q    | 0.12              | 0.055 Q        | 0.053 Q              | 0.054 Q            | 0.048 Q              | 0.11     | <0.022                | 0.100        | 0.024 Q  | 0.034 Q                  | 0.081               | 0.092               | 0.29        | 0.095        | 0.21      | 1.5        |       |
|                                                  | 10/4/2005                       | 0.026 Q                                     | 0.036 Q        | <0.023     | <0.031            | <0.037         | <0.031Z              | <0.039             | <0.039Z              | <0.038   | <0.038                | <0.031       | <0.018   | <0.038                   | 0.072               | 0.066 Q             | 0.68        | <0.023       | <0.029    | 0.9        |       |
| MW604<br><br><br><br><br><br><br>(QC01)          | 12/8/1994                       | 76                                          | nd             | 22         | 13                | 10             | 2.6                  | 9                  | 4.6                  | 7.3      | nd                    | 52           | 120      | 4.6                      | --                  | --                  | 1,300       | 160          | 12        | 1,793      |       |
|                                                  | 1/11/1995                       | 71                                          | nd             | nd         | 12                | 9.3            | 1.2                  | 8.6                | 3.3                  | 7.4      | 1.1                   | 58           | 78       | 3.7                      | --                  | --                  | 1,200       | 120          | 36        | 1,610      |       |
|                                                  | 6/24/2002                       | 58                                          | <12            | 41         | 11 Q              | 6.9 Q          | <7.0                 | <7.5               | <6.5                 | 11 Q     | <8.5                  | 38 Q         | 37       | <7.0                     | 22 Q                | <14                 | <14         | 130          | 56        | 411        |       |
|                                                  | 7/2/2003                        | 89                                          | <9.5           | 15 Q       | <6.0              | <7.0           | <6.5                 | <8.0               | <9.5                 | 7.6 Q    | <8.0                  | 15 Q         | 44       | <10                      | 220                 | 15 Q                | 150         | 75           | 26 Q      | 657        |       |
|                                                  | 10/16/2003                      | 79 D                                        | 11             | 23         | 10                | 9.4            | 3.7 Q                | 5.1 Q              | 4.8 Q                | 9.4      | <1.6                  | 21           | 44 D     | 3.4 Q                    | 180 D               | 11                  | 12          | 69 D         | 30        | 526        |       |
|                                                  | 8/3/2004                        | 64                                          | <9.7           | 27 Q       | <9.8              | <9.1           | <8.9                 | <10                | <9.7                 | <8.2     | <11                   | 15 Q         | 39       | <8.5                     | 110                 | 19 Q                | 17 Q        | 52           | 22 Q      | 350        |       |
|                                                  | 10/4/2005                       | 31                                          | 2.0 Q          | 4.0 Q      | <3.1              | <3.7           | <3.1Z                | <3.9               | <3.9Z                | <3.8     | <3.8                  | <3.1         | 15       | <3.8                     | 78                  | 3.4 Q               | 84          | 15           | 3.0 Q     | 235        |       |
|                                                  | 10/4/2005                       | 25                                          | 1.4 Q          | 5.3        | <1.6              | <1.8           | <1.6Z                | <1.9               | <1.9Z                | <1.9     | <1.9                  | 2.6 Q        | 14       | <1.9                     | 59 D                | <4.7                | 75 D        | 21           | 3.5 Q     | 207        |       |
|                                                  | MW605A<br>(MW-B)<br><br>(MW-6C) | 12/8/1994                                   | 37             | nd         | 57                | 96             | 92                   | 21                 | 74                   | 27       | 46                    | nd           | 460      | 460                      | 34                  | --                  | --          | 1,500        | 540       | 42         | 3,486 |
|                                                  |                                 | 12/8/1994                                   | nd             | nd         | 25                | 27             | 21                   | 4.7                | 17                   | 6.2      | 10                    | nd           | 120      | 160                      | 8.2                 | --                  | --          | 1,700        | 200       | 8.5        | 2,308 |
| 1/10/1995                                        |                                 | nd                                          | nd             | 15         | 54                | 43             | 12                   | 38                 | 12                   | 34       | 4.6                   | 320          | 200      | 16                       | --                  | --                  | 2,300       | 240          | 300       | 3,589      |       |
| 1/10/1995                                        |                                 | 59                                          | nd             | 5.6        | 2.6               | 1.6            | 0.48                 | 1.5                | 0.51                 | 1.6      | nd                    | 19           | 69       | 0.63                     | --                  | --                  | 1,800       | 52           | 9.3       | 2,023      |       |
| 6/24/2002                                        |                                 | 45 Q                                        | 93             | 77         | 66                | 46             | 36 Q                 | 29 Q               | 33 Q                 | 64       | <17                   | 130          | 110      | 23 Q                     | 270                 | <28                 | 97          | 280          | 160       | 1,559      |       |
| 7/2/2003                                         |                                 | Unable to sample due to bent riser section. |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |           |            |       |
| 10/16/2003                                       |                                 | Unable to sample due to bent riser section. |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |           |            |       |
| Monitoring Well Abandoned                        |                                 |                                             |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |           |            |       |
| MW605AR<br>(QC-1)<br><br>(QC02)                  | 8/3/2004                        | 24,000 Q                                    | 82,000         | 48,000     | 18,000 Q          | 14,000 Q       | <8,900               | <10,000            | <9,700               | 21,000 Q | <11,000               | 40,000       | 49,000   | <8,500                   | 110,000             | 160,000             | 310,000     | 110,000      | 62,000    | 1,048,000  |       |
|                                                  | 8/3/2004                        | <680                                        | 1,800          | 1,300 Q    | <690              | <630           | <630                 | <720               | <680                 | <570     | <770                  | 740 Q        | 930 Q    | <600                     | 2,600               | 3,300               | 11,000      | 1,900 Q      | 1,100 Q   | 24,670     |       |
|                                                  | 10/4/2005                       | 44,000QD                                    | 140,000 D      | 71,000QD   | 45,000 E          | 33,000 E       | 16,000 EZ            | 15,000 E           | 16,000 EZ            | 36,000 E | 3,900                 | 76,000QD     | 78,000QD | 12,000 E                 | 220,000 D           | 290,000 D           | 610,000 D   | 250,000 D    | 110,000QD | 2,065,900  |       |
|                                                  | 10/4/2005                       | 3,400QD                                     | 11,000 D       | 6,200QD    | 3,700 E           | 2,700 E        | 1,200 EZ             | 1,200 E            | 1,300 EZ             | 2,900 E  | 310                   | 5,900QD      | 5,900QD  | 920                      | 20,000 D            | 22,000QD            | 50,000 D    | 19,000 D     | 8,700QD   | 166,330    |       |



Table 4. Groundwater Analytical Results - PAHs  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location                                  | Sample Date | PAHs (µg/L)                                   |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
|--------------------------------------------------|-------------|-----------------------------------------------|----------------|------------|-------------------|----------------|----------------------|--------------------|----------------------|----------|-----------------------|--------------|----------|--------------------------|---------------------|---------------------|-------------|--------------|---------|------------|
|                                                  |             | Acenaphthene                                  | Acenaphthylene | Anthracene | Benz(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(ghi)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno (1,2,3-cd) pyrene | 1-Methylnaphthalene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene  | Total PAHs |
| Wisconsin Groundwater Quality Standards (NR 140) |             |                                               |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
| Preventive Action Limit                          |             | ns                                            | 0.5            | 600        | ns                | 0.02           | 0.02                 | ns                 | ns                   | 0.02     | ns                    | 80           | 80       | ns                       | ns                  | ns                  | 8           | ns           | 50      | ns         |
| Enforcement Standard                             |             | ns                                            | 5              | 3,000      | ns                | 0.2            | 0.2                  | ns                 | ns                   | 0.2      | ns                    | 400          | 400      | ns                       | ns                  | ns                  | 40          | ns           | 250     | ns         |
| MW605B                                           | 12/8/1994   | 640                                           | nd             | 12         | 2.3               | 0.44           | nd                   | nd                 | 4.8                  | nd       | nd                    | 12           | 130      | nd                       | --                  | --                  | 1,300       | 73           | nd      | 2,175      |
|                                                  | 1/10/1995   | nd                                            | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | 0.12     | nd                    | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | 0.34    | 0.5        |
|                                                  | 6/24/2002   | 4.5                                           | 1.2 Q          | 2.4        | 1.1 Q             | 0.65 Q         | 0.30 Q               | <0.30              | 0.30 Q               | 0.83 Q   | <0.34                 | 2.8          | 0.45 Q   | <0.28                    | 2.5                 | 0.68 Q              | 2.8         | 5.3          | 3.5     | 29         |
|                                                  | 7/2/2003    | 3.9                                           | 0.59 Q         | 0.26 Q     | 0.18 Q            | <0.14          | <0.13                | <0.16              | <0.19                | 0.19 Q   | <0.16                 | 0.66         | 0.25 Q   | <0.21                    | 0.61                | <0.17               | <0.24       | 0.24 Q       | 1.0     | 7.9        |
|                                                  | 10/16/2003  | 3.0 D                                         | <0.76 D        | 0.49       | 0.12              | 0.063          | 0.030 Q              | 0.037 Q            | 0.034 Q              | 0.11     | <0.016                | 0.42         | 0.47     | 0.024 Q                  | 2.3 Q,D             | 0.75 Q,D            | 7.6 D       | 0.82 Q,D     | <0.68 D | 16         |
|                                                  | 8/3/2004    | 7.2 Q                                         | 6.2 Q          | <2.8       | <3.1              | <2.9           | <2.9                 | <3.3               | <3.1                 | <2.6     | <3.5                  | <2.6         | <3.5     | <2.7                     | 12                  | 25                  | 19          | <3.3         | <2.6    | 69         |
|                                                  | 10/4/2005   | 38                                            | 60             | <2.3       | <3.1              | <3.7           | <3.1Z                | <3.9               | <3.9Z                | <3.8     | <3.8                  | <3.1         | 11       | <3.8                     | 200 D               | 190 D               | 1,400 D     | 5.8 Q        | <2.9    | 1,905      |
| MW606                                            | 12/8/1994   | nd                                            | nd             | 7.7        | 7.7               | 2.1            | 0.48                 | 4.7                | 2.1                  | 2.5      | nd                    | 18           | 40       | 0.85                     | --                  | --                  | 170         | 65           | 11      | 332        |
|                                                  | 1/11/1995   | 110                                           | nd             | 15         | 28                | 18             | 5.3                  | 19                 | 7.8                  | 15       | 1.9                   | 120          | 92       | 8.2                      | --                  | --                  | 2,300       | 170          | 78      | 2,988      |
|                                                  | 6/24/2002   | 46                                            | <9.2           | 8.3 Q      | <7.6              | <4.8           | <5.6                 | <6.0               | <5.2                 | <7.2     | <6.8                  | <11          | 19 Q     | <5.6                     | 120                 | 16 Q                | 78          | 27           | <8.0    | 314        |
|                                                  | 7/2/2003    | 13 Q                                          | 9.0 Q          | 5.8 Q      | <3.0              | <3.5           | <3.2                 | <4.0               | <4.8                 | <3.5     | <4.0                  | 6.3 Q        | 27       | <5.2                     | 96                  | <4.2                | 71          | 30           | 9.4 Q   | 268        |
|                                                  | 10/16/2003  | 13                                            | 10             | 5.2 Q      | 2.0 Q             | <1.4           | <1.3                 | <1.6               | <1.9                 | 2.1 Q    | <1.6                  | 5.0          | 20       | <2.1                     | 62 D                | <1.7                | 3.3 Q       | 22           | 7.3     | 152        |
| Monitoring Well Abandoned                        |             |                                               |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
| MW606R                                           | 8/3/2004    | 95 Q                                          | 75 Q           | 59 Q       | <39               | <36            | <36                  | <41                | <39                  | <33      | <44                   | <33          | 63 Q     | <34                      | 370                 | 210                 | 260         | 120 Q        | 42 Q    | 1,294      |
|                                                  | 10/4/2005   | 1.6                                           | 2.9            | 4.5        | 4.6               | 3.9            | 2.0 Q                | 2.0 Q              | 2.4 Q                | 4.6      | <0.94                 | 11           | 1.3 Q    | 1.3 Q                    | 1.1 Q               | 0.63 Q              | 2.6 Q       | 7.7          | 16      | 70         |
| MW607A                                           | 12/8/1994   | 780                                           | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | --                  | --                  | 1,300       | nd           | nd      | 2,080      |
|                                                  | 1/10/1995   | nd                                            | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | --                  | --                  | 1,300       | nd           | nd      | 1,300      |
|                                                  | 6/24/2002   | 5.9 D                                         | <1.8           | <0.020     | <0.019            | <0.012         | <0.014               | <0.015             | <0.013               | <0.018   | <0.017                | <0.028       | 0.024 Q  | <0.014                   | 13 D                | 0.046 Q             | 34 D        | <0.019       | <0.020  | 53         |
|                                                  | 7/2/2003    | 62                                            | <15            | <16        | <9.6              | <11            | <10                  | <13                | <15                  | <11      | <13                   | <10          | <14      | <17                      | 150                 | <14                 | 240         | <13          | <14     | 452        |
|                                                  | 10/16/2003  | 87 D                                          | <15 D          | 0.026 Q    | <0.012            | <0.014         | <0.013               | <0.016             | <0.019               | <0.014   | <0.016                | <0.013       | 0.20     | <0.021                   | 210 D               | 0.14                | 260 D       | <0.016       | <0.017  | 557        |
|                                                  | 8/4/2004    | 160 D                                         | 18 D           | 0.028 Q    | <0.02             | <0.018         | <0.018               | <0.021             | <0.019               | <0.016   | <0.022                | <0.016       | <5.4     | <0.017                   | 320 D               | <5.7 D              | 650 D       | <0.02        | <0.016  | 1,148      |
| MW607B                                           | 10/4/2005   | 29                                            | 2.2 Q          | <2.3       | <3.1              | <3.7           | <3.1Z                | <3.9               | <3.9Z                | <3.8     | <3.8                  | <3.1         | <1.8     | <3.8                     | 51                  | <2.2                | 18 Q        | <2.3         | <2.9    | 100        |
|                                                  | 12/8/1994   | nd                                            | nd             | 0.6        | 0.97              | 0.72           | 0.19                 | 0.086              | nd                   | 0.42     | nd                    | 2.6          | 0.7      | 0.36                     | --                  | --                  | 7.2         | 0.8          | 0.26    | 15         |
|                                                  | 1/10/1995   | nd                                            | nd             | nd         | 0.16              | nd             | nd                   | nd                 | nd                   | nd       | nd                    | 0.44         | nd       | nd                       | --                  | --                  | 11          | nd           | 0.78    | 12         |
|                                                  | 6/19/1996   | nd                                            | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | --                  | --                  | nd          | nd           | nd      | nd         |
|                                                  | 6/24/2002   | Unable to sample due to bailer stuck in well. |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
|                                                  | 7/2/2003    | Unable to sample due to bailer stuck in well. |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
|                                                  | 10/16/2003  | Unable to sample due to bailer stuck in well. |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
|                                                  |             | Monitoring Well Abandoned                     |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |



Table 4. Groundwater Analytical Results - PAHs  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location                                  | Sample Date | PAHs (µg/L)  |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |        |            |
|--------------------------------------------------|-------------|--------------|----------------|------------|-------------------|----------------|----------------------|--------------------|----------------------|----------|-----------------------|--------------|----------|--------------------------|---------------------|---------------------|-------------|--------------|--------|------------|
|                                                  |             | Acenaphthene | Acenaphthylene | Anthracene | Benz(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(ghi)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno (1,2,3-cd) pyrene | 1-Methylnaphthalene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene | Total PAHs |
| Wisconsin Groundwater Quality Standards (NR 140) |             |              |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |        |            |
| Preventive Action Limit                          |             | ns           | 0.5            | 600        | ns                | 0.02           | 0.02                 | ns                 | ns                   | 0.02     | ns                    | 80           | 80       | ns                       | ns                  | ns                  | 8           | ns           | 50     | ns         |
| Enforcement Standard                             |             | ns           | 5              | 3,000      | ns                | 0.2            | 0.2                  | ns                 | ns                   | 0.2      | ns                    | 400          | 400      | ns                       | ns                  | ns                  | 40          | ns           | 250    | ns         |
| MW607BR                                          | 8/4/2004    | 4.3          | <2.0           | <1.8       | <2.0              | <1.8           | <1.8                 | <2.1               | <2.0                 | <1.7     | <2.2                  | <1.7         | <2.2     | <1.7                     | 6.3 Q               | 4.0 Q               | 120 D       | <2.1         | <1.7   | 135        |
|                                                  | 10/4/2005   | 0.40         | 0.021 Q        | <0.012     | <0.016            | <0.018         | <0.016               | <0.019             | <0.019               | <0.019   | <0.019                | <0.015       | 0.032    | <0.019                   | 0.31                | 0.054               | 0.13 Q      | 0.028 Q      | <0.015 | 1.0        |
| MW608A                                           | 12/8/1994   | 400          | nd             | 15         | 2.4               | 2.1            | 0.26                 | 1.7                | 0.81                 | 1.3      | nd                    | 14           | 150      | 0.81                     | --                  | --                  | 980         | 140          | 17     | 1,725      |
|                                                  | 1/10/1995   | 130          | 210            | 11         | 12                | 9.7            | 1.8                  | 8.1                | 3.2                  | 7.1      | 1.2                   | 66           | 110      | 3.6                      | --                  | --                  | 510         | 120          | 41     | 1,245      |
|                                                  | 6/24/2002   | 6.6 Q,D      | 1.0 Q,D        | 0.64 Q,D   | 1.5 Q,D           | 1.6 D          | 0.63 Q,D             | 0.79 Q,D           | 0.82 Q,D             | 1.3 Q,D  | 0.27                  | 1.9 Q,D      | 0.37     | 0.61 Q,D                 | 1.1 Q,D             | 0.092               | 0.060 Q     | 1.2 Q,D      | 2.8 D  | 23         |
|                                                  | 7/2/2003    | 120          | <9.5           | 15 Q       | <6.0              | <7.0           | <6.5                 | <8.0               | <9.5                 | <7.0     | <8.0                  | 14 Q         | 53       | <10                      | 120                 | 76                  | 120         | 79           | 22 Q   | 619        |
|                                                  | 10/16/2003  | 110 D        | 22 Q,D         | 7 Q,D      | 7.0               | 8.4            | 3.3                  | 3.8                | 4.2                  | 9.2      | 0.87 Q                | 18 D         | 51 D     | 3.0                      | 130 D               | 78 D                | 170 D       | 76 D         | 32 D   | 734        |
|                                                  | 8/3/2004    | 110          | <19            | 35 Q       | <20               | <18            | <18                  | <21                | <19                  | <16      | <22                   | 17 Q         | 60 Q     | <17                      | 90                  | 86                  | 330         | 92           | 25     | 845        |
| (QC-2)                                           | 8/3/2004    | 120 D        | 4.3 Q          | 27         | 4.1 Q             | 3.5 Q          | <1.8                 | <2.1               | 2.2 Q                | 4.7 Q    | <2.2                  | 16           | 61 Q,D   | <1.7                     | 94 D                | 77 D                | 330 D       | 85 D         | 23     | 852        |
|                                                  | 10/4/2005   | 140 D        | 20             | 81         | 44                | 42             | 20 Z                 | 19                 | 21 Z                 | 39       | 4.0 Q                 | 87           | 85       | 14                       | 120 D               | 87 D                | 420 D       | 250 D        | 130 D  | 1,623      |
| MW608B                                           | 12/8/1994   | nd           | nd             | 12         | 8.3               | 7.7            | 1.2                  | 6.6                | 2.6                  | 4.4      | nd                    | 27           | 17       | 3.1                      | --                  | --                  | 110         | 65           | 13     | 278        |
|                                                  | 1/10/1995   | 12           | nd             | 4.9        | 4.3               | 2.8            | 0.86                 | 3.1                | 1.1                  | 2.9      | 0.56                  | 24           | 21       | 1.5                      | --                  | --                  | 310         | 41           | 15     | 445        |
|                                                  | 6/19/1996   | nd           | nd             | 1.8        | 0.98              | 0.6            | 0.21                 | 0.52               | 0.38                 | 0.34     | nd                    | 3.2          | 0.47     | 0.26                     | --                  | --                  | nd          | 3.4          | 2.2    | 14         |
|                                                  | 6/24/2002   | 13           | <1.8           | 9.5        | 1.5 Q             | 1.4 Q          | 1.7 Q                | <1.2               | <1.0                 | 2.4 Q    | <1.4                  | 7.8          | 6.3      | <1.1                     | 4.6 Q               | <2.2                | <2.2        | 27           | 13     | 88         |
|                                                  | 7/2/2003    | 6.0          | <0.48          | 1.6 Q      | 0.69 Q            | 0.61 Q         | 0.37 Q               | <0.40              | <0.48                | 0.79 Q   | <0.40                 | 2.1          | 2.6      | <0.52                    | 3.5                 | 0.49 Q              | 2.0         | 7.5          | 3.4    | 32         |
|                                                  | 10/16/2003  | 5.3          | <0.76          | 2.2 Q      | 1.6               | 0.92 Q         | <0.52                | <0.64              | <0.76                | 1.7 Q    | <0.64                 | 4.5          | 2.2 Q    | <0.84                    | 2.1 Q               | <0.68               | <0.96       | 4.2          | 7.6    | 32         |
|                                                  | 8/3/2004    | 3.9          | 0.39 Q         | 1.9        | 1.1 Q             | 0.76 Q         | <0.36                | <0.41              | 0.44 Q               | 1.0 Q    | <0.44                 | 3.4          | 1.4 Q    | <0.34                    | 1.2 Q               | <0.45               | <0.45       | 2.7          | 5.1    | 23         |
|                                                  | 10/4/2005   | 1.0          | 0.046 Q        | <0.058     | <0.078            | <0.092         | <0.078               | <0.096             | <0.097               | <0.095   | <0.094                | <0.077       | 0.28     | <0.094                   | 0.35                | <0.056              | 0.26 Q      | 0.19 Q       | <0.073 | 2.1        |
| MW609A                                           | 9/5/1996    | nd           | nd             | 1.4        | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | 1.9      | nd                       | 5.6                 | 30                  | 8.9         | 4.5          | nd     | 52         |
| (MW-Z)                                           | 10/11/1996  | nd           | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | 4.3      | nd                       | nd                  | 18                  | 4.5         | nd           | nd     | 27         |
|                                                  | 10/11/1996  | nd           | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | 4.7      | nd                       | nd                  | 33                  | 2.2         | 2.1          | nd     | 42         |
|                                                  | 6/24/2002   | 0.24 Q       | <0.23          | <0.20      | <0.19             | <0.12          | <0.14                | <0.15              | <0.13                | <0.18    | <0.17                 | <0.28        | 0.27 Q   | <0.14                    | 2.2                 | <0.28               | 2.4         | <0.19        | <0.20  | 5.1        |
|                                                  | 7/2/2003    | <0.18        | <0.19          | <0.20      | <0.12             | <0.14          | <0.13                | <0.16              | <0.19                | <0.14    | <0.16                 | <0.13        | <0.17    | <0.21                    | 0.55 Q              | <0.17               | 3.3         | <0.16        | <0.17  | 3.9        |
|                                                  | 10/16/2003  | <0.18        | <0.19          | <0.20      | <0.12             | <0.14          | <0.13                | <0.16              | <0.19                | <0.14    | <0.16                 | <0.13        | <0.17    | <0.21                    | 0.50 Q              | <0.17               | 2.8         | <0.16        | <0.17  | 3.3        |
|                                                  | 8/4/2004    | 0.85 Q       | <0.39          | <0.35      | <0.39             | <0.36          | <0.36                | <0.41              | <0.39                | <0.33    | <0.44                 | <0.33        | 0.89 Q   | <0.34                    | 6                   | <0.45               | 2.8         | 0.99 Q       | <0.33  | 12         |
|                                                  | 10/4/2005   | <0.082       | <0.081         | <0.12      | <0.16             | <0.18          | <0.16Z               | <0.19              | <0.19Z               | <0.19    | <0.19                 | <0.15        | <0.091   | <0.19                    | 0.40                | <0.11               | 3.1         | <0.11        | <0.15  | 3.5        |





Table 4. Groundwater Analytical Results - PAHs  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location                                  | Sample Date | PAHs (µg/L)                                                                     |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
|--------------------------------------------------|-------------|---------------------------------------------------------------------------------|----------------|------------|-------------------|----------------|----------------------|--------------------|----------------------|----------|-----------------------|--------------|----------|--------------------------|---------------------|---------------------|-------------|--------------|---------|------------|
|                                                  |             | Acenaphthene                                                                    | Acenaphthylene | Anthracene | Benz(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(ghi)perylene | Benzo(k)fluoranthene | Chrysene | Dibenz(a,h)anthracene | Fluoranthene | Fluorene | Indeno (1,2,3-cd) pyrene | 1-Methylnaphthalene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene  | Total PAHs |
| Wisconsin Groundwater Quality Standards (NR 140) |             |                                                                                 |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
| Preventive Action Limit                          |             | ns                                                                              | 0.5            | 600        | ns                | 0.02           | 0.02                 | ns                 | ns                   | 0.02     | ns                    | 80           | 80       | ns                       | ns                  | ns                  | 8           | ns           | 50      | ns         |
| Enforcement Standard                             |             | ns                                                                              | 5              | 3,000      | ns                | 0.2            | 0.2                  | ns                 | ns                   | 0.2      | ns                    | 400          | 400      | ns                       | ns                  | ns                  | 40          | ns           | 250     | ns         |
| MW609 B                                          | 9/5/1996    | nd                                                                              | nd             | 0.79       | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | 8.9          | nd       | nd                       | nd                  | nd                  | nd          | 2.6          | 0.4     | 13         |
|                                                  | 10/11/1996  | nd                                                                              | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | nd                  | nd                  | nd          | nd           | nd      | nd         |
|                                                  | 6/24/2002   | <0.018                                                                          | <0.023         | <0.020     | <0.019            | 0.051          | <0.014               | <0.015             | <0.013               | <0.018   | <0.017                | <0.028       | <0.021   | <0.014                   | <0.027              | <0.028              | 0.044 Q     | 0.028 Q      | <0.020  | 0.1        |
|                                                  | 7/2/2003    | <0.018                                                                          | <0.019         | <0.020     | <0.012            | <0.014         | <0.013               | <0.016             | <0.019               | <0.014   | <0.016                | <0.013       | <0.017   | <0.021                   | <0.018              | <0.017              | 0.029 Q     | <0.016       | <0.017  | 0.03       |
|                                                  | 10/16/2003  | 0.085                                                                           | <0.019         | <0.020     | <0.012            | 0.016 Q        | <0.013               | <0.016             | <0.019               | <0.014   | <0.016                | <0.013       | 0.027 Q  | <0.021                   | 0.30                | 0.10                | 0.50        | 0.021 Q      | <0.017  | 1.1        |
|                                                  | 8/4/2004    | <0.019                                                                          | <0.019         | <0.018     | <0.02             | <0.018         | <0.018               | <0.021             | <0.019               | <0.016   | <0.022                | <0.016       | <0.022   | <0.017                   | <0.02               | <0.023              | 0.034 Q     | <0.02        | <0.016  | 0.03       |
|                                                  | 10/4/2005   | <0.0082                                                                         | <0.0081        | <0.012     | <0.016            | <0.018         | <0.016               | <0.019             | <0.019               | <0.019   | <0.019                | <0.015       | <0.0091  | <0.019                   | <0.010              | <0.047              | <0.047      | <0.011       | <0.015  | nd         |
| MW610<br><br>(QC-1)                              | 9/5/1996    | nd                                                                              | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | nd                  | nd                  | nd          | nd           | nd      | nd         |
|                                                  | 10/11/1996  | nd                                                                              | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | nd                  | nd                  | nd          | nd           | nd      | nd         |
|                                                  | 6/24/2002   | Well not sampled - located on US Oil property and access could not be obtained. |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
|                                                  | 10/30/2002  | <0.018                                                                          | 0.074          | <0.020     | 0.048             | 0.13           | 0.065                | 0.090              | 0.049 Q              | 0.061    | 0.024 Q               | 0.033 Q      | <0.017   | 0.062 Q                  | 0.021 Q             | <0.017              | 0.030 Q     | 0.023 Q      | 0.053 Q | 0.5        |
|                                                  | 7/2/2003    | <0.018                                                                          | 0.051 Q        | 0.021 Q    | 0.026 Q           | 0.085          | 0.036 Q              | 0.052 Q            | 0.036 Q              | 0.030 Q  | <0.016                | 0.018 Q      | <0.017   | 0.036 Q                  | <0.018              | <0.017              | 0.028 Q     | 0.020 Q      | 0.037 Q | 0.5        |
|                                                  | 7/2/2003    | <0.018                                                                          | 0.058 Q        | 0.022 Q    | 0.034 Q           | 0.10           | 0.043                | 0.063              | 0.041 Q              | 0.036 Q  | <0.016                | 0.023 Q      | <0.017   | 0.043 Q                  | <0.018              | <0.017              | 0.025 Q     | 0.023 Q      | 0.044 Q | 0.6        |
|                                                  | 10/16/2003  | <0.018                                                                          | 0.062 Q        | <0.020     | 0.034 Q           | 0.11           | 0.054                | 0.073              | 0.053 Q              | 0.054    | 0.021 Q               | 0.024 Q      | <0.017   | 0.052 Q                  | <0.018              | <0.017              | <0.024      | <0.016       | 0.042 Q | 0.6        |
|                                                  | 8/4/2004    | <0.02                                                                           | 0.043 Q        | <0.018     | <0.02             | 0.054 Q        | 0.023 Q              | 0.034 Q            | 0.022 Q              | 0.024 Q  | <0.022                | <0.017       | <0.022   | 0.022 Q                  | <0.02               | <0.023              | 0.027 Q     | <0.021       | 0.023 Q | 0.3        |
| 10/4/2005                                        | <0.0082     | <0.0081                                                                         | <0.012         | <0.016     | <0.018            | <0.016Z        | <0.019               | <0.019Z            | <0.019               | <0.019   | <0.015                | <0.0091      | <0.019   | 0.015 Q                  | <0.047              | 0.075 Q             | <0.011      | <0.015       | 0.1     |            |
| MW611<br><br>(QC-2)                              | 9/5/1996    | nd                                                                              | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | nd                  | nd                  | nd          | nd           | nd      | nd         |
|                                                  | 10/11/1996  | nd                                                                              | nd             | nd         | nd                | nd             | nd                   | nd                 | nd                   | nd       | nd                    | nd           | nd       | nd                       | nd                  | nd                  | nd          | nd           | nd      | nd         |
|                                                  | 6/24/2002   | Well not sampled - located on US Oil property and access could not be obtained. |                |            |                   |                |                      |                    |                      |          |                       |              |          |                          |                     |                     |             |              |         |            |
|                                                  | 10/30/2002  | <0.018                                                                          | <0.019         | <0.020     | <0.012            | <0.014         | <0.013               | <0.016             | <0.019               | <0.014   | <0.016                | <0.013       | <0.017   | <0.021                   | <0.017              | <0.017              | <0.024      | <0.016       | <0.017  | nd         |
|                                                  | 7/2/2003    | <0.018                                                                          | <0.019         | <0.020     | <0.012            | <0.014         | <0.013               | <0.016             | <0.019               | <0.014   | <0.016                | <0.013       | <0.017   | <0.021                   | <0.018              | <0.017              | 0.028 Q     | <0.016       | <0.017  | 0.03       |
|                                                  | 7/2/2003    | <0.018                                                                          | <0.019         | <0.020     | <0.012            | <0.014         | <0.013               | <0.016             | <0.019               | <0.014   | <0.016                | <0.013       | <0.017   | <0.021                   | <0.018              | <0.017              | 0.024 Q     | <0.016       | <0.017  | 0.02       |
|                                                  | 10/16/2003  | <0.018                                                                          | <0.019         | <0.020     | <0.012            | <0.014         | <0.013               | <0.016             | <0.019               | <0.014   | <0.016                | <0.013       | <0.017   | <0.021                   | <0.018              | <0.017              | <0.024      | <0.016       | <0.017  | nd         |
|                                                  | 8/4/2004    | <0.019                                                                          | <0.019         | <0.018     | <0.02             | <0.018         | <0.018               | <0.021             | <0.019               | <0.016   | <0.022                | <0.016       | <0.022   | <0.017                   | <0.02               | <0.023              | 0.028 Q     | <0.02        | <0.016  | 0.03       |
| 10/4/2005                                        | 0.17        | 0.44                                                                            | 0.032 Q        | <0.016     | <0.018            | <0.016Z        | <0.019               | <0.019Z            | <0.019               | <0.019   | <0.015                | 0.13         | <0.019   | 1.2 D                    | 1.5QD               | 4.1 D               | 0.13        | <0.015       | 7.7     |            |



Table 4. Groundwater Analytical Results - PAHs  
Wisconsin Public Service Corporation  
Former Two Rivers Manufactured Gas Plant Site

| Sample Location                                  | Sample Date | PAHs (µg/L)  |                |              |                   |                |                      |                    |                      |             |                       |              |            |                          |                     |                     |             |              |            |            |
|--------------------------------------------------|-------------|--------------|----------------|--------------|-------------------|----------------|----------------------|--------------------|----------------------|-------------|-----------------------|--------------|------------|--------------------------|---------------------|---------------------|-------------|--------------|------------|------------|
|                                                  |             | Acenaphthene | Acenaphthylene | Anthracene   | Benz(a)anthracene | Benzo(a)pyrene | Benzo(b)fluoranthene | Benzo(ghi)perylene | Benzo(k)fluoranthene | Chrysene    | Dibenz(a,h)anthracene | Fluoranthene | Fluorene   | Indeno (1,2,3-cd) pyrene | 1-Methylnaphthalene | 2-Methylnaphthalene | Naphthalene | Phenanthrene | Pyrene     | Total PAHs |
| Wisconsin Groundwater Quality Standards (NR 140) |             |              |                |              |                   |                |                      |                    |                      |             |                       |              |            |                          |                     |                     |             |              |            |            |
| Preventive Action Limit                          |             | ns           | <u>0.5</u>     | <u>600</u>   | ns                | <u>0.02</u>    | <u>0.02</u>          | ns                 | ns                   | <u>0.02</u> | ns                    | <u>80</u>    | <u>80</u>  | ns                       | ns                  | ns                  | <u>8</u>    | ns           | <u>50</u>  | ns         |
| Enforcement Standard                             |             | ns           | <u>5</u>       | <u>3,000</u> | ns                | <u>0.2</u>     | <u>0.2</u>           | ns                 | ns                   | <u>0.2</u>  | ns                    | <u>400</u>   | <u>400</u> | ns                       | ns                  | ns                  | <u>40</u>   | ns           | <u>250</u> | ns         |
| MW612                                            | 8/4/2004    | 9.3          | <u>2.2 Q</u>   | 3.4 Q        | <2.0              | <1.8           | <1.8                 | <2.1               | <1.9                 | <1.6        | <2.2                  | <1.6         | 9.1        | <1.7                     | 87 D                | <2.3                | 2.4 Q       | 19           | 1.7 Q      | 134        |
|                                                  | 10/4/2005   | 1.8          | <u>0.52 Q</u>  | 0.52 Q       | <0.31             | <0.37          | <0.31                | <0.39              | <0.39                | <0.38       | <0.38                 | <0.31        | 1.8        | <0.38                    | 1.8                 | <0.94               | 1.1 Q       | 5.5          | <0.29      | 13         |
| MW613                                            | 8/4/2004    | 0.048 Q      | 0.047 Q        | 0.024 Q      | <0.02             | <0.018         | <0.018               | <0.021             | <0.019               | 0.016 Q     | <0.022                | 0.034 Q      | 0.026 Q    | <0.017                   | 0.12                | 0.099               | 0.57 D      | 0.09         | 0.047 Q    | 1.1        |
|                                                  | 10/4/2005   | 0.054        | 0.17           | 0.013 Q      | <0.016            | <0.018         | <0.016Z              | <0.019             | <0.019Z              | <0.019      | <0.019                | <0.015       | 0.046      | <0.019                   | 0.47                | 0.68QD              | 2.3 D       | 0.048        | <0.015     | 3.8        |

[JTB/EPK/PAH 8/02, 12/02, 2/03 U-JMK/PAR 10/03][U-PAR/HMS 11/03][U-HMS/GRL 8/26/04][U-HMS/PAR 10/05]

Notes:  
  
PAHs : Polynuclear Aromatic Hydrocarbons  
1) Concentrations equaling/exceeding the enforcement standard (ES) are shown in **bold and underlined**.  
2) Concentrations equaling/exceeding the preventive action limit (PAL) are *italicized and underlined*.  
nd : Analysis was not detected.  
µg/L : Micrograms per liter.

<0.018 : Analyte concentration less than method detection limit shown.  
ns : NR140 ES or PAL standards have not been established.  
(MW-B) : Field duplicate sample with field identity shown in parentheses.  
Q: Analyte detected between the limit of detection (LOD) and limit of quantitation (LOQ).  
D: Laboratory Data Qualifier - Analyte value from diluted analysis.  
E: Laboratory Data Qualifier: Analyte concentration exceeds calibration range.  
Z: Laboratory Data Qualifier: Compound was separated but it did not meet the resolution criteria as set forth in SW846.



**APPENDIX B**

**LABORATORY ANALYTICAL REPORT**

October 08, 2013

Jennifer Hagen  
NATURAL RESOURCE TECHNOLOGY  
234 W. Florida St, 5th Floor  
Milwaukee, WI 53204

RE: Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

Dear Jennifer Hagen:

Enclosed are the analytical results for sample(s) received by the laboratory on October 01, 2013.  
The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Brian Basten

brian.basten@pacelabs.com  
Project Manager

Enclosures

cc: Donna R Deuster, Natural Resource Technology  
Brian Hennings, NATURAL RESOURCE TECHNOLOGY  
Julie Zimdars, NATURAL RESOURCE TECHNOLOGY



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

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### Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302  
Florida/NELAP Certification #: E87948  
Illinois Certification #: 200050  
Kentucky Certification #: 82  
Louisiana Certification #: 04168  
Minnesota Certification #: 055-999-334

New York Certification #: 11888  
North Dakota Certification #: R-150  
South Carolina Certification #: 83006001  
US Dept of Agriculture #: S-76505  
Wisconsin Certification #: 405132750

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## SAMPLE SUMMARY

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Lab ID     | Sample ID | Matrix | Date Collected | Date Received  |
|------------|-----------|--------|----------------|----------------|
| 4085759001 | 092713001 | Water  | 09/27/13 08:17 | 10/01/13 09:30 |
| 4085759002 | 092713002 | Water  | 09/27/13 08:53 | 10/01/13 09:30 |
| 4085759003 | 092713003 | Water  | 09/27/13 09:21 | 10/01/13 09:30 |
| 4085759004 | 092713004 | Water  | 09/27/13 09:34 | 10/01/13 09:30 |
| 4085759005 | 092713005 | Water  | 09/27/13 09:39 | 10/01/13 09:30 |
| 4085759006 | 092713006 | Water  | 09/27/13 10:30 | 10/01/13 09:30 |
| 4085759007 | 092713007 | Water  | 09/27/13 10:55 | 10/01/13 09:30 |
| 4085759008 | 092713008 | Water  | 09/27/13 11:24 | 10/01/13 09:30 |
| 4085759009 | 092713009 | Water  | 09/27/13 11:51 | 10/01/13 09:30 |
| 4085759010 | 092713010 | Water  | 09/27/13 12:13 | 10/01/13 09:30 |
| 4085759011 | 092713018 | Water  | 09/27/13 00:00 | 10/01/13 09:30 |
| 4085759012 | 092713011 | Water  | 09/27/13 13:01 | 10/01/13 09:30 |
| 4085759013 | 092713012 | Water  | 09/27/13 13:23 | 10/01/13 09:30 |
| 4085759014 | 092713013 | Water  | 09/27/13 13:45 | 10/01/13 09:30 |
| 4085759015 | 092713014 | Water  | 09/27/13 14:04 | 10/01/13 09:30 |
| 4085759016 | 092713015 | Water  | 09/27/13 14:23 | 10/01/13 09:30 |
| 4085759017 | 092713016 | Water  | 09/27/13 14:57 | 10/01/13 09:30 |
| 4085759018 | 092713017 | Water  | 09/27/13 15:02 | 10/01/13 09:30 |
| 4085759019 | 092713019 | Water  | 09/27/13 00:00 | 10/01/13 09:30 |

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## SAMPLE ANALYTE COUNT

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Lab ID     | Sample ID | Method          | Analysts | Analytes Reported |
|------------|-----------|-----------------|----------|-------------------|
| 4085759001 | 092713001 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | LAP      | 11                |
| 4085759002 | 092713002 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | HNW      | 11                |
| 4085759003 | 092713003 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | HNW      | 11                |
| 4085759004 | 092713004 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | HNW      | 11                |
| 4085759005 | 092713005 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | LAP      | 11                |
| 4085759006 | 092713006 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | HNW      | 11                |
| 4085759007 | 092713007 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | HNW      | 11                |
| 4085759008 | 092713008 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | HNW      | 11                |
| 4085759009 | 092713009 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | HNW      | 11                |
| 4085759010 | 092713010 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | HNW      | 11                |
| 4085759011 | 092713018 | EPA 8260        | HNW      | 11                |
| 4085759012 | 092713011 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | HNW      | 11                |
| 4085759013 | 092713012 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | HNW      | 11                |
| 4085759014 | 092713013 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | LAP      | 11                |
| 4085759015 | 092713014 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | LAP      | 11                |
| 4085759016 | 092713015 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | LAP      | 11                |
| 4085759017 | 092713016 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | LAP      | 11                |
| 4085759018 | 092713017 | EPA 8270 by SIM | RJN      | 20                |
|            |           | EPA 8260        | LAP      | 11                |
| 4085759019 | 092713019 | EPA 8260        | LAP      | 11                |

## REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

| Sample: 092713001                                                                           |         | Lab ID: 4085759001 |        | Collected: 09/27/13 08:17 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|---------------------------------------------------------------------------------------------|---------|--------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                                                                                  | Results | Units              | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |         |                    |        |                           |    |                          |                |               |      |
| Acenaphthene                                                                                | 5.8     | ug/L               | 0.94   | 0.091                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 83-32-9       |      |
| Acenaphthylene                                                                              | 2.4     | ug/L               | 0.94   | 0.072                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 208-96-8      |      |
| Anthracene                                                                                  | 2.8     | ug/L               | 0.94   | 0.11                      | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 120-12-7      |      |
| Benzo(a)anthracene                                                                          | 1.1     | ug/L               | 0.94   | 0.072                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 56-55-3       |      |
| Benzo(a)pyrene                                                                              | 1.5     | ug/L               | 0.94   | 0.057                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 50-32-8       |      |
| Benzo(b)fluoranthene                                                                        | 0.63J   | ug/L               | 0.94   | 0.068                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 205-99-2      |      |
| Benzo(g,h,i)perylene                                                                        | 0.71J   | ug/L               | 0.94   | 0.096                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 191-24-2      |      |
| Benzo(k)fluoranthene                                                                        | 0.92J   | ug/L               | 0.94   | 0.087                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 207-08-9      | L1   |
| Chrysene                                                                                    | 1.3     | ug/L               | 0.94   | 0.070                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 218-01-9      |      |
| Dibenz(a,h)anthracene                                                                       | 0.15J   | ug/L               | 0.94   | 0.064                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 53-70-3       |      |
| Fluoranthene                                                                                | 2.4     | ug/L               | 0.94   | 0.088                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 206-44-0      |      |
| Fluorene                                                                                    | 3.7     | ug/L               | 0.94   | 0.095                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 86-73-7       |      |
| Indeno(1,2,3-cd)pyrene                                                                      | 0.49J   | ug/L               | 0.94   | 0.094                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 193-39-5      |      |
| 1-Methylnaphthalene                                                                         | 5.7     | ug/L               | 0.94   | 0.10                      | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 90-12-0       |      |
| 2-Methylnaphthalene                                                                         | 0.093J  | ug/L               | 0.94   | 0.077                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 91-57-6       | B    |
| Naphthalene                                                                                 | 6.8     | ug/L               | 0.94   | 0.097                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 91-20-3       | L1   |
| Phenanthrene                                                                                | 6.7     | ug/L               | 0.94   | 0.16                      | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 85-01-8       |      |
| Pyrene                                                                                      | 3.9     | ug/L               | 0.94   | 0.095                     | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 129-00-0      |      |
| <b>Surrogates</b>                                                                           |         |                    |        |                           |    |                          |                |               |      |
| 2-Fluorobiphenyl (S)                                                                        | 46 %    |                    | 24-130 |                           | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 321-60-8      |      |
| Terphenyl-d14 (S)                                                                           | 86 %    |                    | 44-169 |                           | 20 | 10/02/13 12:00           | 10/07/13 10:22 | 1718-51-0     |      |
| <b>8260 MSV UST</b> Analytical Method: EPA 8260                                             |         |                    |        |                           |    |                          |                |               |      |
| Benzene                                                                                     | 20.6    | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/03/13 22:48 | 71-43-2       |      |
| Ethylbenzene                                                                                | 8.3     | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/03/13 22:48 | 100-41-4      |      |
| Methyl-tert-butyl ether                                                                     | <0.49   | ug/L               | 1.0    | 0.49                      | 1  |                          | 10/03/13 22:48 | 1634-04-4     |      |
| Toluene                                                                                     | 2.0     | ug/L               | 1.0    | 0.44                      | 1  |                          | 10/03/13 22:48 | 108-88-3      |      |
| 1,2,4-Trimethylbenzene                                                                      | 0.53J   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/03/13 22:48 | 95-63-6       |      |
| 1,3,5-Trimethylbenzene                                                                      | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/03/13 22:48 | 108-67-8      |      |
| m&p-Xylene                                                                                  | 1.6J    | ug/L               | 2.0    | 0.82                      | 1  |                          | 10/03/13 22:48 | 179601-23-1   |      |
| o-Xylene                                                                                    | 2.1     | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/03/13 22:48 | 95-47-6       |      |
| <b>Surrogates</b>                                                                           |         |                    |        |                           |    |                          |                |               |      |
| Dibromofluoromethane (S)                                                                    | 95 %    |                    | 70-130 |                           | 1  |                          | 10/03/13 22:48 | 1868-53-7     |      |
| Toluene-d8 (S)                                                                              | 98 %    |                    | 55-137 |                           | 1  |                          | 10/03/13 22:48 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S)                                                                    | 94 %    |                    | 43-137 |                           | 1  |                          | 10/03/13 22:48 | 460-00-4      |      |

| Sample: 092713002                                                                           |         | Lab ID: 4085759002 |     | Collected: 09/27/13 08:53 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|---------------------------------------------------------------------------------------------|---------|--------------------|-----|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                                                                                  | Results | Units              | LOQ | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |         |                    |     |                           |    |                          |                |               |      |
| Acenaphthene                                                                                | 5.4     | ug/L               | 2.4 | 0.23                      | 50 | 10/02/13 12:00           | 10/07/13 10:40 | 83-32-9       |      |
| Acenaphthylene                                                                              | 0.84J   | ug/L               | 2.4 | 0.18                      | 50 | 10/02/13 12:00           | 10/07/13 10:40 | 208-96-8      |      |
| Anthracene                                                                                  | 0.72J   | ug/L               | 2.4 | 0.29                      | 50 | 10/02/13 12:00           | 10/07/13 10:40 | 120-12-7      |      |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Sample: 092713002 Lab ID: 4085759002 Collected: 09/27/13 08:53 Received: 10/01/13 09:30 Matrix: Water |         |       |        |      |    |                |                |             |      |
|-------------------------------------------------------------------------------------------------------|---------|-------|--------|------|----|----------------|----------------|-------------|------|
| Parameters                                                                                            | Results | Units | LOQ    | LOD  | DF | Prepared       | Analyzed       | CAS No.     | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510           |         |       |        |      |    |                |                |             |      |
| Benzo(a)anthracene                                                                                    | 0.23J   | ug/L  | 2.4    | 0.18 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 56-55-3     |      |
| Benzo(a)pyrene                                                                                        | 0.28J   | ug/L  | 2.4    | 0.14 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 50-32-8     |      |
| Benzo(b)fluoranthene                                                                                  | 0.22J   | ug/L  | 2.4    | 0.17 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 205-99-2    |      |
| Benzo(g,h,i)perylene                                                                                  | 0.30J   | ug/L  | 2.4    | 0.24 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 191-24-2    |      |
| Benzo(k)fluoranthene                                                                                  | 0.31J   | ug/L  | 2.4    | 0.22 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 207-08-9    | L1   |
| Chrysene                                                                                              | 0.39J   | ug/L  | 2.4    | 0.17 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 218-01-9    |      |
| Dibenz(a,h)anthracene                                                                                 | <0.16   | ug/L  | 2.4    | 0.16 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 53-70-3     |      |
| Fluoranthene                                                                                          | 0.40J   | ug/L  | 2.4    | 0.22 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 206-44-0    |      |
| Fluorene                                                                                              | 2.5     | ug/L  | 2.4    | 0.24 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 86-73-7     |      |
| Indeno(1,2,3-cd)pyrene                                                                                | <0.23   | ug/L  | 2.4    | 0.23 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 193-39-5    |      |
| 1-Methylnaphthalene                                                                                   | 14.2    | ug/L  | 2.4    | 0.25 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 90-12-0     |      |
| 2-Methylnaphthalene                                                                                   | 0.26J   | ug/L  | 2.4    | 0.19 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 91-57-6     | B    |
| Naphthalene                                                                                           | 2.2J    | ug/L  | 2.4    | 0.24 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 91-20-3     | B,L1 |
| Phenanthrene                                                                                          | 0.46J   | ug/L  | 2.4    | 0.40 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 85-01-8     |      |
| Pyrene                                                                                                | 0.95J   | ug/L  | 2.4    | 0.24 | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 129-00-0    |      |
| <b>Surrogates</b>                                                                                     |         |       |        |      |    |                |                |             |      |
| 2-Fluorobiphenyl (S)                                                                                  | 0 %     |       | 24-130 |      | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 321-60-8    | S4   |
| Terphenyl-d14 (S)                                                                                     | 0 %     |       | 44-169 |      | 50 | 10/02/13 12:00 | 10/07/13 10:40 | 1718-51-0   | S4   |
| <b>8260 MSV UST</b> Analytical Method: EPA 8260                                                       |         |       |        |      |    |                |                |             |      |
| Benzene                                                                                               | 74.2    | ug/L  | 1.0    | 0.50 | 1  |                | 10/05/13 16:02 | 71-43-2     |      |
| Ethylbenzene                                                                                          | 115     | ug/L  | 1.0    | 0.50 | 1  |                | 10/05/13 16:02 | 100-41-4    |      |
| Methyl-tert-butyl ether                                                                               | <0.49   | ug/L  | 1.0    | 0.49 | 1  |                | 10/05/13 16:02 | 1634-04-4   |      |
| Toluene                                                                                               | 2.8     | ug/L  | 1.0    | 0.44 | 1  |                | 10/05/13 16:02 | 108-88-3    |      |
| 1,2,4-Trimethylbenzene                                                                                | 6.2     | ug/L  | 1.0    | 0.50 | 1  |                | 10/05/13 16:02 | 95-63-6     |      |
| 1,3,5-Trimethylbenzene                                                                                | 2.3     | ug/L  | 1.0    | 0.50 | 1  |                | 10/05/13 16:02 | 108-67-8    |      |
| m&p-Xylene                                                                                            | 1.7J    | ug/L  | 2.0    | 0.82 | 1  |                | 10/05/13 16:02 | 179601-23-1 |      |
| o-Xylene                                                                                              | 22.6    | ug/L  | 1.0    | 0.50 | 1  |                | 10/05/13 16:02 | 95-47-6     |      |
| <b>Surrogates</b>                                                                                     |         |       |        |      |    |                |                |             |      |
| Dibromofluoromethane (S)                                                                              | 91 %    |       | 70-130 |      | 1  |                | 10/05/13 16:02 | 1868-53-7   |      |
| Toluene-d8 (S)                                                                                        | 98 %    |       | 55-137 |      | 1  |                | 10/05/13 16:02 | 2037-26-5   |      |
| 4-Bromofluorobenzene (S)                                                                              | 96 %    |       | 43-137 |      | 1  |                | 10/05/13 16:02 | 460-00-4    |      |

| Sample: 092713003 Lab ID: 4085759003 Collected: 09/27/13 09:21 Received: 10/01/13 09:30 Matrix: Water |         |       |      |       |    |                |                |          |      |
|-------------------------------------------------------------------------------------------------------|---------|-------|------|-------|----|----------------|----------------|----------|------|
| Parameters                                                                                            | Results | Units | LOQ  | LOD   | DF | Prepared       | Analyzed       | CAS No.  | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510           |         |       |      |       |    |                |                |          |      |
| Acenaphthene                                                                                          | 0.24    | ug/L  | 0.24 | 0.023 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 83-32-9  |      |
| Acenaphthylene                                                                                        | 0.030J  | ug/L  | 0.24 | 0.018 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 208-96-8 |      |
| Anthracene                                                                                            | 0.056J  | ug/L  | 0.24 | 0.029 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 120-12-7 |      |
| Benzo(a)anthracene                                                                                    | 0.022J  | ug/L  | 0.24 | 0.018 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 56-55-3  |      |
| Benzo(a)pyrene                                                                                        | 0.019J  | ug/L  | 0.24 | 0.014 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 50-32-8  |      |
| Benzo(b)fluoranthene                                                                                  | <0.017  | ug/L  | 0.24 | 0.017 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 205-99-2 |      |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Sample: 092713003                                               |         |       |        |       |    |                |                |             |      |
|-----------------------------------------------------------------|---------|-------|--------|-------|----|----------------|----------------|-------------|------|
| Lab ID: 4085759003                                              |         |       |        |       |    |                |                |             |      |
| Collected: 09/27/13 09:21                                       |         |       |        |       |    |                |                |             |      |
| Received: 10/01/13 09:30                                        |         |       |        |       |    |                |                |             |      |
| Matrix: Water                                                   |         |       |        |       |    |                |                |             |      |
| Parameters                                                      | Results | Units | LOQ    | LOD   | DF | Prepared       | Analyzed       | CAS No.     | Qual |
| <b>8270 MSSV PAH by SIM</b>                                     |         |       |        |       |    |                |                |             |      |
| Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |         |       |        |       |    |                |                |             |      |
| Benzo(g,h,i)perylene                                            | <0.024  | ug/L  | 0.24   | 0.024 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 191-24-2    | L3   |
| Benzo(k)fluoranthene                                            | <0.022  | ug/L  | 0.24   | 0.022 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 207-08-9    |      |
| Chrysene                                                        | 0.031J  | ug/L  | 0.24   | 0.017 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 218-01-9    |      |
| Dibenz(a,h)anthracene                                           | <0.016  | ug/L  | 0.24   | 0.016 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 53-70-3     |      |
| Fluoranthene                                                    | 0.057J  | ug/L  | 0.24   | 0.022 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 206-44-0    | B    |
| Fluorene                                                        | 0.10J   | ug/L  | 0.24   | 0.024 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 86-73-7     |      |
| Indeno(1,2,3-cd)pyrene                                          | <0.023  | ug/L  | 0.24   | 0.023 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 193-39-5    |      |
| 1-Methylnaphthalene                                             | 0.33    | ug/L  | 0.24   | 0.025 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 90-12-0     |      |
| 2-Methylnaphthalene                                             | 0.22J   | ug/L  | 0.24   | 0.019 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 91-57-6     | B,L1 |
| Naphthalene                                                     | 0.73    | ug/L  | 0.24   | 0.024 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 91-20-3     |      |
| Phenanthrene                                                    | 0.18J   | ug/L  | 0.24   | 0.040 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 85-01-8     |      |
| Pyrene                                                          | 0.10J   | ug/L  | 0.24   | 0.024 | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 129-00-0    |      |
| <b>Surrogates</b>                                               |         |       |        |       |    |                |                |             |      |
| 2-Fluorobiphenyl (S)                                            | 52      | %     | 24-130 |       | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 321-60-8    |      |
| Terphenyl-d14 (S)                                               | 84      | %     | 44-169 |       | 5  | 10/02/13 12:00 | 10/07/13 10:57 | 1718-51-0   |      |
| <b>8260 MSV UST</b>                                             |         |       |        |       |    |                |                |             |      |
| Analytical Method: EPA 8260                                     |         |       |        |       |    |                |                |             |      |
| Benzene                                                         | 0.75J   | ug/L  | 1.0    | 0.50  | 1  |                | 10/05/13 16:25 | 71-43-2     |      |
| Ethylbenzene                                                    | 0.61J   | ug/L  | 1.0    | 0.50  | 1  |                | 10/05/13 16:25 | 100-41-4    |      |
| Methyl-tert-butyl ether                                         | <0.49   | ug/L  | 1.0    | 0.49  | 1  |                | 10/05/13 16:25 | 1634-04-4   |      |
| Toluene                                                         | <0.44   | ug/L  | 1.0    | 0.44  | 1  |                | 10/05/13 16:25 | 108-88-3    |      |
| 1,2,4-Trimethylbenzene                                          | <0.50   | ug/L  | 1.0    | 0.50  | 1  |                | 10/05/13 16:25 | 95-63-6     |      |
| 1,3,5-Trimethylbenzene                                          | <0.50   | ug/L  | 1.0    | 0.50  | 1  |                | 10/05/13 16:25 | 108-67-8    |      |
| m&p-Xylene                                                      | <0.82   | ug/L  | 2.0    | 0.82  | 1  |                | 10/05/13 16:25 | 179601-23-1 |      |
| o-Xylene                                                        | <0.50   | ug/L  | 1.0    | 0.50  | 1  |                | 10/05/13 16:25 | 95-47-6     |      |
| <b>Surrogates</b>                                               |         |       |        |       |    |                |                |             |      |
| Dibromofluoromethane (S)                                        | 94      | %     | 70-130 |       | 1  |                | 10/05/13 16:25 | 1868-53-7   |      |
| Toluene-d8 (S)                                                  | 99      | %     | 55-137 |       | 1  |                | 10/05/13 16:25 | 2037-26-5   |      |
| 4-Bromofluorobenzene (S)                                        | 92      | %     | 43-137 |       | 1  |                | 10/05/13 16:25 | 460-00-4    |      |

| Sample: 092713004 Lab ID: 4085759004 Collected: 09/27/13 09:34 Received: 10/01/13 09:30 Matrix: Water |         |       |       |        |    |                |                |          |      |
|-------------------------------------------------------------------------------------------------------|---------|-------|-------|--------|----|----------------|----------------|----------|------|
| Parameters                                                                                            | Results | Units | LOQ   | LOD    | DF | Prepared       | Analyzed       | CAS No.  | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510           |         |       |       |        |    |                |                |          |      |
| Acenaphthene                                                                                          | 0.030J  | ug/L  | 0.047 | 0.0045 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 83-32-9  | L1   |
| Acenaphthylene                                                                                        | 0.028J  | ug/L  | 0.047 | 0.0036 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 208-96-8 |      |
| Anthracene                                                                                            | 0.028J  | ug/L  | 0.047 | 0.0057 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 120-12-7 |      |
| Benzo(a)anthracene                                                                                    | 0.023J  | ug/L  | 0.047 | 0.0036 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 56-55-3  |      |
| Benzo(a)pyrene                                                                                        | 0.043J  | ug/L  | 0.047 | 0.0029 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 50-32-8  |      |
| Benzo(b)fluoranthene                                                                                  | 0.023J  | ug/L  | 0.047 | 0.0034 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 205-99-2 |      |
| Benzo(g,h,i)perylene                                                                                  | 0.028J  | ug/L  | 0.047 | 0.0048 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 191-24-2 |      |
| Benzo(k)fluoranthene                                                                                  | 0.034J  | ug/L  | 0.047 | 0.0044 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 207-08-9 |      |
| Chrysene                                                                                              | 0.037J  | ug/L  | 0.047 | 0.0035 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 218-01-9 |      |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Sample: 092713004 Lab ID: 4085759004 Collected: 09/27/13 09:34 Received: 10/01/13 09:30 Matrix: Water |         |       |        |        |    |                |                |             |      |
|-------------------------------------------------------------------------------------------------------|---------|-------|--------|--------|----|----------------|----------------|-------------|------|
| Parameters                                                                                            | Results | Units | LOQ    | LOD    | DF | Prepared       | Analyzed       | CAS No.     | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510           |         |       |        |        |    |                |                |             |      |
| Dibenz(a,h)anthracene                                                                                 | 0.0060J | ug/L  | 0.047  | 0.0032 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 53-70-3     |      |
| Fluoranthene                                                                                          | 0.031J  | ug/L  | 0.047  | 0.0044 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 206-44-0    |      |
| Fluorene                                                                                              | 0.018J  | ug/L  | 0.047  | 0.0048 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 86-73-7     |      |
| Indeno(1,2,3-cd)pyrene                                                                                | 0.018J  | ug/L  | 0.047  | 0.0047 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 193-39-5    |      |
| 1-Methylnaphthalene                                                                                   | 0.046J  | ug/L  | 0.047  | 0.0050 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 90-12-0     | B    |
| 2-Methylnaphthalene                                                                                   | 0.028J  | ug/L  | 0.047  | 0.0039 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 91-57-6     | B    |
| Naphthalene                                                                                           | 0.11    | ug/L  | 0.047  | 0.0048 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 91-20-3     | B,L1 |
| Phenanthrene                                                                                          | 0.047J  | ug/L  | 0.047  | 0.0081 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 85-01-8     |      |
| Pyrene                                                                                                | 0.055   | ug/L  | 0.047  | 0.0047 | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 129-00-0    |      |
| <b>Surrogates</b>                                                                                     |         |       |        |        |    |                |                |             |      |
| 2-Fluorobiphenyl (S)                                                                                  | 46 %    |       | 24-130 |        | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 321-60-8    |      |
| Terphenyl-d14 (S)                                                                                     | 79 %    |       | 44-169 |        | 1  | 10/02/13 12:00 | 10/04/13 03:30 | 1718-51-0   |      |
| <b>8260 MSV UST</b> Analytical Method: EPA 8260                                                       |         |       |        |        |    |                |                |             |      |
| Benzene                                                                                               | <0.50   | ug/L  | 1.0    | 0.50   | 1  |                | 10/05/13 16:47 | 71-43-2     |      |
| Ethylbenzene                                                                                          | <0.50   | ug/L  | 1.0    | 0.50   | 1  |                | 10/05/13 16:47 | 100-41-4    |      |
| Methyl-tert-butyl ether                                                                               | <0.49   | ug/L  | 1.0    | 0.49   | 1  |                | 10/05/13 16:47 | 1634-04-4   |      |
| Toluene                                                                                               | <0.44   | ug/L  | 1.0    | 0.44   | 1  |                | 10/05/13 16:47 | 108-88-3    |      |
| 1,2,4-Trimethylbenzene                                                                                | <0.50   | ug/L  | 1.0    | 0.50   | 1  |                | 10/05/13 16:47 | 95-63-6     |      |
| 1,3,5-Trimethylbenzene                                                                                | <0.50   | ug/L  | 1.0    | 0.50   | 1  |                | 10/05/13 16:47 | 108-67-8    |      |
| m&p-Xylene                                                                                            | <0.82   | ug/L  | 2.0    | 0.82   | 1  |                | 10/05/13 16:47 | 179601-23-1 |      |
| o-Xylene                                                                                              | <0.50   | ug/L  | 1.0    | 0.50   | 1  |                | 10/05/13 16:47 | 95-47-6     |      |
| <b>Surrogates</b>                                                                                     |         |       |        |        |    |                |                |             |      |
| Dibromofluoromethane (S)                                                                              | 94 %    |       | 70-130 |        | 1  |                | 10/05/13 16:47 | 1868-53-7   |      |
| Toluene-d8 (S)                                                                                        | 99 %    |       | 55-137 |        | 1  |                | 10/05/13 16:47 | 2037-26-5   |      |
| 4-Bromofluorobenzene (S)                                                                              | 90 %    |       | 43-137 |        | 1  |                | 10/05/13 16:47 | 460-00-4    |      |

| Sample: 092713005 Lab ID: 4085759005 Collected: 09/27/13 09:39 Received: 10/01/13 09:30 Matrix: Water |         |       |      |       |    |                |                |          |      |
|-------------------------------------------------------------------------------------------------------|---------|-------|------|-------|----|----------------|----------------|----------|------|
| Parameters                                                                                            | Results | Units | LOQ  | LOD   | DF | Prepared       | Analyzed       | CAS No.  | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510           |         |       |      |       |    |                |                |          |      |
| Acenaphthene                                                                                          | 0.15J   | ug/L  | 0.19 | 0.018 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 83-32-9  |      |
| Acenaphthylene                                                                                        | 0.070J  | ug/L  | 0.19 | 0.014 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 208-96-8 |      |
| Anthracene                                                                                            | 0.074J  | ug/L  | 0.19 | 0.023 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 120-12-7 |      |
| Benzo(a)anthracene                                                                                    | 0.050J  | ug/L  | 0.19 | 0.014 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 56-55-3  |      |
| Benzo(a)pyrene                                                                                        | 0.079J  | ug/L  | 0.19 | 0.011 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 50-32-8  |      |
| Benzo(b)fluoranthene                                                                                  | 0.042J  | ug/L  | 0.19 | 0.014 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 205-99-2 |      |
| Benzo(g,h,i)perylene                                                                                  | 0.058J  | ug/L  | 0.19 | 0.019 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 191-24-2 |      |
| Benzo(k)fluoranthene                                                                                  | 0.069J  | ug/L  | 0.19 | 0.017 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 207-08-9 | L1   |
| Chrysene                                                                                              | 0.082J  | ug/L  | 0.19 | 0.014 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 218-01-9 |      |
| Dibenz(a,h)anthracene                                                                                 | <0.013  | ug/L  | 0.19 | 0.013 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 53-70-3  |      |
| Fluoranthene                                                                                          | 0.077J  | ug/L  | 0.19 | 0.018 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 206-44-0 |      |
| Fluorene                                                                                              | 0.074J  | ug/L  | 0.19 | 0.019 | 4  | 10/02/13 12:00 | 10/04/13 18:59 | 86-73-7  |      |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

| Sample: 092713005                                                                           |         | Lab ID: 4085759005 |        | Collected: 09/27/13 09:39 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|---------------------------------------------------------------------------------------------|---------|--------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                                                                                  | Results | Units              | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |         |                    |        |                           |    |                          |                |               |      |
| Indeno(1,2,3-cd)pyrene                                                                      | 0.037J  | ug/L               | 0.19   | 0.019                     | 4  | 10/02/13 12:00           | 10/04/13 18:59 | 193-39-5      |      |
| 1-Methylnaphthalene                                                                         | 0.20    | ug/L               | 0.19   | 0.020                     | 4  | 10/02/13 12:00           | 10/04/13 18:59 | 90-12-0       | B    |
| 2-Methylnaphthalene                                                                         | 0.20    | ug/L               | 0.19   | 0.015                     | 4  | 10/02/13 12:00           | 10/04/13 18:59 | 91-57-6       | B    |
| Naphthalene                                                                                 | 1.3     | ug/L               | 0.19   | 0.019                     | 4  | 10/02/13 12:00           | 10/04/13 18:59 | 91-20-3       | L1   |
| Phenanthrene                                                                                | 0.17J   | ug/L               | 0.19   | 0.032                     | 4  | 10/02/13 12:00           | 10/04/13 18:59 | 85-01-8       |      |
| Pyrene                                                                                      | 0.15J   | ug/L               | 0.19   | 0.019                     | 4  | 10/02/13 12:00           | 10/04/13 18:59 | 129-00-0      |      |
| <b>Surrogates</b>                                                                           |         |                    |        |                           |    |                          |                |               |      |
| 2-Fluorobiphenyl (S)                                                                        | 50 %    |                    | 24-130 |                           | 4  | 10/02/13 12:00           | 10/04/13 18:59 | 321-60-8      |      |
| Terphenyl-d14 (S)                                                                           | 81 %    |                    | 44-169 |                           | 4  | 10/02/13 12:00           | 10/04/13 18:59 | 1718-51-0     |      |
| <b>8260 MSV UST</b> Analytical Method: EPA 8260                                             |         |                    |        |                           |    |                          |                |               |      |
| Benzene                                                                                     | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/03/13 22:25 | 71-43-2       |      |
| Ethylbenzene                                                                                | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/03/13 22:25 | 100-41-4      |      |
| Methyl-tert-butyl ether                                                                     | <0.49   | ug/L               | 1.0    | 0.49                      | 1  |                          | 10/03/13 22:25 | 1634-04-4     |      |
| Toluene                                                                                     | <0.44   | ug/L               | 1.0    | 0.44                      | 1  |                          | 10/03/13 22:25 | 108-88-3      |      |
| 1,2,4-Trimethylbenzene                                                                      | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/03/13 22:25 | 95-63-6       |      |
| 1,3,5-Trimethylbenzene                                                                      | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/03/13 22:25 | 108-67-8      |      |
| m&p-Xylene                                                                                  | <0.82   | ug/L               | 2.0    | 0.82                      | 1  |                          | 10/03/13 22:25 | 179601-23-1   |      |
| o-Xylene                                                                                    | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/03/13 22:25 | 95-47-6       |      |
| <b>Surrogates</b>                                                                           |         |                    |        |                           |    |                          |                |               |      |
| Dibromofluoromethane (S)                                                                    | 96 %    |                    | 70-130 |                           | 1  |                          | 10/03/13 22:25 | 1868-53-7     | HS   |
| Toluene-d8 (S)                                                                              | 99 %    |                    | 55-137 |                           | 1  |                          | 10/03/13 22:25 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S)                                                                    | 93 %    |                    | 43-137 |                           | 1  |                          | 10/03/13 22:25 | 460-00-4      |      |

| Sample: 092713006                                                                           |         | Lab ID: 4085759006 |     | Collected: 09/27/13 10:30 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|---------------------------------------------------------------------------------------------|---------|--------------------|-----|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                                                                                  | Results | Units              | LOQ | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |         |                    |     |                           |    |                          |                |               |      |
| Acenaphthene                                                                                | 14.7    | ug/L               | 1.9 | 0.18                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 83-32-9       |      |
| Acenaphthylene                                                                              | 7.2     | ug/L               | 1.9 | 0.15                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 208-96-8      |      |
| Anthracene                                                                                  | 5.6     | ug/L               | 1.9 | 0.23                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 120-12-7      |      |
| Benzo(a)anthracene                                                                          | 3.0     | ug/L               | 1.9 | 0.15                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 56-55-3       |      |
| Benzo(a)pyrene                                                                              | 3.6     | ug/L               | 1.9 | 0.12                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 50-32-8       |      |
| Benzo(b)fluoranthene                                                                        | 1.5J    | ug/L               | 1.9 | 0.14                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 205-99-2      |      |
| Benzo(g,h,i)perylene                                                                        | 2.0     | ug/L               | 1.9 | 0.19                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 191-24-2      |      |
| Benzo(k)fluoranthene                                                                        | 2.2     | ug/L               | 1.9 | 0.18                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 207-08-9      | L1   |
| Chrysene                                                                                    | 3.7     | ug/L               | 1.9 | 0.14                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 218-01-9      |      |
| Dibenz(a,h)anthracene                                                                       | 0.26J   | ug/L               | 1.9 | 0.13                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 53-70-3       |      |
| Fluoranthene                                                                                | 5.5     | ug/L               | 1.9 | 0.18                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 206-44-0      |      |
| Fluorene                                                                                    | 7.6     | ug/L               | 1.9 | 0.19                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 86-73-7       |      |
| Indeno(1,2,3-cd)pyrene                                                                      | 1.2J    | ug/L               | 1.9 | 0.19                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 193-39-5      |      |
| 1-Methylnaphthalene                                                                         | 15.6    | ug/L               | 1.9 | 0.20                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 90-12-0       |      |
| 2-Methylnaphthalene                                                                         | 0.76J   | ug/L               | 1.9 | 0.16                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 91-57-6       | B    |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

| Sample: 092713006           |         | Lab ID: 4085759006                                              |        | Collected: 09/27/13 10:30 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|-----------------------------|---------|-----------------------------------------------------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                  | Results | Units                                                           | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> |         | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |        |                           |    |                          |                |               |      |
| Naphthalene                 | <0.20   | ug/L                                                            | 1.9    | 0.20                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 91-20-3       | L3   |
| Phenanthrene                | 10.1    | ug/L                                                            | 1.9    | 0.33                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 85-01-8       |      |
| Pyrene                      | 8.9     | ug/L                                                            | 1.9    | 0.19                      | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 129-00-0      |      |
| <b>Surrogates</b>           |         |                                                                 |        |                           |    |                          |                |               |      |
| 2-Fluorobiphenyl (S)        | 0 %     |                                                                 | 24-130 |                           | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 321-60-8      | S4   |
| Terphenyl-d14 (S)           | 0 %     |                                                                 | 44-169 |                           | 40 | 10/02/13 12:00           | 10/07/13 11:15 | 1718-51-0     | S4   |
| <b>8260 MSV UST</b>         |         | Analytical Method: EPA 8260                                     |        |                           |    |                          |                |               |      |
| Benzene                     | 4210    | ug/L                                                            | 25.0   | 12.5                      | 25 |                          | 10/05/13 17:10 | 71-43-2       |      |
| Ethylbenzene                | 95.0    | ug/L                                                            | 25.0   | 12.5                      | 25 |                          | 10/05/13 17:10 | 100-41-4      |      |
| Methyl-tert-butyl ether     | <12.3   | ug/L                                                            | 25.0   | 12.3                      | 25 |                          | 10/05/13 17:10 | 1634-04-4     |      |
| Toluene                     | 1090    | ug/L                                                            | 25.0   | 11.0                      | 25 |                          | 10/05/13 17:10 | 108-88-3      |      |
| 1,2,4-Trimethylbenzene      | <12.5   | ug/L                                                            | 25.0   | 12.5                      | 25 |                          | 10/05/13 17:10 | 95-63-6       |      |
| 1,3,5-Trimethylbenzene      | <12.5   | ug/L                                                            | 25.0   | 12.5                      | 25 |                          | 10/05/13 17:10 | 108-67-8      |      |
| m&p-Xylene                  | 36.8J   | ug/L                                                            | 50.0   | 20.4                      | 25 |                          | 10/05/13 17:10 | 179601-23-1   |      |
| o-Xylene                    | 19.5J   | ug/L                                                            | 25.0   | 12.5                      | 25 |                          | 10/05/13 17:10 | 95-47-6       |      |
| <b>Surrogates</b>           |         |                                                                 |        |                           |    |                          |                |               |      |
| Dibromofluoromethane (S)    | 99 %    |                                                                 | 70-130 |                           | 25 |                          | 10/05/13 17:10 | 1868-53-7     |      |
| Toluene-d8 (S)              | 99 %    |                                                                 | 55-137 |                           | 25 |                          | 10/05/13 17:10 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S)    | 93 %    |                                                                 | 43-137 |                           | 25 |                          | 10/05/13 17:10 | 460-00-4      |      |

| Sample: 092713007           |         | Lab ID: 4085759007                                              |     | Collected: 09/27/13 10:55 |      | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|-----------------------------|---------|-----------------------------------------------------------------|-----|---------------------------|------|--------------------------|----------------|---------------|------|
| Parameters                  | Results | Units                                                           | LOQ | LOD                       | DF   | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> |         | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |     |                           |      |                          |                |               |      |
| Acenaphthene                | 81.0J   | ug/L                                                            | 189 | 18.1                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 83-32-9       |      |
| Acenaphthylene              | 29.1J   | ug/L                                                            | 189 | 14.4                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 208-96-8      |      |
| Anthracene                  | <22.9   | ug/L                                                            | 189 | 22.9                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 120-12-7      |      |
| Benzo(a)anthracene          | <14.5   | ug/L                                                            | 189 | 14.5                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 56-55-3       |      |
| Benzo(a)pyrene              | <11.4   | ug/L                                                            | 189 | 11.4                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 50-32-8       |      |
| Benzo(b)fluoranthene        | <13.6   | ug/L                                                            | 189 | 13.6                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 205-99-2      |      |
| Benzo(g,h,i)perylene        | <19.2   | ug/L                                                            | 189 | 19.2                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 191-24-2      |      |
| Benzo(k)fluoranthene        | <17.5   | ug/L                                                            | 189 | 17.5                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 207-08-9      | L3   |
| Chrysene                    | <13.9   | ug/L                                                            | 189 | 13.9                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 218-01-9      |      |
| Dibenz(a,h)anthracene       | <12.8   | ug/L                                                            | 189 | 12.8                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 53-70-3       |      |
| Fluoranthene                | <17.6   | ug/L                                                            | 189 | 17.6                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 206-44-0      |      |
| Fluorene                    | 26.1J   | ug/L                                                            | 189 | 19.1                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 86-73-7       |      |
| Indeno(1,2,3-cd)pyrene      | <18.7   | ug/L                                                            | 189 | 18.7                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 193-39-5      |      |
| 1-Methylnaphthalene         | 159J    | ug/L                                                            | 189 | 20.0                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 90-12-0       | B    |
| 2-Methylnaphthalene         | 186J    | ug/L                                                            | 189 | 15.4                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 91-57-6       | B    |
| Naphthalene                 | 1630    | ug/L                                                            | 189 | 19.4                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 91-20-3       | L1   |
| Phenanthrene                | 35.1J   | ug/L                                                            | 189 | 32.4                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 85-01-8       |      |
| Pyrene                      | <19.0   | ug/L                                                            | 189 | 19.0                      | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 129-00-0      |      |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

| Sample: 092713007        |            | Lab ID: 4085759007                                              |        | Collected: 09/27/13 10:55 |      | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|--------------------------|------------|-----------------------------------------------------------------|--------|---------------------------|------|--------------------------|----------------|---------------|------|
| Parameters               | Results    | Units                                                           | LOQ    | LOD                       | DF   | Prepared                 | Analyzed       | CAS No.       | Qual |
| 8270 MSSV PAH by SIM     |            | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |        |                           |      |                          |                |               |      |
| Surrogates               |            |                                                                 |        |                           |      |                          |                |               |      |
| 2-Fluorobiphenyl (S)     | 0 %        |                                                                 | 24-130 |                           | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 321-60-8      | S4   |
| Terphenyl-d14 (S)        | 0 %        |                                                                 | 44-169 |                           | 4000 | 10/02/13 12:00           | 10/07/13 14:10 | 1718-51-0     | S4   |
| 8260 MSV UST             |            | Analytical Method: EPA 8260                                     |        |                           |      |                          |                |               |      |
| Benzene                  | 788 ug/L   |                                                                 | 40.0   | 20.0                      | 40   |                          | 10/05/13 17:33 | 71-43-2       |      |
| Ethylbenzene             | 1920 ug/L  |                                                                 | 40.0   | 20.0                      | 40   |                          | 10/05/13 17:33 | 100-41-4      |      |
| Methyl-tert-butyl ether  | <19.7 ug/L |                                                                 | 40.0   | 19.7                      | 40   |                          | 10/05/13 17:33 | 1634-04-4     |      |
| Toluene                  | 2630 ug/L  |                                                                 | 40.0   | 17.5                      | 40   |                          | 10/05/13 17:33 | 108-88-3      |      |
| 1,2,4-Trimethylbenzene   | 151 ug/L   |                                                                 | 40.0   | 20.0                      | 40   |                          | 10/05/13 17:33 | 95-63-6       |      |
| 1,3,5-Trimethylbenzene   | 42.4 ug/L  |                                                                 | 40.0   | 20.0                      | 40   |                          | 10/05/13 17:33 | 108-67-8      |      |
| m&p-Xylene               | 1140 ug/L  |                                                                 | 80.0   | 32.7                      | 40   |                          | 10/05/13 17:33 | 179601-23-1   |      |
| o-Xylene                 | 622 ug/L   |                                                                 | 40.0   | 20.0                      | 40   |                          | 10/05/13 17:33 | 95-47-6       |      |
| Surrogates               |            |                                                                 |        |                           |      |                          |                |               |      |
| Dibromofluoromethane (S) | 95 %       |                                                                 | 70-130 |                           | 40   |                          | 10/05/13 17:33 | 1868-53-7     |      |
| Toluene-d8 (S)           | 100 %      |                                                                 | 55-137 |                           | 40   |                          | 10/05/13 17:33 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S) | 100 %      |                                                                 | 43-137 |                           | 40   |                          | 10/05/13 17:33 | 460-00-4      |      |

| Sample: 092713008           |         | Lab ID: 4085759008                                              |        | Collected: 09/27/13 11:24 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|-----------------------------|---------|-----------------------------------------------------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                  | Results | Units                                                           | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> |         | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |        |                           |    |                          |                |               |      |
| Acenaphthene                | 0.028J  | ug/L                                                            | 0.047  | 0.0045                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 83-32-9       |      |
| Acenaphthylene              | 0.0064J | ug/L                                                            | 0.047  | 0.0036                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 208-96-8      |      |
| Anthracene                  | <0.0057 | ug/L                                                            | 0.047  | 0.0057                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 120-12-7      |      |
| Benzo(a)anthracene          | <0.0036 | ug/L                                                            | 0.047  | 0.0036                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 56-55-3       |      |
| Benzo(a)pyrene              | <0.0029 | ug/L                                                            | 0.047  | 0.0029                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 50-32-8       |      |
| Benzo(b)fluoranthene        | <0.0034 | ug/L                                                            | 0.047  | 0.0034                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 205-99-2      |      |
| Benzo(g,h,i)perylene        | <0.0048 | ug/L                                                            | 0.047  | 0.0048                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 191-24-2      |      |
| Benzo(k)fluoranthene        | <0.0044 | ug/L                                                            | 0.047  | 0.0044                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 207-08-9      | L3   |
| Chrysene                    | <0.0035 | ug/L                                                            | 0.047  | 0.0035                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 218-01-9      |      |
| Dibenz(a,h)anthracene       | <0.0032 | ug/L                                                            | 0.047  | 0.0032                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 53-70-3       |      |
| Fluoranthene                | <0.0044 | ug/L                                                            | 0.047  | 0.0044                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 206-44-0      |      |
| Fluorene                    | 0.012J  | ug/L                                                            | 0.047  | 0.0048                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 86-73-7       |      |
| Indeno(1,2,3-cd)pyrene      | <0.0047 | ug/L                                                            | 0.047  | 0.0047                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 193-39-5      |      |
| 1-Methylnaphthalene         | 0.055   | ug/L                                                            | 0.047  | 0.0050                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 90-12-0       | B    |
| 2-Methylnaphthalene         | 0.047J  | ug/L                                                            | 0.047  | 0.0039                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 91-57-6       | B    |
| Naphthalene                 | 0.45    | ug/L                                                            | 0.047  | 0.0048                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 91-20-3       | L1   |
| Phenanthrene                | 0.017J  | ug/L                                                            | 0.047  | 0.0081                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 85-01-8       |      |
| Pyrene                      | 0.0068J | ug/L                                                            | 0.047  | 0.0047                    | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 129-00-0      |      |
| <b>Surrogates</b>           |         |                                                                 |        |                           |    |                          |                |               |      |
| 2-Fluorobiphenyl (S)        | 43 %    |                                                                 | 24-130 |                           | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 321-60-8      |      |
| Terphenyl-d14 (S)           | 77 %    |                                                                 | 44-169 |                           | 1  | 10/02/13 12:00           | 10/04/13 04:05 | 1718-51-0     |      |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Sample: 092713008                               |         | Lab ID: 4085759008 |        | Collected: 09/27/13 11:24 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|-------------------------------------------------|---------|--------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                                      | Results | Units              | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8260 MSV UST</b> Analytical Method: EPA 8260 |         |                    |        |                           |    |                          |                |               |      |
| Benzene                                         | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/05/13 17:55 | 71-43-2       |      |
| Ethylbenzene                                    | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/05/13 17:55 | 100-41-4      |      |
| Methyl-tert-butyl ether                         | <0.49   | ug/L               | 1.0    | 0.49                      | 1  |                          | 10/05/13 17:55 | 1634-04-4     |      |
| Toluene                                         | <0.44   | ug/L               | 1.0    | 0.44                      | 1  |                          | 10/05/13 17:55 | 108-88-3      |      |
| 1,2,4-Trimethylbenzene                          | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/05/13 17:55 | 95-63-6       |      |
| 1,3,5-Trimethylbenzene                          | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/05/13 17:55 | 108-67-8      |      |
| m&p-Xylene                                      | <0.82   | ug/L               | 2.0    | 0.82                      | 1  |                          | 10/05/13 17:55 | 179601-23-1   |      |
| o-Xylene                                        | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/05/13 17:55 | 95-47-6       |      |
| <b>Surrogates</b>                               |         |                    |        |                           |    |                          |                |               |      |
| Dibromofluoromethane (S)                        | 100 %   |                    | 70-130 |                           | 1  |                          | 10/05/13 17:55 | 1868-53-7     |      |
| Toluene-d8 (S)                                  | 100 %   |                    | 55-137 |                           | 1  |                          | 10/05/13 17:55 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S)                        | 90 %    |                    | 43-137 |                           | 1  |                          | 10/05/13 17:55 | 460-00-4      |      |

| Sample: 092713009                                                                           |         | Lab ID: 4085759009 |        | Collected: 09/27/13 11:51 |      | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|---------------------------------------------------------------------------------------------|---------|--------------------|--------|---------------------------|------|--------------------------|----------------|---------------|------|
| Parameters                                                                                  | Results | Units              | LOQ    | LOD                       | DF   | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |         |                    |        |                           |      |                          |                |               |      |
| Acenaphthene                                                                                | 37.4J   | ug/L               | 47.2   | 4.5                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 83-32-9       |      |
| Acenaphthylene                                                                              | <3.6    | ug/L               | 47.2   | 3.6                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 208-96-8      |      |
| Anthracene                                                                                  | 8.0J    | ug/L               | 47.2   | 5.7                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 120-12-7      |      |
| Benzo(a)anthracene                                                                          | <3.6    | ug/L               | 47.2   | 3.6                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 56-55-3       |      |
| Benzo(a)pyrene                                                                              | <2.9    | ug/L               | 47.2   | 2.9                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 50-32-8       |      |
| Benzo(b)fluoranthene                                                                        | <3.4    | ug/L               | 47.2   | 3.4                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 205-99-2      |      |
| Benzo(g,h,i)perylene                                                                        | <4.8    | ug/L               | 47.2   | 4.8                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 191-24-2      |      |
| Benzo(k)fluoranthene                                                                        | <4.4    | ug/L               | 47.2   | 4.4                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 207-08-9      | L3   |
| Chrysene                                                                                    | <3.5    | ug/L               | 47.2   | 3.5                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 218-01-9      |      |
| Dibenz(a,h)anthracene                                                                       | <3.2    | ug/L               | 47.2   | 3.2                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 53-70-3       |      |
| Fluoranthene                                                                                | 5.1J    | ug/L               | 47.2   | 4.4                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 206-44-0      |      |
| Fluorene                                                                                    | 16.0J   | ug/L               | 47.2   | 4.8                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 86-73-7       |      |
| Indeno(1,2,3-cd)pyrene                                                                      | <4.7    | ug/L               | 47.2   | 4.7                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 193-39-5      |      |
| 1-Methylnaphthalene                                                                         | 45.1J   | ug/L               | 47.2   | 5.0                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 90-12-0       | B    |
| 2-Methylnaphthalene                                                                         | 29.5J   | ug/L               | 47.2   | 3.9                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 91-57-6       | B    |
| Naphthalene                                                                                 | 490     | ug/L               | 47.2   | 4.8                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 91-20-3       | L1   |
| Phenanthrene                                                                                | 39.9J   | ug/L               | 47.2   | 8.1                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 85-01-8       |      |
| Pyrene                                                                                      | 8.8J    | ug/L               | 47.2   | 4.7                       | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 129-00-0      |      |
| <b>Surrogates</b>                                                                           |         |                    |        |                           |      |                          |                |               |      |
| 2-Fluorobiphenyl (S)                                                                        | 0 %     |                    | 24-130 |                           | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 321-60-8      | S4   |
| Terphenyl-d14 (S)                                                                           | 0 %     |                    | 44-169 |                           | 1000 | 10/02/13 12:00           | 10/07/13 14:28 | 1718-51-0     | S4   |

|                                                 |       |      |      |      |    |  |                |           |  |
|-------------------------------------------------|-------|------|------|------|----|--|----------------|-----------|--|
| <b>8260 MSV UST</b> Analytical Method: EPA 8260 |       |      |      |      |    |  |                |           |  |
| Benzene                                         | 4130  | ug/L | 40.0 | 20.0 | 40 |  | 10/05/13 18:18 | 71-43-2   |  |
| Ethylbenzene                                    | 677   | ug/L | 40.0 | 20.0 | 40 |  | 10/05/13 18:18 | 100-41-4  |  |
| Methyl-tert-butyl ether                         | <19.7 | ug/L | 40.0 | 19.7 | 40 |  | 10/05/13 18:18 | 1634-04-4 |  |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Sample: 092713009 Lab ID: 4085759009 Collected: 09/27/13 11:51 Received: 10/01/13 09:30 Matrix: Water |         |       |        |      |    |          |                |             |      |
|-------------------------------------------------------------------------------------------------------|---------|-------|--------|------|----|----------|----------------|-------------|------|
| Parameters                                                                                            | Results | Units | LOQ    | LOD  | DF | Prepared | Analyzed       | CAS No.     | Qual |
| <b>8260 MSV UST</b> Analytical Method: EPA 8260                                                       |         |       |        |      |    |          |                |             |      |
| Toluene                                                                                               | 36.3J   | ug/L  | 40.0   | 17.5 | 40 |          | 10/05/13 18:18 | 108-88-3    |      |
| 1,2,4-Trimethylbenzene                                                                                | 37.7J   | ug/L  | 40.0   | 20.0 | 40 |          | 10/05/13 18:18 | 95-63-6     |      |
| 1,3,5-Trimethylbenzene                                                                                | <20.0   | ug/L  | 40.0   | 20.0 | 40 |          | 10/05/13 18:18 | 108-67-8    |      |
| m&p-Xylene                                                                                            | 213     | ug/L  | 80.0   | 32.7 | 40 |          | 10/05/13 18:18 | 179601-23-1 |      |
| o-Xylene                                                                                              | 154     | ug/L  | 40.0   | 20.0 | 40 |          | 10/05/13 18:18 | 95-47-6     |      |
| <b>Surrogates</b>                                                                                     |         |       |        |      |    |          |                |             |      |
| Dibromofluoromethane (S)                                                                              | 95 %    |       | 70-130 |      | 40 |          | 10/05/13 18:18 | 1868-53-7   |      |
| Toluene-d8 (S)                                                                                        | 101 %   |       | 55-137 |      | 40 |          | 10/05/13 18:18 | 2037-26-5   |      |
| 4-Bromofluorobenzene (S)                                                                              | 94 %    |       | 43-137 |      | 40 |          | 10/05/13 18:18 | 460-00-4    |      |

| Sample: 092713010 Lab ID: 4085759010 Collected: 09/27/13 12:13 Received: 10/01/13 09:30 Matrix: Water |         |       |        |       |    |                |                |           |      |
|-------------------------------------------------------------------------------------------------------|---------|-------|--------|-------|----|----------------|----------------|-----------|------|
| Parameters                                                                                            | Results | Units | LOQ    | LOD   | DF | Prepared       | Analyzed       | CAS No.   | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510           |         |       |        |       |    |                |                |           |      |
| Acenaphthene                                                                                          | 1.3     | ug/L  | 0.48   | 0.046 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 83-32-9   |      |
| Acenaphthylene                                                                                        | 0.16J   | ug/L  | 0.48   | 0.036 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 208-96-8  |      |
| Anthracene                                                                                            | 0.45J   | ug/L  | 0.48   | 0.058 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 120-12-7  |      |
| Benzo(a)anthracene                                                                                    | <0.037  | ug/L  | 0.48   | 0.037 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 56-55-3   |      |
| Benzo(a)pyrene                                                                                        | <0.029  | ug/L  | 0.48   | 0.029 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 50-32-8   |      |
| Benzo(b)fluoranthene                                                                                  | <0.034  | ug/L  | 0.48   | 0.034 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 205-99-2  |      |
| Benzo(g,h,i)perylene                                                                                  | <0.049  | ug/L  | 0.48   | 0.049 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 191-24-2  |      |
| Benzo(k)fluoranthene                                                                                  | <0.044  | ug/L  | 0.48   | 0.044 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 207-08-9  | L3   |
| Chrysene                                                                                              | <0.035  | ug/L  | 0.48   | 0.035 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 218-01-9  |      |
| Dibenz(a,h)anthracene                                                                                 | <0.032  | ug/L  | 0.48   | 0.032 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 53-70-3   |      |
| Fluoranthene                                                                                          | 0.35J   | ug/L  | 0.48   | 0.044 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 206-44-0  |      |
| Fluorene                                                                                              | 0.67    | ug/L  | 0.48   | 0.048 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 86-73-7   |      |
| Indeno(1,2,3-cd)pyrene                                                                                | <0.047  | ug/L  | 0.48   | 0.047 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 193-39-5  |      |
| 1-Methylnaphthalene                                                                                   | 0.66    | ug/L  | 0.48   | 0.050 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 90-12-0   |      |
| 2-Methylnaphthalene                                                                                   | 0.25J   | ug/L  | 0.48   | 0.039 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 91-57-6   | B    |
| Naphthalene                                                                                           | 4.9     | ug/L  | 0.48   | 0.049 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 91-20-3   | L1   |
| Phenanthrene                                                                                          | 1.7     | ug/L  | 0.48   | 0.082 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 85-01-8   |      |
| Pyrene                                                                                                | 0.64    | ug/L  | 0.48   | 0.048 | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 129-00-0  |      |
| <b>Surrogates</b>                                                                                     |         |       |        |       |    |                |                |           |      |
| 2-Fluorobiphenyl (S)                                                                                  | 44 %    |       | 24-130 |       | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 321-60-8  |      |
| Terphenyl-d14 (S)                                                                                     | 70 %    |       | 44-169 |       | 10 | 10/02/13 12:00 | 10/04/13 19:16 | 1718-51-0 |      |

|                                                 |       |      |     |      |   |  |                |           |  |
|-------------------------------------------------|-------|------|-----|------|---|--|----------------|-----------|--|
| <b>8260 MSV UST</b> Analytical Method: EPA 8260 |       |      |     |      |   |  |                |           |  |
| Benzene                                         | 90.9  | ug/L | 1.0 | 0.50 | 1 |  | 10/05/13 18:41 | 71-43-2   |  |
| Ethylbenzene                                    | 4.9   | ug/L | 1.0 | 0.50 | 1 |  | 10/05/13 18:41 | 100-41-4  |  |
| Methyl-tert-butyl ether                         | <0.49 | ug/L | 1.0 | 0.49 | 1 |  | 10/05/13 18:41 | 1634-04-4 |  |
| Toluene                                         | 0.85J | ug/L | 1.0 | 0.44 | 1 |  | 10/05/13 18:41 | 108-88-3  |  |
| 1,2,4-Trimethylbenzene                          | <0.50 | ug/L | 1.0 | 0.50 | 1 |  | 10/05/13 18:41 | 95-63-6   |  |
| 1,3,5-Trimethylbenzene                          | <0.50 | ug/L | 1.0 | 0.50 | 1 |  | 10/05/13 18:41 | 108-67-8  |  |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Sample: 092713010        |         | Lab ID: 4085759010          |        | Collected: 09/27/13 12:13 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|--------------------------|---------|-----------------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters               | Results | Units                       | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8260 MSV UST</b>      |         | Analytical Method: EPA 8260 |        |                           |    |                          |                |               |      |
| m&p-Xylene               | 1.6J    | ug/L                        | 2.0    | 0.82                      | 1  |                          | 10/05/13 18:41 | 179601-23-1   |      |
| o-Xylene                 | 1.3     | ug/L                        | 1.0    | 0.50                      | 1  |                          | 10/05/13 18:41 | 95-47-6       |      |
| <b>Surrogates</b>        |         |                             |        |                           |    |                          |                |               |      |
| Dibromofluoromethane (S) | 100     | %                           | 70-130 |                           | 1  |                          | 10/05/13 18:41 | 1868-53-7     |      |
| Toluene-d8 (S)           | 100     | %                           | 55-137 |                           | 1  |                          | 10/05/13 18:41 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S) | 93      | %                           | 43-137 |                           | 1  |                          | 10/05/13 18:41 | 460-00-4      |      |

| Sample: 092713018        |         | Lab ID: 4085759011          |        | Collected: 09/27/13 00:00 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|--------------------------|---------|-----------------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters               | Results | Units                       | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8260 MSV UST</b>      |         | Analytical Method: EPA 8260 |        |                           |    |                          |                |               |      |
| Benzene                  | <0.50   | ug/L                        | 1.0    | 0.50                      | 1  |                          | 10/05/13 19:03 | 71-43-2       |      |
| Ethylbenzene             | <0.50   | ug/L                        | 1.0    | 0.50                      | 1  |                          | 10/05/13 19:03 | 100-41-4      |      |
| Methyl-tert-butyl ether  | <0.49   | ug/L                        | 1.0    | 0.49                      | 1  |                          | 10/05/13 19:03 | 1634-04-4     |      |
| Toluene                  | <0.44   | ug/L                        | 1.0    | 0.44                      | 1  |                          | 10/05/13 19:03 | 108-88-3      |      |
| 1,2,4-Trimethylbenzene   | <0.50   | ug/L                        | 1.0    | 0.50                      | 1  |                          | 10/05/13 19:03 | 95-63-6       |      |
| 1,3,5-Trimethylbenzene   | <0.50   | ug/L                        | 1.0    | 0.50                      | 1  |                          | 10/05/13 19:03 | 108-67-8      |      |
| m&p-Xylene               | <0.82   | ug/L                        | 2.0    | 0.82                      | 1  |                          | 10/05/13 19:03 | 179601-23-1   |      |
| o-Xylene                 | <0.50   | ug/L                        | 1.0    | 0.50                      | 1  |                          | 10/05/13 19:03 | 95-47-6       |      |
| <b>Surrogates</b>        |         |                             |        |                           |    |                          |                |               |      |
| Dibromofluoromethane (S) | 98      | %                           | 70-130 |                           | 1  |                          | 10/05/13 19:03 | 1868-53-7     | HS   |
| Toluene-d8 (S)           | 100     | %                           | 55-137 |                           | 1  |                          | 10/05/13 19:03 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S) | 90      | %                           | 43-137 |                           | 1  |                          | 10/05/13 19:03 | 460-00-4      |      |

| Sample: 092713011           |         | Lab ID: 4085759012                                              |     | Collected: 09/27/13 13:01 |     | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|-----------------------------|---------|-----------------------------------------------------------------|-----|---------------------------|-----|--------------------------|----------------|---------------|------|
| Parameters                  | Results | Units                                                           | LOQ | LOD                       | DF  | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> |         | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |     |                           |     |                          |                |               |      |
| Acenaphthene                | 46.1    | ug/L                                                            | 4.7 | 0.45                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 83-32-9       |      |
| Acenaphthylene              | 1.8J    | ug/L                                                            | 4.7 | 0.36                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 208-96-8      |      |
| Anthracene                  | <0.57   | ug/L                                                            | 4.7 | 0.57                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 120-12-7      |      |
| Benzo(a)anthracene          | <0.36   | ug/L                                                            | 4.7 | 0.36                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 56-55-3       |      |
| Benzo(a)pyrene              | <0.29   | ug/L                                                            | 4.7 | 0.29                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 50-32-8       |      |
| Benzo(b)fluoranthene        | <0.34   | ug/L                                                            | 4.7 | 0.34                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 205-99-2      |      |
| Benzo(g,h,i)perylene        | <0.48   | ug/L                                                            | 4.7 | 0.48                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 191-24-2      |      |
| Benzo(k)fluoranthene        | <0.44   | ug/L                                                            | 4.7 | 0.44                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 207-08-9      |      |
| Chrysene                    | <0.35   | ug/L                                                            | 4.7 | 0.35                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 218-01-9      |      |
| Dibenz(a,h)anthracene       | <0.32   | ug/L                                                            | 4.7 | 0.32                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 53-70-3       |      |
| Fluoranthene                | <0.44   | ug/L                                                            | 4.7 | 0.44                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 206-44-0      |      |
| Fluorene                    | 0.93J   | ug/L                                                            | 4.7 | 0.48                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 86-73-7       |      |
| Indeno(1,2,3-cd)pyrene      | <0.47   | ug/L                                                            | 4.7 | 0.47                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 193-39-5      |      |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

| Sample: 092713011                                                                           |         | Lab ID: 4085759012 |        | Collected: 09/27/13 13:01 |     | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|---------------------------------------------------------------------------------------------|---------|--------------------|--------|---------------------------|-----|--------------------------|----------------|---------------|------|
| Parameters                                                                                  | Results | Units              | LOQ    | LOD                       | DF  | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |         |                    |        |                           |     |                          |                |               |      |
| 1-Methylnaphthalene                                                                         | 78.4    | ug/L               | 4.7    | 0.50                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 90-12-0       |      |
| 2-Methylnaphthalene                                                                         | 2.5J    | ug/L               | 4.7    | 0.39                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 91-57-6       |      |
| Naphthalene                                                                                 | 79.2    | ug/L               | 4.7    | 0.48                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 91-20-3       |      |
| Phenanthrene                                                                                | <0.81   | ug/L               | 4.7    | 0.81                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 85-01-8       |      |
| Pyrene                                                                                      | <0.47   | ug/L               | 4.7    | 0.47                      | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 129-00-0      |      |
| <b>Surrogates</b>                                                                           |         |                    |        |                           |     |                          |                |               |      |
| 2-Fluorobiphenyl (S)                                                                        | 0 %     |                    | 24-130 |                           | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 321-60-8      | S4   |
| Terphenyl-d14 (S)                                                                           | 0 %     |                    | 44-169 |                           | 100 | 10/04/13 12:00           | 10/04/13 23:39 | 1718-51-0     | S4   |
| <b>8260 MSV UST</b> Analytical Method: EPA 8260                                             |         |                    |        |                           |     |                          |                |               |      |
| Benzene                                                                                     | 1290    | ug/L               | 10.0   | 5.0                       | 10  |                          | 10/05/13 19:26 | 71-43-2       |      |
| Ethylbenzene                                                                                | 695     | ug/L               | 10.0   | 5.0                       | 10  |                          | 10/05/13 19:26 | 100-41-4      |      |
| Methyl-tert-butyl ether                                                                     | <4.9    | ug/L               | 10.0   | 4.9                       | 10  |                          | 10/05/13 19:26 | 1634-04-4     |      |
| Toluene                                                                                     | 16.7    | ug/L               | 10.0   | 4.4                       | 10  |                          | 10/05/13 19:26 | 108-88-3      |      |
| 1,2,4-Trimethylbenzene                                                                      | 100     | ug/L               | 10.0   | 5.0                       | 10  |                          | 10/05/13 19:26 | 95-63-6       |      |
| 1,3,5-Trimethylbenzene                                                                      | 13.5    | ug/L               | 10.0   | 5.0                       | 10  |                          | 10/05/13 19:26 | 108-67-8      |      |
| m&p-Xylene                                                                                  | 33.9    | ug/L               | 20.0   | 8.2                       | 10  |                          | 10/05/13 19:26 | 179601-23-1   |      |
| o-Xylene                                                                                    | 135     | ug/L               | 10.0   | 5.0                       | 10  |                          | 10/05/13 19:26 | 95-47-6       |      |
| <b>Surrogates</b>                                                                           |         |                    |        |                           |     |                          |                |               |      |
| Dibromofluoromethane (S)                                                                    | 98 %    |                    | 70-130 |                           | 10  |                          | 10/05/13 19:26 | 1868-53-7     |      |
| Toluene-d8 (S)                                                                              | 100 %   |                    | 55-137 |                           | 10  |                          | 10/05/13 19:26 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S)                                                                    | 100 %   |                    | 43-137 |                           | 10  |                          | 10/05/13 19:26 | 460-00-4      |      |

| Sample: 092713012                                                                           |         | Lab ID: 4085759013 |      | Collected: 09/27/13 13:23 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|---------------------------------------------------------------------------------------------|---------|--------------------|------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                                                                                  | Results | Units              | LOQ  | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |         |                    |      |                           |    |                          |                |               |      |
| Acenaphthene                                                                                | 1.0     | ug/L               | 0.24 | 0.023                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 83-32-9       |      |
| Acenaphthylene                                                                              | 0.050J  | ug/L               | 0.24 | 0.018                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 208-96-8      |      |
| Anthracene                                                                                  | <0.029  | ug/L               | 0.24 | 0.029                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 120-12-7      |      |
| Benzo(a)anthracene                                                                          | <0.018  | ug/L               | 0.24 | 0.018                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 56-55-3       |      |
| Benzo(a)pyrene                                                                              | <0.014  | ug/L               | 0.24 | 0.014                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 50-32-8       |      |
| Benzo(b)fluoranthene                                                                        | <0.017  | ug/L               | 0.24 | 0.017                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 205-99-2      | 1q   |
| Benzo(g,h,i)perylene                                                                        | <0.024  | ug/L               | 0.24 | 0.024                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 191-24-2      |      |
| Benzo(k)fluoranthene                                                                        | <0.022  | ug/L               | 0.24 | 0.022                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 207-08-9      | 1q   |
| Chrysene                                                                                    | <0.017  | ug/L               | 0.24 | 0.017                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 218-01-9      |      |
| Dibenz(a,h)anthracene                                                                       | <0.016  | ug/L               | 0.24 | 0.016                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 53-70-3       |      |
| Fluoranthene                                                                                | <0.022  | ug/L               | 0.24 | 0.022                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 206-44-0      |      |
| Fluorene                                                                                    | 0.040J  | ug/L               | 0.24 | 0.024                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 86-73-7       |      |
| Indeno(1,2,3-cd)pyrene                                                                      | <0.023  | ug/L               | 0.24 | 0.023                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 193-39-5      |      |
| 1-Methylnaphthalene                                                                         | 1.5     | ug/L               | 0.24 | 0.025                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 90-12-0       |      |
| 2-Methylnaphthalene                                                                         | 0.061J  | ug/L               | 0.24 | 0.019                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 91-57-6       |      |
| Naphthalene                                                                                 | 2.9     | ug/L               | 0.24 | 0.024                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 91-20-3       |      |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Sample: 092713012                                                                           |         | Lab ID: 4085759013 |        | Collected: 09/27/13 13:23 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|---------------------------------------------------------------------------------------------|---------|--------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                                                                                  | Results | Units              | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |         |                    |        |                           |    |                          |                |               |      |
| Phenanthrene                                                                                | <0.040  | ug/L               | 0.24   | 0.040                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 85-01-8       |      |
| Pyrene                                                                                      | <0.024  | ug/L               | 0.24   | 0.024                     | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 129-00-0      |      |
| <b>Surrogates</b>                                                                           |         |                    |        |                           |    |                          |                |               |      |
| 2-Fluorobiphenyl (S)                                                                        | 48 %    |                    | 24-130 |                           | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 321-60-8      |      |
| Terphenyl-d14 (S)                                                                           | 76 %    |                    | 44-169 |                           | 5  | 10/04/13 12:00           | 10/07/13 12:25 | 1718-51-0     |      |
| <b>8260 MSV UST</b> Analytical Method: EPA 8260                                             |         |                    |        |                           |    |                          |                |               |      |
| Benzene                                                                                     | 34.9    | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/05/13 19:49 | 71-43-2       |      |
| Ethylbenzene                                                                                | 6.2     | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/05/13 19:49 | 100-41-4      |      |
| Methyl-tert-butyl ether                                                                     | <0.49   | ug/L               | 1.0    | 0.49                      | 1  |                          | 10/05/13 19:49 | 1634-04-4     |      |
| Toluene                                                                                     | <0.44   | ug/L               | 1.0    | 0.44                      | 1  |                          | 10/05/13 19:49 | 108-88-3      |      |
| 1,2,4-Trimethylbenzene                                                                      | 0.70J   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/05/13 19:49 | 95-63-6       |      |
| 1,3,5-Trimethylbenzene                                                                      | <0.50   | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/05/13 19:49 | 108-67-8      |      |
| m&p-Xylene                                                                                  | <0.82   | ug/L               | 2.0    | 0.82                      | 1  |                          | 10/05/13 19:49 | 179601-23-1   |      |
| o-Xylene                                                                                    | 1.2     | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/05/13 19:49 | 95-47-6       |      |
| <b>Surrogates</b>                                                                           |         |                    |        |                           |    |                          |                |               |      |
| Dibromofluoromethane (S)                                                                    | 96 %    |                    | 70-130 |                           | 1  |                          | 10/05/13 19:49 | 1868-53-7     |      |
| Toluene-d8 (S)                                                                              | 99 %    |                    | 55-137 |                           | 1  |                          | 10/05/13 19:49 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S)                                                                    | 93 %    |                    | 43-137 |                           | 1  |                          | 10/05/13 19:49 | 460-00-4      |      |

| Sample: 092713013                                                                           |         | Lab ID: 4085759014 |      | Collected: 09/27/13 13:45 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|---------------------------------------------------------------------------------------------|---------|--------------------|------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                                                                                  | Results | Units              | LOQ  | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |         |                    |      |                           |    |                          |                |               |      |
| Acenaphthene                                                                                | 1.2     | ug/L               | 0.48 | 0.046                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 83-32-9       |      |
| Acenaphthylene                                                                              | 0.16J   | ug/L               | 0.48 | 0.036                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 208-96-8      |      |
| Anthracene                                                                                  | 0.18J   | ug/L               | 0.48 | 0.058                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 120-12-7      |      |
| Benzo(a)anthracene                                                                          | <0.037  | ug/L               | 0.48 | 0.037                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 56-55-3       |      |
| Benzo(a)pyrene                                                                              | <0.029  | ug/L               | 0.48 | 0.029                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 50-32-8       |      |
| Benzo(b)fluoranthene                                                                        | <0.034  | ug/L               | 0.48 | 0.034                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 205-99-2      |      |
| Benzo(g,h,i)perylene                                                                        | <0.049  | ug/L               | 0.48 | 0.049                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 191-24-2      |      |
| Benzo(k)fluoranthene                                                                        | <0.044  | ug/L               | 0.48 | 0.044                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 207-08-9      |      |
| Chrysene                                                                                    | <0.035  | ug/L               | 0.48 | 0.035                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 218-01-9      |      |
| Dibenz(a,h)anthracene                                                                       | <0.032  | ug/L               | 0.48 | 0.032                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 53-70-3       |      |
| Fluoranthene                                                                                | 0.079J  | ug/L               | 0.48 | 0.044                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 206-44-0      |      |
| Fluorene                                                                                    | 1.1     | ug/L               | 0.48 | 0.048                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 86-73-7       |      |
| Indeno(1,2,3-cd)pyrene                                                                      | <0.047  | ug/L               | 0.48 | 0.047                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 193-39-5      |      |
| 1-Methylnaphthalene                                                                         | 0.40J   | ug/L               | 0.48 | 0.050                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 90-12-0       |      |
| 2-Methylnaphthalene                                                                         | 0.079J  | ug/L               | 0.48 | 0.039                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 91-57-6       |      |
| Naphthalene                                                                                 | 1.5     | ug/L               | 0.48 | 0.049                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 91-20-3       |      |
| Phenanthrene                                                                                | 0.16J   | ug/L               | 0.48 | 0.082                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 85-01-8       |      |
| Pyrene                                                                                      | 0.082J  | ug/L               | 0.48 | 0.048                     | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 129-00-0      |      |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

| Sample: 092713013        |            | Lab ID: 4085759014                                                 |        | Collected: 09/27/13 13:45 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|--------------------------|------------|--------------------------------------------------------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters               | Results    | Units                                                              | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| 8270 MSSV PAH by SIM     |            | Analytical Method: EPA 8270 by SIM    Preparation Method: EPA 3510 |        |                           |    |                          |                |               |      |
| Surrogates               |            |                                                                    |        |                           |    |                          |                |               |      |
| 2-Fluorobiphenyl (S)     | 48 %       |                                                                    | 24-130 |                           | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 321-60-8      |      |
| Terphenyl-d14 (S)        | 85 %       |                                                                    | 44-169 |                           | 10 | 10/04/13 12:00           | 10/07/13 11:32 | 1718-51-0     |      |
| 8260 MSV UST             |            | Analytical Method: EPA 8260                                        |        |                           |    |                          |                |               |      |
| Benzene                  | 23.1 ug/L  |                                                                    | 1.0    | 0.50                      | 1  |                          | 10/04/13 21:21 | 71-43-2       |      |
| Ethylbenzene             | 2.3 ug/L   |                                                                    | 1.0    | 0.50                      | 1  |                          | 10/04/13 21:21 | 100-41-4      |      |
| Methyl-tert-butyl ether  | <0.49 ug/L |                                                                    | 1.0    | 0.49                      | 1  |                          | 10/04/13 21:21 | 1634-04-4     |      |
| Toluene                  | <0.44 ug/L |                                                                    | 1.0    | 0.44                      | 1  |                          | 10/04/13 21:21 | 108-88-3      |      |
| 1,2,4-Trimethylbenzene   | <0.50 ug/L |                                                                    | 1.0    | 0.50                      | 1  |                          | 10/04/13 21:21 | 95-63-6       |      |
| 1,3,5-Trimethylbenzene   | <0.50 ug/L |                                                                    | 1.0    | 0.50                      | 1  |                          | 10/04/13 21:21 | 108-67-8      |      |
| m&p-Xylene               | <0.82 ug/L |                                                                    | 2.0    | 0.82                      | 1  |                          | 10/04/13 21:21 | 179601-23-1   |      |
| o-Xylene                 | 0.67J ug/L |                                                                    | 1.0    | 0.50                      | 1  |                          | 10/04/13 21:21 | 95-47-6       |      |
| Surrogates               |            |                                                                    |        |                           |    |                          |                |               |      |
| Dibromofluoromethane (S) | 98 %       |                                                                    | 70-130 |                           | 1  |                          | 10/04/13 21:21 | 1868-53-7     |      |
| Toluene-d8 (S)           | 98 %       |                                                                    | 55-137 |                           | 1  |                          | 10/04/13 21:21 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S) | 95 %       |                                                                    | 43-137 |                           | 1  |                          | 10/04/13 21:21 | 460-00-4      |      |

| Sample: 092713014           |         | Lab ID: 4085759015                                              |        | Collected: 09/27/13 14:04 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|-----------------------------|---------|-----------------------------------------------------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                  | Results | Units                                                           | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> |         | Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |        |                           |    |                          |                |               |      |
| Acenaphthene                | 0.14J   | ug/L                                                            | 0.94   | 0.091                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 83-32-9       |      |
| Acenaphthylene              | <0.072  | ug/L                                                            | 0.94   | 0.072                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 208-96-8      |      |
| Anthracene                  | <0.11   | ug/L                                                            | 0.94   | 0.11                      | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 120-12-7      |      |
| Benzo(a)anthracene          | <0.072  | ug/L                                                            | 0.94   | 0.072                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 56-55-3       |      |
| Benzo(a)pyrene              | <0.057  | ug/L                                                            | 0.94   | 0.057                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 50-32-8       |      |
| Benzo(b)fluoranthene        | <0.068  | ug/L                                                            | 0.94   | 0.068                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 205-99-2      | 1q   |
| Benzo(g,h,i)perylene        | <0.096  | ug/L                                                            | 0.94   | 0.096                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 191-24-2      |      |
| Benzo(k)fluoranthene        | <0.087  | ug/L                                                            | 0.94   | 0.087                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 207-08-9      | 1q   |
| Chrysene                    | <0.070  | ug/L                                                            | 0.94   | 0.070                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 218-01-9      |      |
| Dibenz(a,h)anthracene       | <0.064  | ug/L                                                            | 0.94   | 0.064                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 53-70-3       |      |
| Fluoranthene                | <0.088  | ug/L                                                            | 0.94   | 0.088                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 206-44-0      |      |
| Fluorene                    | <0.095  | ug/L                                                            | 0.94   | 0.095                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 86-73-7       |      |
| Indeno(1,2,3-cd)pyrene      | <0.094  | ug/L                                                            | 0.94   | 0.094                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 193-39-5      |      |
| 1-Methylnaphthalene         | 0.70J   | ug/L                                                            | 0.94   | 0.10                      | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 90-12-0       |      |
| 2-Methylnaphthalene         | <0.077  | ug/L                                                            | 0.94   | 0.077                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 91-57-6       |      |
| Naphthalene                 | 7.1     | ug/L                                                            | 0.94   | 0.097                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 91-20-3       |      |
| Phenanthrene                | <0.16   | ug/L                                                            | 0.94   | 0.16                      | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 85-01-8       |      |
| Pyrene                      | <0.095  | ug/L                                                            | 0.94   | 0.095                     | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 129-00-0      |      |
| <b>Surrogates</b>           |         |                                                                 |        |                           |    |                          |                |               |      |
| 2-Fluorobiphenyl (S)        | 52 %    |                                                                 | 24-130 |                           | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 321-60-8      |      |
| Terphenyl-d14 (S)           | 79 %    |                                                                 | 44-169 |                           | 20 | 10/04/13 12:00           | 10/07/13 11:50 | 1718-51-0     |      |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Sample: 092713014 Lab ID: 4085759015 Collected: 09/27/13 14:04 Received: 10/01/13 09:30 Matrix: Water |         |       |        |      |    |          |                |             |      |
|-------------------------------------------------------------------------------------------------------|---------|-------|--------|------|----|----------|----------------|-------------|------|
| Parameters                                                                                            | Results | Units | LOQ    | LOD  | DF | Prepared | Analyzed       | CAS No.     | Qual |
| <b>8260 MSV UST</b> Analytical Method: EPA 8260                                                       |         |       |        |      |    |          |                |             |      |
| Benzene                                                                                               | 229     | ug/L  | 2.0    | 1.0  | 2  |          | 10/04/13 21:44 | 71-43-2     |      |
| Ethylbenzene                                                                                          | 1.4J    | ug/L  | 2.0    | 1.0  | 2  |          | 10/04/13 21:44 | 100-41-4    |      |
| Methyl-tert-butyl ether                                                                               | <0.99   | ug/L  | 2.0    | 0.99 | 2  |          | 10/04/13 21:44 | 1634-04-4   |      |
| Toluene                                                                                               | 1.8J    | ug/L  | 2.0    | 0.88 | 2  |          | 10/04/13 21:44 | 108-88-3    |      |
| 1,2,4-Trimethylbenzene                                                                                | 8.9     | ug/L  | 2.0    | 1.0  | 2  |          | 10/04/13 21:44 | 95-63-6     |      |
| 1,3,5-Trimethylbenzene                                                                                | <1.0    | ug/L  | 2.0    | 1.0  | 2  |          | 10/04/13 21:44 | 108-67-8    |      |
| m&p-Xylene                                                                                            | 4.9     | ug/L  | 4.0    | 1.6  | 2  |          | 10/04/13 21:44 | 179601-23-1 |      |
| o-Xylene                                                                                              | 24.6    | ug/L  | 2.0    | 1.0  | 2  |          | 10/04/13 21:44 | 95-47-6     |      |
| <b>Surrogates</b>                                                                                     |         |       |        |      |    |          |                |             |      |
| Dibromofluoromethane (S)                                                                              | 98 %    |       | 70-130 |      | 2  |          | 10/04/13 21:44 | 1868-53-7   |      |
| Toluene-d8 (S)                                                                                        | 98 %    |       | 55-137 |      | 2  |          | 10/04/13 21:44 | 2037-26-5   |      |
| 4-Bromofluorobenzene (S)                                                                              | 97 %    |       | 43-137 |      | 2  |          | 10/04/13 21:44 | 460-00-4    |      |

| Sample: 092713015 Lab ID: 4085759016 Collected: 09/27/13 14:23 Received: 10/01/13 09:30 Matrix: Water |         |       |        |        |    |                |                |           |      |
|-------------------------------------------------------------------------------------------------------|---------|-------|--------|--------|----|----------------|----------------|-----------|------|
| Parameters                                                                                            | Results | Units | LOQ    | LOD    | DF | Prepared       | Analyzed       | CAS No.   | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510           |         |       |        |        |    |                |                |           |      |
| Acenaphthene                                                                                          | 0.13    | ug/L  | 0.095  | 0.0091 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 83-32-9   |      |
| Acenaphthylene                                                                                        | <0.0073 | ug/L  | 0.095  | 0.0073 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 208-96-8  |      |
| Anthracene                                                                                            | <0.012  | ug/L  | 0.095  | 0.012  | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 120-12-7  |      |
| Benzo(a)anthracene                                                                                    | <0.0073 | ug/L  | 0.095  | 0.0073 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 56-55-3   |      |
| Benzo(a)pyrene                                                                                        | <0.0058 | ug/L  | 0.095  | 0.0058 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 50-32-8   |      |
| Benzo(b)fluoranthene                                                                                  | <0.0069 | ug/L  | 0.095  | 0.0069 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 205-99-2  | 1q   |
| Benzo(g,h,i)perylene                                                                                  | <0.0097 | ug/L  | 0.095  | 0.0097 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 191-24-2  |      |
| Benzo(k)fluoranthene                                                                                  | <0.0088 | ug/L  | 0.095  | 0.0088 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 207-08-9  | 1q   |
| Chrysene                                                                                              | <0.0070 | ug/L  | 0.095  | 0.0070 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 218-01-9  |      |
| Dibenz(a,h)anthracene                                                                                 | <0.0065 | ug/L  | 0.095  | 0.0065 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 53-70-3   |      |
| Fluoranthene                                                                                          | <0.0089 | ug/L  | 0.095  | 0.0089 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 206-44-0  |      |
| Fluorene                                                                                              | 0.022J  | ug/L  | 0.095  | 0.0096 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 86-73-7   |      |
| Indeno(1,2,3-cd)pyrene                                                                                | <0.0094 | ug/L  | 0.095  | 0.0094 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 193-39-5  |      |
| 1-Methylnaphthalene                                                                                   | 0.24    | ug/L  | 0.095  | 0.010  | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 90-12-0   |      |
| 2-Methylnaphthalene                                                                                   | 0.028J  | ug/L  | 0.095  | 0.0078 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 91-57-6   |      |
| Naphthalene                                                                                           | 0.64    | ug/L  | 0.095  | 0.0098 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 91-20-3   |      |
| Phenanthrene                                                                                          | 0.028J  | ug/L  | 0.095  | 0.016  | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 85-01-8   |      |
| Pyrene                                                                                                | <0.0096 | ug/L  | 0.095  | 0.0096 | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 129-00-0  |      |
| <b>Surrogates</b>                                                                                     |         |       |        |        |    |                |                |           |      |
| 2-Fluorobiphenyl (S)                                                                                  | 45 %    |       | 24-130 |        | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 321-60-8  |      |
| Terphenyl-d14 (S)                                                                                     | 77 %    |       | 44-169 |        | 2  | 10/04/13 12:00 | 10/07/13 12:07 | 1718-51-0 |      |

|                                                 |       |      |     |      |   |  |                |           |  |
|-------------------------------------------------|-------|------|-----|------|---|--|----------------|-----------|--|
| <b>8260 MSV UST</b> Analytical Method: EPA 8260 |       |      |     |      |   |  |                |           |  |
| Benzene                                         | 9.2   | ug/L | 1.0 | 0.50 | 1 |  | 10/04/13 22:07 | 71-43-2   |  |
| Ethylbenzene                                    | 0.68J | ug/L | 1.0 | 0.50 | 1 |  | 10/04/13 22:07 | 100-41-4  |  |
| Methyl-tert-butyl ether                         | <0.49 | ug/L | 1.0 | 0.49 | 1 |  | 10/04/13 22:07 | 1634-04-4 |  |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Sample: 092713015 Lab ID: 4085759016 Collected: 09/27/13 14:23 Received: 10/01/13 09:30 Matrix: Water |         |       |        |      |    |          |                |             |      |
|-------------------------------------------------------------------------------------------------------|---------|-------|--------|------|----|----------|----------------|-------------|------|
| Parameters                                                                                            | Results | Units | LOQ    | LOD  | DF | Prepared | Analyzed       | CAS No.     | Qual |
| <b>8260 MSV UST</b> Analytical Method: EPA 8260                                                       |         |       |        |      |    |          |                |             |      |
| Toluene                                                                                               | <0.44   | ug/L  | 1.0    | 0.44 | 1  |          | 10/04/13 22:07 | 108-88-3    |      |
| 1,2,4-Trimethylbenzene                                                                                | <0.50   | ug/L  | 1.0    | 0.50 | 1  |          | 10/04/13 22:07 | 95-63-6     |      |
| 1,3,5-Trimethylbenzene                                                                                | <0.50   | ug/L  | 1.0    | 0.50 | 1  |          | 10/04/13 22:07 | 108-67-8    |      |
| m&p-Xylene                                                                                            | <0.82   | ug/L  | 2.0    | 0.82 | 1  |          | 10/04/13 22:07 | 179601-23-1 |      |
| o-Xylene                                                                                              | <0.50   | ug/L  | 1.0    | 0.50 | 1  |          | 10/04/13 22:07 | 95-47-6     |      |
| <b>Surrogates</b>                                                                                     |         |       |        |      |    |          |                |             |      |
| Dibromofluoromethane (S)                                                                              | 98 %    |       | 70-130 |      | 1  |          | 10/04/13 22:07 | 1868-53-7   |      |
| Toluene-d8 (S)                                                                                        | 99 %    |       | 55-137 |      | 1  |          | 10/04/13 22:07 | 2037-26-5   |      |
| 4-Bromofluorobenzene (S)                                                                              | 95 %    |       | 43-137 |      | 1  |          | 10/04/13 22:07 | 460-00-4    |      |

| Sample: 092713016 Lab ID: 4085759017 Collected: 09/27/13 14:57 Received: 10/01/13 09:30 Matrix: Water |         |       |        |      |     |                |                |           |      |
|-------------------------------------------------------------------------------------------------------|---------|-------|--------|------|-----|----------------|----------------|-----------|------|
| Parameters                                                                                            | Results | Units | LOQ    | LOD  | DF  | Prepared       | Analyzed       | CAS No.   | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510           |         |       |        |      |     |                |                |           |      |
| Acenaphthene                                                                                          | 31.6    | ug/L  | 4.7    | 0.45 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 83-32-9   |      |
| Acenaphthylene                                                                                        | 1.6J    | ug/L  | 4.7    | 0.36 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 208-96-8  |      |
| Anthracene                                                                                            | 5.0     | ug/L  | 4.7    | 0.57 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 120-12-7  |      |
| Benzo(a)anthracene                                                                                    | <0.36   | ug/L  | 4.7    | 0.36 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 56-55-3   |      |
| Benzo(a)pyrene                                                                                        | <0.29   | ug/L  | 4.7    | 0.29 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 50-32-8   |      |
| Benzo(b)fluoranthene                                                                                  | <0.34   | ug/L  | 4.7    | 0.34 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 205-99-2  |      |
| Benzo(g,h,i)perylene                                                                                  | <0.48   | ug/L  | 4.7    | 0.48 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 191-24-2  |      |
| Benzo(k)fluoranthene                                                                                  | <0.44   | ug/L  | 4.7    | 0.44 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 207-08-9  |      |
| Chrysene                                                                                              | <0.35   | ug/L  | 4.7    | 0.35 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 218-01-9  |      |
| Dibenz(a,h)anthracene                                                                                 | <0.32   | ug/L  | 4.7    | 0.32 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 53-70-3   |      |
| Fluoranthene                                                                                          | 1.9J    | ug/L  | 4.7    | 0.44 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 206-44-0  |      |
| Fluorene                                                                                              | 15.2    | ug/L  | 4.7    | 0.48 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 86-73-7   |      |
| Indeno(1,2,3-cd)pyrene                                                                                | <0.47   | ug/L  | 4.7    | 0.47 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 193-39-5  |      |
| 1-Methylnaphthalene                                                                                   | 66.0    | ug/L  | 4.7    | 0.50 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 90-12-0   |      |
| 2-Methylnaphthalene                                                                                   | <0.39   | ug/L  | 4.7    | 0.39 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 91-57-6   |      |
| Naphthalene                                                                                           | 2.1J    | ug/L  | 4.7    | 0.48 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 91-20-3   | B    |
| Phenanthrene                                                                                          | 20.8    | ug/L  | 4.7    | 0.81 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 85-01-8   |      |
| Pyrene                                                                                                | 2.9J    | ug/L  | 4.7    | 0.47 | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 129-00-0  |      |
| <b>Surrogates</b>                                                                                     |         |       |        |      |     |                |                |           |      |
| 2-Fluorobiphenyl (S)                                                                                  | 0 %     |       | 24-130 |      | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 321-60-8  | S4   |
| Terphenyl-d14 (S)                                                                                     | 0 %     |       | 44-169 |      | 100 | 10/04/13 12:00 | 10/05/13 00:49 | 1718-51-0 | S4   |

|                                                 |       |      |     |      |   |  |                |           |  |
|-------------------------------------------------|-------|------|-----|------|---|--|----------------|-----------|--|
| <b>8260 MSV UST</b> Analytical Method: EPA 8260 |       |      |     |      |   |  |                |           |  |
| Benzene                                         | 117   | ug/L | 1.0 | 0.50 | 1 |  | 10/04/13 22:30 | 71-43-2   |  |
| Ethylbenzene                                    | 90.7  | ug/L | 1.0 | 0.50 | 1 |  | 10/04/13 22:30 | 100-41-4  |  |
| Methyl-tert-butyl ether                         | <0.49 | ug/L | 1.0 | 0.49 | 1 |  | 10/04/13 22:30 | 1634-04-4 |  |
| Toluene                                         | 10    | ug/L | 1.0 | 0.44 | 1 |  | 10/04/13 22:30 | 108-88-3  |  |
| 1,2,4-Trimethylbenzene                          | 38.6  | ug/L | 1.0 | 0.50 | 1 |  | 10/04/13 22:30 | 95-63-6   |  |
| 1,3,5-Trimethylbenzene                          | 5.9   | ug/L | 1.0 | 0.50 | 1 |  | 10/04/13 22:30 | 108-67-8  |  |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Sample: 092713016                               |         | Lab ID: 4085759017 |        | Collected: 09/27/13 14:57 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|-------------------------------------------------|---------|--------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters                                      | Results | Units              | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8260 MSV UST</b> Analytical Method: EPA 8260 |         |                    |        |                           |    |                          |                |               |      |
| m&p-Xylene                                      | 18.0    | ug/L               | 2.0    | 0.82                      | 1  |                          | 10/04/13 22:30 | 179601-23-1   |      |
| o-Xylene                                        | 94.7    | ug/L               | 1.0    | 0.50                      | 1  |                          | 10/04/13 22:30 | 95-47-6       |      |
| <b>Surrogates</b>                               |         |                    |        |                           |    |                          |                |               |      |
| Dibromofluoromethane (S)                        | 97      | %                  | 70-130 |                           | 1  |                          | 10/04/13 22:30 | 1868-53-7     |      |
| Toluene-d8 (S)                                  | 97      | %                  | 55-137 |                           | 1  |                          | 10/04/13 22:30 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S)                        | 101     | %                  | 43-137 |                           | 1  |                          | 10/04/13 22:30 | 460-00-4      |      |

| Sample: 092713017                                                                           |         | Lab ID: 4085759018 |        | Collected: 09/27/13 15:02 |     | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|---------------------------------------------------------------------------------------------|---------|--------------------|--------|---------------------------|-----|--------------------------|----------------|---------------|------|
| Parameters                                                                                  | Results | Units              | LOQ    | LOD                       | DF  | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8270 MSSV PAH by SIM</b> Analytical Method: EPA 8270 by SIM Preparation Method: EPA 3510 |         |                    |        |                           |     |                          |                |               |      |
| Acenaphthene                                                                                | 21.7    | ug/L               | 4.8    | 0.46                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 83-32-9       |      |
| Acenaphthylene                                                                              | 1.1J    | ug/L               | 4.8    | 0.36                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 208-96-8      |      |
| Anthracene                                                                                  | 4.0J    | ug/L               | 4.8    | 0.58                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 120-12-7      |      |
| Benzo(a)anthracene                                                                          | <0.37   | ug/L               | 4.8    | 0.37                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 56-55-3       |      |
| Benzo(a)pyrene                                                                              | <0.29   | ug/L               | 4.8    | 0.29                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 50-32-8       |      |
| Benzo(b)fluoranthene                                                                        | <0.34   | ug/L               | 4.8    | 0.34                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 205-99-2      |      |
| Benzo(g,h,i)perylene                                                                        | <0.49   | ug/L               | 4.8    | 0.49                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 191-24-2      |      |
| Benzo(k)fluoranthene                                                                        | <0.44   | ug/L               | 4.8    | 0.44                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 207-08-9      |      |
| Chrysene                                                                                    | <0.35   | ug/L               | 4.8    | 0.35                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 218-01-9      |      |
| Dibenz(a,h)anthracene                                                                       | <0.32   | ug/L               | 4.8    | 0.32                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 53-70-3       |      |
| Fluoranthene                                                                                | 1.5J    | ug/L               | 4.8    | 0.44                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 206-44-0      |      |
| Fluorene                                                                                    | 10.5    | ug/L               | 4.8    | 0.48                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 86-73-7       |      |
| Indeno(1,2,3-cd)pyrene                                                                      | <0.47   | ug/L               | 4.8    | 0.47                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 193-39-5      |      |
| 1-Methylnaphthalene                                                                         | 37.0    | ug/L               | 4.8    | 0.50                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 90-12-0       |      |
| 2-Methylnaphthalene                                                                         | <0.39   | ug/L               | 4.8    | 0.39                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 91-57-6       |      |
| Naphthalene                                                                                 | <0.49   | ug/L               | 4.8    | 0.49                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 91-20-3       |      |
| Phenanthrene                                                                                | 15.0    | ug/L               | 4.8    | 0.82                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 85-01-8       |      |
| Pyrene                                                                                      | 2.3J    | ug/L               | 4.8    | 0.48                      | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 129-00-0      |      |
| <b>Surrogates</b>                                                                           |         |                    |        |                           |     |                          |                |               |      |
| 2-Fluorobiphenyl (S)                                                                        | 0       | %                  | 24-130 |                           | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 321-60-8      | S4   |
| Terphenyl-d14 (S)                                                                           | 0       | %                  | 44-169 |                           | 100 | 10/04/13 12:00           | 10/05/13 01:07 | 1718-51-0     | S4   |

|                                                 |       |      |     |      |   |  |                |             |  |
|-------------------------------------------------|-------|------|-----|------|---|--|----------------|-------------|--|
| <b>8260 MSV UST</b> Analytical Method: EPA 8260 |       |      |     |      |   |  |                |             |  |
| Benzene                                         | 112   | ug/L | 1.0 | 0.50 | 1 |  | 10/04/13 22:52 | 71-43-2     |  |
| Ethylbenzene                                    | 92.4  | ug/L | 1.0 | 0.50 | 1 |  | 10/04/13 22:52 | 100-41-4    |  |
| Methyl-tert-butyl ether                         | <0.49 | ug/L | 1.0 | 0.49 | 1 |  | 10/04/13 22:52 | 1634-04-4   |  |
| Toluene                                         | 10.2  | ug/L | 1.0 | 0.44 | 1 |  | 10/04/13 22:52 | 108-88-3    |  |
| 1,2,4-Trimethylbenzene                          | 39.5  | ug/L | 1.0 | 0.50 | 1 |  | 10/04/13 22:52 | 95-63-6     |  |
| 1,3,5-Trimethylbenzene                          | 6.1   | ug/L | 1.0 | 0.50 | 1 |  | 10/04/13 22:52 | 108-67-8    |  |
| m&p-Xylene                                      | 18.7  | ug/L | 2.0 | 0.82 | 1 |  | 10/04/13 22:52 | 179601-23-1 |  |
| o-Xylene                                        | 97.1  | ug/L | 1.0 | 0.50 | 1 |  | 10/04/13 22:52 | 95-47-6     |  |

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## ANALYTICAL RESULTS

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Sample: 092713017        |         | Lab ID: 4085759018          |        | Collected: 09/27/13 15:02 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|--------------------------|---------|-----------------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters               | Results | Units                       | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| 8260 MSV UST             |         | Analytical Method: EPA 8260 |        |                           |    |                          |                |               |      |
| Surrogates               |         |                             |        |                           |    |                          |                |               |      |
| Dibromofluoromethane (S) | 95 %    |                             | 70-130 |                           | 1  |                          | 10/04/13 22:52 | 1868-53-7     |      |
| Toluene-d8 (S)           | 99 %    |                             | 55-137 |                           | 1  |                          | 10/04/13 22:52 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S) | 103 %   |                             | 43-137 |                           | 1  |                          | 10/04/13 22:52 | 460-00-4      |      |

| Sample: 092713019        |            | Lab ID: 4085759019          |        | Collected: 09/27/13 00:00 |    | Received: 10/01/13 09:30 |                | Matrix: Water |      |
|--------------------------|------------|-----------------------------|--------|---------------------------|----|--------------------------|----------------|---------------|------|
| Parameters               | Results    | Units                       | LOQ    | LOD                       | DF | Prepared                 | Analyzed       | CAS No.       | Qual |
| <b>8260 MSV UST</b>      |            | Analytical Method: EPA 8260 |        |                           |    |                          |                |               |      |
| Benzene                  | <0.50 ug/L |                             | 1.0    | 0.50                      | 1  |                          | 10/04/13 23:15 | 71-43-2       |      |
| Ethylbenzene             | <0.50 ug/L |                             | 1.0    | 0.50                      | 1  |                          | 10/04/13 23:15 | 100-41-4      |      |
| Methyl-tert-butyl ether  | <0.49 ug/L |                             | 1.0    | 0.49                      | 1  |                          | 10/04/13 23:15 | 1634-04-4     |      |
| Toluene                  | <0.44 ug/L |                             | 1.0    | 0.44                      | 1  |                          | 10/04/13 23:15 | 108-88-3      |      |
| 1,2,4-Trimethylbenzene   | <0.50 ug/L |                             | 1.0    | 0.50                      | 1  |                          | 10/04/13 23:15 | 95-63-6       |      |
| 1,3,5-Trimethylbenzene   | <0.50 ug/L |                             | 1.0    | 0.50                      | 1  |                          | 10/04/13 23:15 | 108-67-8      |      |
| m&p-Xylene               | <0.82 ug/L |                             | 2.0    | 0.82                      | 1  |                          | 10/04/13 23:15 | 179601-23-1   |      |
| o-Xylene                 | <0.50 ug/L |                             | 1.0    | 0.50                      | 1  |                          | 10/04/13 23:15 | 95-47-6       |      |
| <b>Surrogates</b>        |            |                             |        |                           |    |                          |                |               |      |
| Dibromofluoromethane (S) | 96 %       |                             | 70-130 |                           | 1  |                          | 10/04/13 23:15 | 1868-53-7     | HS   |
| Toluene-d8 (S)           | 97 %       |                             | 55-137 |                           | 1  |                          | 10/04/13 23:15 | 2037-26-5     |      |
| 4-Bromofluorobenzene (S) | 97 %       |                             | 43-137 |                           | 1  |                          | 10/04/13 23:15 | 460-00-4      |      |

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## QUALITY CONTROL DATA

Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

QC Batch: MSV/21585 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER  
Associated Lab Samples: 4085759001, 4085759005

METHOD BLANK: 866930 Matrix: Water  
Associated Lab Samples: 4085759001, 4085759005

| Parameter                | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|--------------------------|-------|--------------|-----------------|----------------|------------|
| 1,2,4-Trimethylbenzene   | ug/L  | <0.50        | 1.0             | 10/03/13 18:37 |            |
| 1,3,5-Trimethylbenzene   | ug/L  | <0.50        | 1.0             | 10/03/13 18:37 |            |
| Benzene                  | ug/L  | <0.50        | 1.0             | 10/03/13 18:37 |            |
| Ethylbenzene             | ug/L  | <0.50        | 1.0             | 10/03/13 18:37 |            |
| m&p-Xylene               | ug/L  | <0.82        | 2.0             | 10/03/13 18:37 |            |
| Methyl-tert-butyl ether  | ug/L  | <0.49        | 1.0             | 10/03/13 18:37 |            |
| o-Xylene                 | ug/L  | <0.50        | 1.0             | 10/03/13 18:37 |            |
| Toluene                  | ug/L  | <0.44        | 1.0             | 10/03/13 18:37 |            |
| 4-Bromofluorobenzene (S) | %     | 93           | 43-137          | 10/03/13 18:37 |            |
| Dibromofluoromethane (S) | %     | 94           | 70-130          | 10/03/13 18:37 |            |
| Toluene-d8 (S)           | %     | 100          | 55-137          | 10/03/13 18:37 |            |

LABORATORY CONTROL SAMPLE & LCSD: 866931

866932

| Parameter                | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|--------------------------|-------|-------------|------------|-------------|-----------|------------|--------------|-----|---------|------------|
| Benzene                  | ug/L  | 50          | 56.5       | 55.6        | 113       | 111        | 70-137       | 2   | 20      |            |
| Ethylbenzene             | ug/L  | 50          | 59.3       | 59.3        | 119       | 119        | 70-130       | 0   | 20      |            |
| m&p-Xylene               | ug/L  | 100         | 116        | 117         | 116       | 117        | 70-130       | 0   | 20      |            |
| Methyl-tert-butyl ether  | ug/L  | 50          | 53.3       | 53.4        | 107       | 107        | 59-141       | 0   | 20      |            |
| o-Xylene                 | ug/L  | 50          | 58.8       | 58.3        | 118       | 117        | 70-130       | 1   | 20      |            |
| Toluene                  | ug/L  | 50          | 55.2       | 55.3        | 110       | 111        | 70-130       | 0   | 20      |            |
| 4-Bromofluorobenzene (S) | %     |             |            |             | 101       | 102        | 43-137       |     |         |            |
| Dibromofluoromethane (S) | %     |             |            |             | 97        | 99         | 70-130       |     |         |            |
| Toluene-d8 (S)           | %     |             |            |             | 98        | 99         | 55-137       |     |         |            |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 866933

866934

| Parameter                | Units | 4085759005 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|--------------------------|-------|-------------------|----------------|-----------------|-----------|------------|----------|-----------|--------------|-----|---------|------|
| Benzene                  | ug/L  | <0.50             | 50             | 50              | 55.9      | 55.9       | 112      | 112       | 70-137       | 0   | 20      |      |
| Ethylbenzene             | ug/L  | <0.50             | 50             | 50              | 60.9      | 60.2       | 121      | 120       | 70-130       | 1   | 20      |      |
| m&p-Xylene               | ug/L  | <0.82             | 100            | 100             | 120       | 117        | 120      | 117       | 70-130       | 2   | 20      |      |
| Methyl-tert-butyl ether  | ug/L  | <0.49             | 50             | 50              | 53.5      | 52.9       | 107      | 106       | 59-141       | 1   | 20      |      |
| o-Xylene                 | ug/L  | <0.50             | 50             | 50              | 60.3      | 58.9       | 121      | 118       | 70-130       | 2   | 20      |      |
| Toluene                  | ug/L  | <0.44             | 50             | 50              | 56.7      | 56.3       | 113      | 113       | 70-130       | 1   | 20      |      |
| 4-Bromofluorobenzene (S) | %     |                   |                |                 |           |            | 102      | 100       | 43-137       |     |         |      |
| Dibromofluoromethane (S) | %     |                   |                |                 |           |            | 99       | 102       | 70-130       |     |         |      |
| Toluene-d8 (S)           | %     |                   |                |                 |           |            | 100      | 98        | 55-137       |     |         |      |

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## QUALITY CONTROL DATA

Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

|                         |                                                                                                                                    |                       |                    |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------|
| QC Batch:               | MSV/21592                                                                                                                          | Analysis Method:      | EPA 8260           |
| QC Batch Method:        | EPA 8260                                                                                                                           | Analysis Description: | 8260 MSV UST-WATER |
| Associated Lab Samples: | 4085759002, 4085759003, 4085759004, 4085759006, 4085759007, 4085759008, 4085759009, 4085759010, 4085759011, 4085759012, 4085759013 |                       |                    |

METHOD BLANK: 867827 Matrix: Water  
Associated Lab Samples: 4085759002, 4085759003, 4085759004, 4085759006, 4085759007, 4085759008, 4085759009, 4085759010, 4085759011, 4085759012, 4085759013

| Parameter                | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|--------------------------|-------|--------------|-----------------|----------------|------------|
| 1,2,4-Trimethylbenzene   | ug/L  | <0.50        | 1.0             | 10/05/13 10:45 |            |
| 1,3,5-Trimethylbenzene   | ug/L  | <0.50        | 1.0             | 10/05/13 10:45 |            |
| Benzene                  | ug/L  | <0.50        | 1.0             | 10/05/13 10:45 |            |
| Ethylbenzene             | ug/L  | <0.50        | 1.0             | 10/05/13 10:45 |            |
| m&p-Xylene               | ug/L  | <0.82        | 2.0             | 10/05/13 10:45 |            |
| Methyl-tert-butyl ether  | ug/L  | <0.49        | 1.0             | 10/05/13 10:45 |            |
| o-Xylene                 | ug/L  | <0.50        | 1.0             | 10/05/13 10:45 |            |
| Toluene                  | ug/L  | <0.44        | 1.0             | 10/05/13 10:45 |            |
| 4-Bromofluorobenzene (S) | %     | 90           | 43-137          | 10/05/13 10:45 |            |
| Dibromofluoromethane (S) | %     | 98           | 70-130          | 10/05/13 10:45 |            |
| Toluene-d8 (S)           | %     | 102          | 55-137          | 10/05/13 10:45 |            |

| LABORATORY CONTROL SAMPLE & LCSD: 867828 |       | 867829      |            |             |           |            |              |     |         |            |
|------------------------------------------|-------|-------------|------------|-------------|-----------|------------|--------------|-----|---------|------------|
| Parameter                                | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
| Benzene                                  | ug/L  | 50          | 58.2       | 53.7        | 116       | 107        | 70-137       | 8   | 20      |            |
| Ethylbenzene                             | ug/L  | 50          | 57.7       | 55.6        | 115       | 111        | 70-130       | 4   | 20      |            |
| m&p-Xylene                               | ug/L  | 100         | 114        | 112         | 114       | 112        | 70-130       | 2   | 20      |            |
| Methyl-tert-butyl ether                  | ug/L  | 50          | 47.7       | 45.2        | 95        | 90         | 59-141       | 5   | 20      |            |
| o-Xylene                                 | ug/L  | 50          | 56.6       | 56.3        | 113       | 113        | 70-130       | 1   | 20      |            |
| Toluene                                  | ug/L  | 50          | 55.5       | 53.6        | 111       | 107        | 70-130       | 4   | 20      |            |
| 4-Bromofluorobenzene (S)                 | %     |             |            |             | 103       | 100        | 43-137       |     |         |            |
| Dibromofluoromethane (S)                 | %     |             |            |             | 102       | 100        | 70-130       |     |         |            |
| Toluene-d8 (S)                           | %     |             |            |             | 100       | 99         | 55-137       |     |         |            |

| MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 869726 |       | 869727            |                |                 |           |            |          |           |              |     |         |      |
|-----------------------------------------------|-------|-------------------|----------------|-----------------|-----------|------------|----------|-----------|--------------|-----|---------|------|
| Parameter                                     | Units | 4085860008 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
| Benzene                                       | ug/L  | 3.3               | 50             | 50              | 57.6      | 57.4       | 109      | 108       | 70-137       | 0   | 20      |      |
| Ethylbenzene                                  | ug/L  | 27.5              | 50             | 50              | 86.4      | 84.2       | 118      | 114       | 70-130       | 3   | 20      |      |
| m&p-Xylene                                    | ug/L  | 19.4              | 100            | 100             | 133       | 122        | 114      | 103       | 70-130       | 9   | 20      |      |
| Methyl-tert-butyl ether                       | ug/L  | <1.0              | 50             | 50              | 46.7      | 46.8       | 93       | 94        | 59-141       | 0   | 20      |      |
| o-Xylene                                      | ug/L  | 13.2              | 50             | 50              | 70.8      | 66.9       | 115      | 107       | 70-130       | 6   | 20      |      |
| Toluene                                       | ug/L  | 8.7               | 50             | 50              | 63.3      | 59.8       | 109      | 102       | 70-130       | 6   | 20      |      |
| 4-Bromofluorobenzene (S)                      | %     |                   |                |                 |           |            | 100      | 94        | 43-137       |     |         |      |
| Dibromofluoromethane (S)                      | %     |                   |                |                 |           |            | 101      | 101       | 70-130       |     |         |      |
| Toluene-d8 (S)                                | %     |                   |                |                 |           |            | 99       | 94        | 55-137       |     |         |      |

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## QUALITY CONTROL DATA

Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

QC Batch: MSV/21609 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV UST-WATER  
Associated Lab Samples: 4085759014, 4085759015, 4085759016, 4085759017, 4085759018, 4085759019

METHOD BLANK: 868226 Matrix: Water  
Associated Lab Samples: 4085759014, 4085759015, 4085759016, 4085759017, 4085759018, 4085759019

| Parameter                | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|--------------------------|-------|--------------|-----------------|----------------|------------|
| 1,2,4-Trimethylbenzene   | ug/L  | <0.50        | 1.0             | 10/04/13 17:57 |            |
| 1,3,5-Trimethylbenzene   | ug/L  | <0.50        | 1.0             | 10/04/13 17:57 |            |
| Benzene                  | ug/L  | <0.50        | 1.0             | 10/04/13 17:57 |            |
| Ethylbenzene             | ug/L  | <0.50        | 1.0             | 10/04/13 17:57 |            |
| m&p-Xylene               | ug/L  | <0.82        | 2.0             | 10/04/13 17:57 |            |
| Methyl-tert-butyl ether  | ug/L  | <0.49        | 1.0             | 10/04/13 17:57 |            |
| o-Xylene                 | ug/L  | <0.50        | 1.0             | 10/04/13 17:57 |            |
| Toluene                  | ug/L  | <0.44        | 1.0             | 10/04/13 17:57 |            |
| 4-Bromofluorobenzene (S) | %     | 91           | 43-137          | 10/04/13 17:57 |            |
| Dibromofluoromethane (S) | %     | 99           | 70-130          | 10/04/13 17:57 |            |
| Toluene-d8 (S)           | %     | 100          | 55-137          | 10/04/13 17:57 |            |

LABORATORY CONTROL SAMPLE & LCSD: 868227

868228

| Parameter                | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|--------------------------|-------|-------------|------------|-------------|-----------|------------|--------------|-----|---------|------------|
| Benzene                  | ug/L  | 50          | 61.2       | 58.3        | 122       | 117        | 70-137       | 5   | 20      |            |
| Ethylbenzene             | ug/L  | 50          | 63.1       | 62.5        | 126       | 125        | 70-130       | 1   | 20      |            |
| m&p-Xylene               | ug/L  | 100         | 125        | 123         | 125       | 123        | 70-130       | 2   | 20      |            |
| Methyl-tert-butyl ether  | ug/L  | 50          | 52.2       | 50.8        | 104       | 102        | 59-141       | 3   | 20      |            |
| o-Xylene                 | ug/L  | 50          | 62.3       | 61.4        | 125       | 123        | 70-130       | 1   | 20      |            |
| Toluene                  | ug/L  | 50          | 58.9       | 57.7        | 118       | 115        | 70-130       | 2   | 20      |            |
| 4-Bromofluorobenzene (S) | %     |             |            |             | 100       | 101        | 43-137       |     |         |            |
| Dibromofluoromethane (S) | %     |             |            |             | 102       | 102        | 70-130       |     |         |            |
| Toluene-d8 (S)           | %     |             |            |             | 99        | 99         | 55-137       |     |         |            |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 868229

868230

| Parameter                | Units | 4085759014 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|--------------------------|-------|-------------------|----------------|-----------------|-----------|------------|----------|-----------|--------------|-----|---------|------|
| Benzene                  | ug/L  | 23.1              | 50             | 50              | 74.7      | 76.3       | 103      | 106       | 70-137       | 2   | 20      |      |
| Ethylbenzene             | ug/L  | 2.3               | 50             | 50              | 62.0      | 63.1       | 119      | 121       | 70-130       | 2   | 20      |      |
| m&p-Xylene               | ug/L  | <0.82             | 100            | 100             | 119       | 119        | 118      | 118       | 70-130       | 0   | 20      |      |
| Methyl-tert-butyl ether  | ug/L  | <0.49             | 50             | 50              | 47.8      | 49.2       | 96       | 98        | 59-141       | 3   | 20      |      |
| o-Xylene                 | ug/L  | 0.67J             | 50             | 50              | 59.9      | 60.0       | 118      | 119       | 70-130       | 0   | 20      |      |
| Toluene                  | ug/L  | <0.44             | 50             | 50              | 55.7      | 55.6       | 111      | 111       | 70-130       | 0   | 20      |      |
| 4-Bromofluorobenzene (S) | %     |                   |                |                 |           |            | 102      | 101       | 43-137       |     |         |      |
| Dibromofluoromethane (S) | %     |                   |                |                 |           |            | 102      | 98        | 70-130       |     |         |      |
| Toluene-d8 (S)           | %     |                   |                |                 |           |            | 100      | 97        | 55-137       |     |         |      |

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## QUALITY CONTROL DATA

Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

QC Batch: OEXT/20078 Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510 Analysis Description: 8270 Water PAH by SIM MSSV  
Associated Lab Samples: 4085759001, 4085759002, 4085759003, 4085759004, 4085759005, 4085759006, 4085759007, 4085759008, 4085759009, 4085759010

METHOD BLANK: 866809 Matrix: Water  
Associated Lab Samples: 4085759001, 4085759002, 4085759003, 4085759004, 4085759005, 4085759006, 4085759007, 4085759008, 4085759009, 4085759010

| Parameter              | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|------------------------|-------|--------------|-----------------|----------------|------------|
| 1-Methylnaphthalene    | ug/L  | 0.0063J      | 0.050           | 10/04/13 02:03 |            |
| 2-Methylnaphthalene    | ug/L  | 0.011J       | 0.050           | 10/04/13 02:03 |            |
| Acenaphthene           | ug/L  | <0.0048      | 0.050           | 10/04/13 02:03 |            |
| Acenaphthylene         | ug/L  | <0.0038      | 0.050           | 10/04/13 02:03 |            |
| Anthracene             | ug/L  | <0.0061      | 0.050           | 10/04/13 02:03 |            |
| Benzo(a)anthracene     | ug/L  | <0.0038      | 0.050           | 10/04/13 02:03 |            |
| Benzo(a)pyrene         | ug/L  | <0.0030      | 0.050           | 10/04/13 02:03 |            |
| Benzo(b)fluoranthene   | ug/L  | <0.0036      | 0.050           | 10/04/13 02:03 |            |
| Benzo(g,h,i)perylene   | ug/L  | <0.0051      | 0.050           | 10/04/13 02:03 |            |
| Benzo(k)fluoranthene   | ug/L  | <0.0046      | 0.050           | 10/04/13 02:03 |            |
| Chrysene               | ug/L  | <0.0037      | 0.050           | 10/04/13 02:03 |            |
| Dibenz(a,h)anthracene  | ug/L  | <0.0034      | 0.050           | 10/04/13 02:03 |            |
| Fluoranthene           | ug/L  | <0.0047      | 0.050           | 10/04/13 02:03 |            |
| Fluorene               | ug/L  | <0.0051      | 0.050           | 10/04/13 02:03 |            |
| Indeno(1,2,3-cd)pyrene | ug/L  | <0.0050      | 0.050           | 10/04/13 02:03 |            |
| Naphthalene            | ug/L  | 0.029J       | 0.050           | 10/04/13 02:03 |            |
| Phenanthrene           | ug/L  | <0.0086      | 0.050           | 10/04/13 02:03 |            |
| Pyrene                 | ug/L  | <0.0050      | 0.050           | 10/04/13 02:03 |            |
| 2-Fluorobiphenyl (S)   | %     | 48           | 24-130          | 10/04/13 02:03 |            |
| Terphenyl-d14 (S)      | %     | 57           | 44-169          | 10/04/13 02:03 |            |

LABORATORY CONTROL SAMPLE & LCSD: 866810

866839

| Parameter              | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|------------------------|-------|-------------|------------|-------------|-----------|------------|--------------|-----|---------|------------|
| 1-Methylnaphthalene    | ug/L  | .2          | 0.12       | 0.18        | 59        | 92         | 35-130       | 44  | 50      |            |
| 2-Methylnaphthalene    | ug/L  | .2          | 0.12       | 0.22        | 62        | 111        | 32-130       | 57  | 50      | R1         |
| Acenaphthene           | ug/L  | .2          | 0.12       | 0.14        | 59        | 69         | 30-130       | 16  | 50      |            |
| Acenaphthylene         | ug/L  | .2          | 0.11       | 0.13        | 55        | 64         | 28-130       | 15  | 50      |            |
| Anthracene             | ug/L  | .2          | 0.10       | 0.13        | 52        | 65         | 22-130       | 23  | 45      |            |
| Benzo(a)anthracene     | ug/L  | .2          | 0.15       | 0.16        | 75        | 82         | 40-130       | 9   | 20      |            |
| Benzo(a)pyrene         | ug/L  | .2          | 0.18       | 0.20        | 92        | 100        | 51-130       | 9   | 20      |            |
| Benzo(b)fluoranthene   | ug/L  | .2          | 0.16       | 0.22        | 82        | 110        | 45-130       | 30  | 23      | R1         |
| Benzo(g,h,i)perylene   | ug/L  | .2          | 0.18       | 0.18        | 89        | 92         | 59-130       | 4   | 20      |            |
| Benzo(k)fluoranthene   | ug/L  | .2          | 0.26       | 0.24        | 132       | 120        | 60-130       | 9   | 20      | L0         |
| Chrysene               | ug/L  | .2          | 0.24       | 0.25        | 118       | 127        | 62-130       | 8   | 20      |            |
| Dibenz(a,h)anthracene  | ug/L  | .2          | 0.13       | 0.14        | 63        | 69         | 51-130       | 8   | 20      |            |
| Fluoranthene           | ug/L  | .2          | 0.13       | 0.15        | 63        | 75         | 43-130       | 17  | 30      |            |
| Fluorene               | ug/L  | .2          | 0.11       | 0.13        | 57        | 67         | 29-130       | 17  | 50      |            |
| Indeno(1,2,3-cd)pyrene | ug/L  | .2          | 0.15       | 0.16        | 76        | 81         | 56-130       | 7   | 20      |            |
| Naphthalene            | ug/L  | .2          | 0.13       | 0.37        | 67        | 183        | 30-130       | 93  | 50      | L0,R1      |

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## QUALITY CONTROL DATA

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| LABORATORY CONTROL SAMPLE & LCSD: |       | 866810      | 866839     |             |           |            |              |     |         |            |
|-----------------------------------|-------|-------------|------------|-------------|-----------|------------|--------------|-----|---------|------------|
| Parameter                         | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
| Phenanthrene                      | ug/L  | .2          | 0.12       | 0.14        | 59        | 71         | 29-130       | 18  | 50      |            |
| Pyrene                            | ug/L  | .2          | 0.15       | 0.17        | 75        | 85         | 38-130       | 13  | 32      |            |
| 2-Fluorobiphenyl (S)              | %     |             |            |             | 59        | 67         | 24-130       |     |         |            |
| Terphenyl-d14 (S)                 | %     |             |            |             | 85        | 85         | 44-169       |     |         |            |

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## QUALITY CONTROL DATA

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

QC Batch: OEXT/20106 Analysis Method: EPA 8270 by SIM  
QC Batch Method: EPA 3510 Analysis Description: 8270 Water PAH by SIM MSSV  
Associated Lab Samples: 4085759012, 4085759013, 4085759014, 4085759015, 4085759016, 4085759017, 4085759018

METHOD BLANK: 868692

Matrix: Water

Associated Lab Samples: 4085759012, 4085759013, 4085759014, 4085759015, 4085759016, 4085759017, 4085759018

| Parameter              | Units | Blank Result | Reporting Limit | Analyzed       | Qualifiers |
|------------------------|-------|--------------|-----------------|----------------|------------|
| 1-Methylnaphthalene    | ug/L  | <0.0053      | 0.050           | 10/04/13 14:37 |            |
| 2-Methylnaphthalene    | ug/L  | <0.0041      | 0.050           | 10/04/13 14:37 |            |
| Acenaphthene           | ug/L  | <0.0048      | 0.050           | 10/04/13 14:37 |            |
| Acenaphthylene         | ug/L  | <0.0038      | 0.050           | 10/04/13 14:37 |            |
| Anthracene             | ug/L  | <0.0061      | 0.050           | 10/04/13 14:37 |            |
| Benzo(a)anthracene     | ug/L  | <0.0038      | 0.050           | 10/04/13 14:37 |            |
| Benzo(a)pyrene         | ug/L  | <0.0030      | 0.050           | 10/04/13 14:37 |            |
| Benzo(b)fluoranthene   | ug/L  | <0.0036      | 0.050           | 10/04/13 14:37 |            |
| Benzo(g,h,i)perylene   | ug/L  | <0.0051      | 0.050           | 10/04/13 14:37 |            |
| Benzo(k)fluoranthene   | ug/L  | <0.0046      | 0.050           | 10/04/13 14:37 |            |
| Chrysene               | ug/L  | <0.0037      | 0.050           | 10/04/13 14:37 |            |
| Dibenz(a,h)anthracene  | ug/L  | <0.0034      | 0.050           | 10/04/13 14:37 |            |
| Fluoranthene           | ug/L  | <0.0047      | 0.050           | 10/04/13 14:37 |            |
| Fluorene               | ug/L  | <0.0051      | 0.050           | 10/04/13 14:37 |            |
| Indeno(1,2,3-cd)pyrene | ug/L  | <0.0050      | 0.050           | 10/04/13 14:37 |            |
| Naphthalene            | ug/L  | 0.0094J      | 0.050           | 10/04/13 14:37 |            |
| Phenanthrene           | ug/L  | <0.0086      | 0.050           | 10/04/13 14:37 |            |
| Pyrene                 | ug/L  | <0.0050      | 0.050           | 10/04/13 14:37 |            |
| 2-Fluorobiphenyl (S)   | %     | 57           | 24-130          | 10/04/13 14:37 |            |
| Terphenyl-d14 (S)      | %     | 69           | 44-169          | 10/04/13 14:37 |            |

LABORATORY CONTROL SAMPLE: 868693

| Parameter              | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|------------------------|-------|-------------|------------|-----------|--------------|------------|
| 1-Methylnaphthalene    | ug/L  | .2          | 0.12       | 59        | 35-130       |            |
| 2-Methylnaphthalene    | ug/L  | .2          | 0.12       | 62        | 32-130       |            |
| Acenaphthene           | ug/L  | .2          | 0.12       | 58        | 30-130       |            |
| Acenaphthylene         | ug/L  | .2          | 0.12       | 59        | 28-130       |            |
| Anthracene             | ug/L  | .2          | 0.12       | 60        | 22-130       |            |
| Benzo(a)anthracene     | ug/L  | .2          | 0.15       | 76        | 40-130       |            |
| Benzo(a)pyrene         | ug/L  | .2          | 0.19       | 96        | 51-130       |            |
| Benzo(b)fluoranthene   | ug/L  | .2          | 0.16       | 81        | 45-130       |            |
| Benzo(g,h,i)perylene   | ug/L  | .2          | 0.19       | 93        | 59-130       |            |
| Benzo(k)fluoranthene   | ug/L  | .2          | 0.22       | 108       | 60-130       |            |
| Chrysene               | ug/L  | .2          | 0.21       | 103       | 62-130       |            |
| Dibenz(a,h)anthracene  | ug/L  | .2          | 0.18       | 91        | 51-130       |            |
| Fluoranthene           | ug/L  | .2          | 0.13       | 65        | 43-130       |            |
| Fluorene               | ug/L  | .2          | 0.12       | 58        | 29-130       |            |
| Indeno(1,2,3-cd)pyrene | ug/L  | .2          | 0.19       | 94        | 56-130       |            |
| Naphthalene            | ug/L  | .2          | 0.13       | 65        | 30-130       |            |
| Phenanthrene           | ug/L  | .2          | 0.12       | 59        | 29-130       |            |

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

LABORATORY CONTROL SAMPLE: 868693

| Parameter            | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|----------------------|-------|-------------|------------|-----------|--------------|------------|
| Pyrene               | ug/L  | .2          | 0.14       | 71        | 38-130       |            |
| 2-Fluorobiphenyl (S) | %     |             |            | 48        | 24-130       |            |
| Terphenyl-d14 (S)    | %     |             |            | 69        | 44-169       |            |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 868708 868709

| Parameter              | Units | 4085947002 | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | Max RPD | Qual  |
|------------------------|-------|------------|----------------|-----------------|-----------|------------|----------|-----------|--------------|---------|-------|
|                        |       | Result     |                |                 |           |            |          |           |              |         |       |
| 1-Methylnaphthalene    | ug/L  | 0.024J     | .2             | .2              | 0.16      | 0.16       | 68       | 69        | 10-130       | 1       | 50    |
| 2-Methylnaphthalene    | ug/L  | 0.018J     | .2             | .2              | 0.15      | 0.15       | 66       | 63        | 10-130       | 3       | 50    |
| Acenaphthene           | ug/L  | 0.040J     | .2             | .2              | 0.21      | 0.19       | 84       | 76        | 10-130       | 7       | 50    |
| Acenaphthylene         | ug/L  | 0.0099J    | .2             | .2              | 0.14      | 0.13       | 63       | 62        | 10-130       | 1       | 50    |
| Anthracene             | ug/L  | 0.034J     | .2             | .2              | 0.23      | 0.22       | 100      | 94        | 10-130       | 4       | 45    |
| Benzo(a)anthracene     | ug/L  | 0.036J     | .2             | .2              | 0.27      | 0.26       | 118      | 110       | 22-130       | 5       | 21    |
| Benzo(a)pyrene         | ug/L  | 0.036J     | .2             | .2              | 0.29      | 0.27       | 125      | 117       | 40-130       | 5       | 20    |
| Benzo(b)fluoranthene   | ug/L  | 0.016J     | .2             | .2              | 0.23      | 0.24       | 107      | 110       | 23-130       | 3       | 23    |
| Benzo(g,h,i)perylene   | ug/L  | 0.019J     | .2             | .2              | 0.23      | 0.24       | 106      | 110       | 30-130       | 5       | 21    |
| Benzo(k)fluoranthene   | ug/L  | 0.026J     | .2             | .2              | 0.25      | 0.26       | 113      | 114       | 50-130       | 2       | 20    |
| Chrysene               | ug/L  | 0.049J     | .2             | .2              | 0.34      | 0.33       | 146      | 137       | 32-147       | 5       | 20    |
| Dibenz(a,h)anthracene  | ug/L  | 0.0043J    | .2             | .2              | 0.18      | 0.19       | 89       | 94        | 14-130       | 6       | 26    |
| Fluoranthene           | ug/L  | 0.067      | .2             | .2              | 0.33      | 0.30       | 133      | 116       | 37-130       | 10      | 30 M1 |
| Fluorene               | ug/L  | 0.020J     | .2             | .2              | 0.16      | 0.16       | 72       | 71        | 10-130       | 0       | 50    |
| Indeno(1,2,3-cd)pyrene | ug/L  | 0.013J     | .2             | .2              | 0.22      | 0.23       | 103      | 107       | 27-130       | 5       | 23    |
| Naphthalene            | ug/L  | 0.048J     | .2             | .2              | 0.20      | 0.18       | 75       | 67        | 10-130       | 8       | 50    |
| Phenanthrene           | ug/L  | 0.089      | .2             | .2              | 0.35      | 0.31       | 132      | 110       | 13-130       | 13      | 50 M1 |
| Pyrene                 | ug/L  | 0.11       | .2             | .2              | 0.46      | 0.39       | 174      | 138       | 34-130       | 16      | 32 M1 |
| 2-Fluorobiphenyl (S)   | %     |            |                |                 |           |            | 49       | 56        | 24-130       |         |       |
| Terphenyl-d14 (S)      | %     |            |                |                 |           |            | 84       | 88        | 44-169       |         |       |

## REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: 1569 FORMER TWO RIVERS MGP  
Pace Project No.: 4085759

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### BATCH QUALIFIERS

Batch: MSSV/6056

- [IP] Benzo(b)fluoranthene and benzo(k)fluoranthene were in the check standard but did not meet the resolution criteria in SW846 Method 8270C. Whereas sample results included are reported as individual isomers, the lab and the customer must recognize them as an isomeric pair.
- [M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.
- [1] Three compounds fail for for precision between LCS and LCSD. Both LCS and LCSD met accuracy requirements. There was no sample hold time available for reextraction.

### ANALYTE QUALIFIERS

- 1q Benzo(b)fluoranthene and benzo(k)fluoranthene were in the check standard but did not meet the resolution criteria in SW846 Method 8270C. Whereas sample results included are reported as individual isomers, the lab and the customer must recognize them as an isomeric pair.
- B Analyte was detected in the associated method blank.
- HS Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).
- L0 Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
- L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.
- L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
- R1 RPD value was outside control limits.
- S4 Surrogate recovery not evaluated against control limits due to sample dilution.

## REPORT OF LABORATORY ANALYSIS

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## QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1569 FORMER TWO RIVERS MGP

Pace Project No.: 4085759

| Lab ID     | Sample ID | QC Batch Method | QC Batch   | Analytical Method | Analytical Batch |
|------------|-----------|-----------------|------------|-------------------|------------------|
| 4085759001 | 092713001 | EPA 3510        | OEXT/20078 | EPA 8270 by SIM   | MSSV/6056        |
| 4085759002 | 092713002 | EPA 3510        | OEXT/20078 | EPA 8270 by SIM   | MSSV/6056        |
| 4085759003 | 092713003 | EPA 3510        | OEXT/20078 | EPA 8270 by SIM   | MSSV/6056        |
| 4085759004 | 092713004 | EPA 3510        | OEXT/20078 | EPA 8270 by SIM   | MSSV/6056        |
| 4085759005 | 092713005 | EPA 3510        | OEXT/20078 | EPA 8270 by SIM   | MSSV/6056        |
| 4085759006 | 092713006 | EPA 3510        | OEXT/20078 | EPA 8270 by SIM   | MSSV/6056        |
| 4085759007 | 092713007 | EPA 3510        | OEXT/20078 | EPA 8270 by SIM   | MSSV/6056        |
| 4085759008 | 092713008 | EPA 3510        | OEXT/20078 | EPA 8270 by SIM   | MSSV/6056        |
| 4085759009 | 092713009 | EPA 3510        | OEXT/20078 | EPA 8270 by SIM   | MSSV/6056        |
| 4085759010 | 092713010 | EPA 3510        | OEXT/20078 | EPA 8270 by SIM   | MSSV/6056        |
| 4085759012 | 092713011 | EPA 3510        | OEXT/20106 | EPA 8270 by SIM   | MSSV/6067        |
| 4085759013 | 092713012 | EPA 3510        | OEXT/20106 | EPA 8270 by SIM   | MSSV/6067        |
| 4085759014 | 092713013 | EPA 3510        | OEXT/20106 | EPA 8270 by SIM   | MSSV/6067        |
| 4085759015 | 092713014 | EPA 3510        | OEXT/20106 | EPA 8270 by SIM   | MSSV/6067        |
| 4085759016 | 092713015 | EPA 3510        | OEXT/20106 | EPA 8270 by SIM   | MSSV/6067        |
| 4085759017 | 092713016 | EPA 3510        | OEXT/20106 | EPA 8270 by SIM   | MSSV/6067        |
| 4085759018 | 092713017 | EPA 3510        | OEXT/20106 | EPA 8270 by SIM   | MSSV/6067        |
| 4085759001 | 092713001 | EPA 8260        | MSV/21585  |                   |                  |
| 4085759002 | 092713002 | EPA 8260        | MSV/21592  |                   |                  |
| 4085759003 | 092713003 | EPA 8260        | MSV/21592  |                   |                  |
| 4085759004 | 092713004 | EPA 8260        | MSV/21592  |                   |                  |
| 4085759005 | 092713005 | EPA 8260        | MSV/21585  |                   |                  |
| 4085759006 | 092713006 | EPA 8260        | MSV/21592  |                   |                  |
| 4085759007 | 092713007 | EPA 8260        | MSV/21592  |                   |                  |
| 4085759008 | 092713008 | EPA 8260        | MSV/21592  |                   |                  |
| 4085759009 | 092713009 | EPA 8260        | MSV/21592  |                   |                  |
| 4085759010 | 092713010 | EPA 8260        | MSV/21592  |                   |                  |
| 4085759011 | 092713018 | EPA 8260        | MSV/21592  |                   |                  |
| 4085759012 | 092713011 | EPA 8260        | MSV/21592  |                   |                  |
| 4085759013 | 092713012 | EPA 8260        | MSV/21592  |                   |                  |
| 4085759014 | 092713013 | EPA 8260        | MSV/21609  |                   |                  |
| 4085759015 | 092713014 | EPA 8260        | MSV/21609  |                   |                  |
| 4085759016 | 092713015 | EPA 8260        | MSV/21609  |                   |                  |
| 4085759017 | 092713016 | EPA 8260        | MSV/21609  |                   |                  |
| 4085759018 | 092713017 | EPA 8260        | MSV/21609  |                   |                  |
| 4085759019 | 092713019 | EPA 8260        | MSV/21609  |                   |                  |

## REPORT OF LABORATORY ANALYSIS

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(Please Print Clearly)

UPPER MIDWEST REGION

Page 1 of 3

MN: 612-607-1700 WI: 920-469-2436

**Pace Analytical**  
www.paceabs.com

## CHAIN OF CUSTODY

A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH  
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

FILTERED?  
(YES/NO)

PRESERVATION  
(CODE)\*

|                     |                        |
|---------------------|------------------------|
| Company Name:       | Natural Resourcekeeper |
| Branch/Location:    | Milwaukee              |
| Project Contact:    | Eric Forstner          |
| Phone:              | 262-719-4508           |
| Project Number:     | 1569 Forster           |
| Project Name:       | Two Rivers MGP         |
| Project State:      | Wisconsin              |
| Sampled By (Print): | Sarah Lyons w/ndt      |
| Sampled By (Sign):  | [Signature]            |
| PO #:               | 3400002393             |
| Regulatory Program: |                        |

### Data Package Options

(billable)  
☐ EPA Level III  
☐ EPA Level IV

☒ On your sample (billable)  
☐ NOT needed on your sample

Matrix Codes  
A = Air  
B = Bioa  
C = Charcoal  
O = Oil  
S = Soil  
SW = Surface Water  
WP = Waste Water  
SI = Sludge  
WP = Wipe

### PACE LAB #

### CLIENT FIELD ID

### COLLECTION

### MATRIX

### Analyses Requested

PAH 8270 SIM  
VOC 8260

Invoice To Contact:  
Invoice To Company:  
Invoice To Address:

Invoice To Phone:  
CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)  
Profile #

1-Lag 3-40ndv3

| DATE | TIME      | MATRIX  | Y/N  | Pick Letter | Received By: | Date/Time: | Received By: | Date/Time: | Received By: | Date/Time: |
|------|-----------|---------|------|-------------|--------------|------------|--------------|------------|--------------|------------|
| 001  | 092713001 | 9/27/13 | 8:47 | 620         |              |            |              |            |              |            |
| 003  | 092713002 | 853     |      |             |              |            |              |            |              |            |
| 003  | 092713003 | 921     |      |             |              |            |              |            |              |            |
| 004  | 092713004 | 934     |      |             |              |            |              |            |              |            |
| 005  | 092713005 | 939     |      |             |              |            |              |            |              |            |
| 006  | 092713006 | 1030    |      |             |              |            |              |            |              |            |
| 007  | 092713007 | 1035    |      |             |              |            |              |            |              |            |
| 008  | 092713008 | 1124    |      |             |              |            |              |            |              |            |
| 009  | 092713009 | 1151    |      |             |              |            |              |            |              |            |
| 010  | 092713010 | 1213    |      |             |              |            |              |            |              |            |
| 011  | 092713018 | 1241    |      |             |              |            |              |            |              |            |
|      |           | 1303    |      |             |              |            |              |            |              |            |
|      |           | 1303    |      |             |              |            |              |            |              |            |

Rush Turnaround Time Requested - Prelims  
(Rush TAT subject to approval/surcharge)  
Date Needed:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Transmit Prelim Rush Results by (complete what you want):

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Relinquished By:

Email #1:

Email #2:

Telephone:

Fax:

Special pricing and release of liability

Special pricing and release of liability

Special pricing and release of liability

Special pricing and release of liability

Special pricing and release of liability

Special pricing and release of liability

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Special pricing and release of liability

Special pricing and release of liability

019a(27Jun2006)

last body seal 1569001 & 1569002

ORIGINAL

Version 6.0 05/14/05

(Please Print Clearly)

Company Name: Natural Resource Tech  
Branch/Location: Wilmington, WI  
Project Contact: Eric Kovatch  
Phone: 262-719-4508  
Project Number: 1569  
Project Name: Teos Ruess, WI  
Project State: Wisconsin  
Sampled By (Print): Sarah Ganswiler  
Sampled By (Sign): Sarah Ganswiler  
PO #: 340002393

Matrix Codes  
A = Air  
B = Biota  
C = Charcoal  
O = Oil  
S = Soil  
SW = Surface Water  
WW = Waste Water  
WP = Wipe  
W = Water  
DW = Drinking Water  
GW = Ground Water  
SW = Surface Water  
WP = Wipe

# CHAIN OF CUSTODY

Level 2 Reporting  
www.paceanalytical.com

UPPER MIDWEST REGION  
MN: 612-607-1700 WI: 920-469-2436

Quote #: 340002393

Mail To Contact: 1001 Barbear

Mail To Company: Natural Resource Tech

Mail To Address: 237 W. Florence St

Invoice To Contact: Teos Ruess

Invoice To Company: Teos Ruess

Invoice To Address: PO Box 14800

Invoice To Phone: 920-433-3929

CLIENT COMMENTS

LAB COMMENTS (Lab Use Only)

Profile #

1-Lag A 3-40ml vials

3-Lag A 3-40ml vials

3-Lag A 3-40ml vials

3-Lag A 3-40ml vials

3-Lag A 3-40ml vials

3-Lag A 3-40ml vials

3-Lag A 3-40ml vials

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3-Lag A 3-40ml vials

3-Lag A 3-40ml vials

3-Lag A 3-40ml vials

3-Lag A 3-40ml vials

3-Lag A 3-40ml vials

Custom Seal 1569003 & 1569004

**Pace Analytical™**

**Sample Condition Upon Receipt**

Client Name: NRT

Project # 4085759

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☒ Commercial ☐ Pace  
Tracking #: \_\_\_\_\_

Other: CS Logistics

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Custody Seal on Samples Present: ☐ yes ☒ no Seals intact: ☐ yes ☐ no

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other \_\_\_\_\_

Thermometer Used N/A Type of Ice: ☒ Wet ☐ Blue ☐ Dry ☐ None ☒ Samples on ice, cooling process has begun

Cooler Temperature Uncorr: ROTI Corr: \_\_\_\_\_ Biological Tissue is Frozen: ☐ yes

Temp Blank Present: ☐ yes ☒ no ☐ no

Temp should be above freezing to 6°C for all sample except Biota.

Frozen Biota Samples should be received ≤ 0°C.

Person examining contents:

Date: 10-1-13

Initials: SW

Comments:

|                                                                                                                                      |                                                                                                  |                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| Chain of Custody Present:                                                                                                            | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 1.                                                                                                                                   |
| Chain of Custody Filled Out:                                                                                                         | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 2.                                                                                                                                   |
| Chain of Custody Relinquished:                                                                                                       | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 3.                                                                                                                                   |
| Sampler Name & Signature on COC:                                                                                                     | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 4.                                                                                                                                   |
| Samples Arrived within Hold Time:                                                                                                    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 5.                                                                                                                                   |
| - VOA Samples frozen upon receipt                                                                                                    | <input type="checkbox"/> Yes <input type="checkbox"/> No                                         | Date/Time:                                                                                                                           |
| Short Hold Time Analysis (<72hr):                                                                                                    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | 6.                                                                                                                                   |
| Rush Turn Around Time Requested:                                                                                                     | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | 7.                                                                                                                                   |
| Sufficient Volume:                                                                                                                   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 8.                                                                                                                                   |
| Correct Containers Used:                                                                                                             | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 9.                                                                                                                                   |
| -Pace Containers Used:                                                                                                               | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |                                                                                                                                      |
| -Pace IR Containers Used:                                                                                                            | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A |                                                                                                                                      |
| Containers Intact:                                                                                                                   | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 10.                                                                                                                                  |
| Filtered volume received for Dissolved tests                                                                                         | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 11.                                                                                                                                  |
| Sample Labels match COC:                                                                                                             | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | 12. <u>No collect time on samples. Matched by FO only 10-1-13 SW</u>                                                                 |
| -Includes date/time/ID/Analysis Matrix: <u>W</u>                                                                                     |                                                                                                  |                                                                                                                                      |
| All containers needing preservation have been checked. (Non-Compliance noted in 13.)                                                 | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A | 13. <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NaOH <input type="checkbox"/> NaOH + ZnAct |
| All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12) | <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A |                                                                                                                                      |
| exceptions (VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER: _____)                                                      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No                              | Initial when completed                                                                                                               |
|                                                                                                                                      |                                                                                                  | Lab Std #ID of preservative                                                                                                          |
|                                                                                                                                      |                                                                                                  | Date/Time:                                                                                                                           |
| Headspace in VOA Vials (>6mm):                                                                                                       | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A | 14.                                                                                                                                  |
| Trip Blank Present:                                                                                                                  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A | 15.                                                                                                                                  |
| Trip Blank Custody Seals Present:                                                                                                    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A |                                                                                                                                      |
| Pace Trip Blank Lot # (if purchased): <u>Covered 10-1-13 SW</u>                                                                      |                                                                                                  |                                                                                                                                      |

Client Notification/ Resolution:

If checked, see attached form for additional comments

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

Project Manager Review: \_\_\_\_\_

Date: 10-2-13

**APPENDIX C**

**2013 WETLAND DELINEATION**



AECOM  
1035 Kepler Drive  
Green Bay, Wisconsin 54311  
www.aecom.com

920 406 3101 tel  
920 468 3312 fax

July 31, 2013

Mr. Rick Moser  
Integrus Business Support LLC  
700 N. Adams Street  
Green Bay, WI 54307-9001

**Subject: WPS Two Rivers MGP Site Wetland Verification  
AECOM Project Number 60269567.4**

Dear Mr. Moser:

This letter report is in regard to the wetland verification that AECOM completed at your request at the former WPS MGP site located in Two Rivers, Wisconsin. In 2003, the former STS Consultants completed a wetland delineation on the subject property in Two Rivers to determine the wetland boundary. On July 26, 2013, an AECOM wetland scientist conducted an investigation to determine whether the wetland boundary delineated in 2003 was still accurate in accordance with the current wetland delineation guidelines.

AECOM investigated two plots, one upland plot and one wetland plot, on the subject property to determine the location of the current wetland boundary. The USACE Data Forms for the two plots investigated are included in Attachment 1. A hand-held GPS unit with sub-meter accuracy was used to map the wetland boundary in the field. In addition, photographs were taken to document the current conditions of the wetland. The photographs are included as Attachment 2. An aerial photograph showing the location of the current wetland boundary on the subject property is included as Figure 1 (Attachment 3). AECOM also digitized the approximate wetland boundary delineated in 2003 on the aerial photograph for comparison. The GIS shapefiles of the current wetland boundary have been submitted with this letter report.

If you have any questions regarding this wetland verification, please call me at 920-406-3102 or Kurt Rubsam at 920-451-2558.

Sincerely,

Steve Grumann  
Water & Natural resources Section Manager

Enclosures: Attachment 1 - USACE Data Forms  
Attachment 2 - Photographs  
Attachment 3 - Figure 1

c: Kurt Rubsam, AECOM

**ATTACHMENT 1**  
**USACE DATA FORMS**

## WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

|                                                                                   |                                |                        |                                       |                             |                             |           |
|-----------------------------------------------------------------------------------|--------------------------------|------------------------|---------------------------------------|-----------------------------|-----------------------------|-----------|
| Project/Site:                                                                     | Wisconsin Public Service - MGP |                        | City/County:                          | Manitowoc                   | Sampling Date:              | 7-26-2013 |
| Applicant/Owner:                                                                  | Wisconsin Public Service       |                        | State:                                | Wisconsin                   | Sampling Point:             | S1-UP     |
| Investigator(s):                                                                  | K.Unke                         | (AECOM)                | Section, Township, Range:             | Sec. 1 T19N R24E            |                             |           |
| Landform (hillslope, terrace, etc.):                                              | Hillslope                      |                        | Local relief (concave, convex, none): | Convex                      |                             |           |
| Slope (%):                                                                        | 1                              | Lat.: NA               | Long.: NA                             | Datum:                      | NA                          |           |
| Soil Map Unit Name:                                                               | Gb                             | Granby fine sandy loam |                                       | NWI or WWI Classification:  | S3/E1K                      |           |
| Are climatic/hydrologic conditions of the site typical for this time of the year? |                                |                        |                                       | Yes                         | (If no, explain in remarks) |           |
| Are vegetation _____, soil X, or hydrology _____ significantly disturbed?         |                                |                        |                                       | Are "normal                 |                             |           |
| Are vegetation _____, soil _____, or hydrology _____ naturally problematic?       |                                |                        |                                       | circumstances" present? Yes |                             |           |
| (If needed, explain any answers in remarks)                                       |                                |                        |                                       |                             |                             |           |

## SUMMARY OF FINDINGS

|                                                                                                                                                      |          |                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------------------------|
| Hydrophytic vegetation present?                                                                                                                      | <u>N</u> | <b>Is the sampled area within a wetland?</b> <u>No</u><br><br>If yes, optional wetland site ID: _____ |
| Hydric soil present?                                                                                                                                 | <u>N</u> |                                                                                                       |
| Indicators of wetland hydrology present?                                                                                                             | <u>N</u> |                                                                                                       |
| Remarks: (Explain alternative procedures here or in a separate report.)<br><br>Soil core was taken east of the wetland boundary near a concrete slab |          |                                                                                                       |

## HYDROLOGY

|                                                                       |  |                                                          |  |                                                               |  |  |  |
|-----------------------------------------------------------------------|--|----------------------------------------------------------|--|---------------------------------------------------------------|--|--|--|
| Primary Indicators (minimum of one is required; check all that apply) |  |                                                          |  | Secondary Indicators (minimum of two required)                |  |  |  |
| <input type="checkbox"/> Surface Water (A1)                           |  | <input type="checkbox"/> Water-Stained Leaves (B9)       |  | <input type="checkbox"/> Surface Soil Cracks (B6)             |  |  |  |
| <input type="checkbox"/> High Water Table (A2)                        |  | <input type="checkbox"/> Aquatic Fauna (B13)             |  | <input type="checkbox"/> Drainage Patterns (B10)              |  |  |  |
| <input type="checkbox"/> Saturation (A3)                              |  | <input type="checkbox"/> Marl Deposits (B15)             |  | <input type="checkbox"/> Moss Trim Lines (B16)                |  |  |  |
| <input type="checkbox"/> Water Marks (B1)                             |  | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)      |  | <input type="checkbox"/> Dry-Season Water Table (C2)          |  |  |  |
| <input type="checkbox"/> Sediment Deposits (B2)                       |  | <input type="checkbox"/> Oxidized Rhizospheres on Living |  | <input type="checkbox"/> Crayfish Burrows (C8)                |  |  |  |
| <input type="checkbox"/> Drift Deposits (B3)                          |  | <input type="checkbox"/> Roots (C3)                      |  | <input type="checkbox"/> Saturation Visible on Aerial Imagery |  |  |  |
| <input type="checkbox"/> Algal Mat or Crust (B4)                      |  | <input type="checkbox"/> Presence of Reduced Iron (C4)   |  | <input type="checkbox"/> (C9)                                 |  |  |  |
| <input type="checkbox"/> Iron Deposits (B5)                           |  | <input type="checkbox"/> Recent Iron Reduction in Tilled |  | <input type="checkbox"/> Stunted or Stressed Plants (D1)      |  |  |  |
| <input type="checkbox"/> Inundation Visible on Aerial                 |  | <input type="checkbox"/> Soils (C6)                      |  | <input type="checkbox"/> Geomorphic Position (D2)             |  |  |  |
| <input type="checkbox"/> Imagery (B7)                                 |  | <input type="checkbox"/> Thin Muck Surface (C7)          |  | <input type="checkbox"/> Shallow Aquitard (D3)                |  |  |  |
| <input type="checkbox"/> Sparsely Vegetated Concave                   |  | <input type="checkbox"/> Other (Explain in Remarks)      |  | <input type="checkbox"/> FAC-Neutral Test (D5)                |  |  |  |
| <input type="checkbox"/> Surface (B8)                                 |  |                                                          |  | <input type="checkbox"/> Microtopographic Relief (D4)         |  |  |  |

|                             |                              |                                        |                 |                                                 |  |
|-----------------------------|------------------------------|----------------------------------------|-----------------|-------------------------------------------------|--|
| Field Observations:         |                              |                                        |                 | <b>Indicators of wetland hydrology present?</b> |  |
| Surface water present?      | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | Depth (inches): |                                                 |  |
| Water table present?        | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | Depth (inches): |                                                 |  |
| Saturation present?         | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> | Depth (inches): |                                                 |  |
| (includes capillary fringe) |                              |                                        |                 | <b>N</b>                                        |  |

Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



**VEGETATION - Use scientific names of plants**

**Sampling Point:** S1-UP

| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:20%;">Tree Stratum</th> <th style="width:20%;">Plot Size ( 30 ft. circle )</th> <th style="width:15%;">Absolute % Cover</th> <th style="width:15%;">Dominant Species</th> <th style="width:10%;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1</td><td><i>Populus tremuloides</i></td><td align="center">15</td><td align="center">Y</td><td align="center">FAC</td></tr> <tr><td>2</td><td><i>Acer negundo</i></td><td align="center">10</td><td align="center">Y</td><td align="center">FAC</td></tr> <tr><td>3</td><td><i>Fraxinus pennsylvanica</i></td><td align="center">3</td><td align="center">N</td><td align="center">FACW</td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td align="center">28</td> <td colspan="2">= Total Cover</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                               |                  |                  |                  | Tree Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Plot Size ( 30 ft. circle ) | Absolute % Cover | Dominant Species | Indicator Status | 1 | <i>Populus tremuloides</i> | 15 | Y | FAC  | 2 | <i>Acer negundo</i>   | 10 | Y | FAC | 3 | <i>Fraxinus pennsylvanica</i> | 3  | N | FACW | 4 |                      |   |   |     | 5 |                           |   |   |      | 6 |                            |   |               |      | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |  | 8 |  |  |  |  | 9 |  |  |  |  | 10 |  |  |  |  |    |  | 28 | = Total Cover |  | <b>50/20 Thresholds</b> <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th align="center">20%</th> <th align="center">50%</th> </tr> </thead> <tbody> <tr><td>Tree Stratum</td><td align="center">6</td><td align="center">14</td></tr> <tr><td>Sapling/Shrub Stratum</td><td align="center">0</td><td align="center">0</td></tr> <tr><td>Herb Stratum</td><td align="center">20</td><td align="center">50</td></tr> <tr><td>Woody Vine Stratum</td><td align="center">0</td><td align="center">0</td></tr> </tbody> </table> |  |  | 20% | 50% | Tree Stratum | 6 | 14 | Sapling/Shrub Stratum | 0 | 0  | Herb Stratum | 20 | 50 | Woody Vine Stratum | 0  | 0 |  |  |  |  |  |     |               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |             |   |       |   |              |   |       |   |             |    |       |    |              |    |       |     |             |    |       |     |               |     |     |         |                          |             |  |  |
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--|-------------|----|-------|----|--------------|----|-------|-----|-------------|----|-------|-----|---------------|-----|-----|---------|--------------------------|-------------|--|--|
| Tree Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Plot Size ( 30 ft. circle )   | Absolute % Cover | Dominant Species | Indicator Status |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |      |   |                       |    |   |     |   |                               |    |   |      |   |                      |   |   |     |   |                           |   |   |      |   |                            |   |               |      |                                                                                                                                                                                                                                                                                                                                                       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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <i>Populus tremuloides</i>    | 15               | Y                | FAC              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |      |   |                       |    |   |     |   |                               |    |   |      |   |                      |   |   |     |   |                           |   |   |      |   |                            |   |               |      |                                                                                                                                                                                                                                                                                                                                                       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| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:20%;">Sapling/Shrub Stratum</th> <th style="width:20%;">Plot Size ( 15 ft. circle )</th> <th style="width:15%;">Absolute % Cover</th> <th style="width:15%;">Dominant Species</th> <th style="width:10%;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td align="center">0</td> <td colspan="2">= Total Cover</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                               |                  |                  |                  | Sapling/Shrub Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                            | Plot Size ( 15 ft. circle ) | Absolute % Cover | Dominant Species | Indicator Status | 1 |                            |    |   |      | 2 |                       |    |   |     | 3 |                               |    |   |      | 4 |                      |   |   |     | 5 |                           |   |   |      | 6 |                            |   |               |      | 7                                                                                                                                                                                                                                                                                                                                                    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| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:20%;">Herb Stratum</th> <th style="width:20%;">Plot Size ( 5 ft. circle )</th> <th style="width:15%;">Absolute % Cover</th> <th style="width:15%;">Dominant Species</th> <th style="width:10%;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1</td><td><i>Poa pratensis</i></td><td align="center">45</td><td align="center">Y</td><td align="center">FACU</td></tr> <tr><td>2</td><td><i>Bromus inermis</i></td><td align="center">27</td><td align="center">Y</td><td align="center">UPL</td></tr> <tr><td>3</td><td><i>Solidago canadensis</i></td><td align="center">15</td><td align="center">N</td><td align="center">FACU</td></tr> <tr><td>4</td><td><i>Daucus carota</i></td><td align="center">5</td><td align="center">N</td><td align="center">UPL</td></tr> <tr><td>5</td><td><i>Glechoma hederacea</i></td><td align="center">5</td><td align="center">N</td><td align="center">FACU</td></tr> <tr><td>6</td><td><i>Fragaria virginiana</i></td><td align="center">3</td><td align="center">N</td><td align="center">FACU</td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td></tr> <tr><td>11</td><td></td><td></td><td></td><td></td></tr> <tr><td>12</td><td></td><td></td><td></td><td></td></tr> <tr><td>13</td><td></td><td></td><td></td><td></td></tr> <tr><td>14</td><td></td><td></td><td></td><td></td></tr> <tr><td>15</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td align="center">100</td> <td colspan="2">= Total Cover</td> </tr> </tbody> </table> |                               |                  |                  |                  | Herb Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Plot Size ( 5 ft. circle )  | Absolute % Cover | Dominant Species | Indicator Status | 1 | <i>Poa pratensis</i>       | 45 | Y | FACU | 2 | <i>Bromus inermis</i> | 27 | Y | UPL | 3 | <i>Solidago canadensis</i>    | 15 | N | FACU | 4 | <i>Daucus carota</i> | 5 | N | UPL | 5 | <i>Glechoma hederacea</i> | 5 | N | FACU | 6 | <i>Fragaria virginiana</i> | 3 | N             | FACU | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |  |  |  | 8 |  |  |  |  | 9 |  |  |  |  | 10 |  |  |  |  | 11 |  |    |               |  | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |  |     |     | 13           |   |    |                       |   | 14 |              |    |    |                    | 15 |   |  |  |  |  |  | 100 | = Total Cover |  | <b>Prevalence Index Worksheet</b> <p>Total % Cover of:</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tbody> <tr><td>OBL species</td><td align="center">0</td><td align="center">x 1 =</td><td align="center">0</td></tr> <tr><td>FACW species</td><td align="center">3</td><td align="center">x 2 =</td><td align="center">6</td></tr> <tr><td>FAC species</td><td align="center">25</td><td align="center">x 3 =</td><td align="center">75</td></tr> <tr><td>FACU species</td><td align="center">68</td><td align="center">x 4 =</td><td align="center">272</td></tr> <tr><td>UPL species</td><td align="center">32</td><td align="center">x 5 =</td><td align="center">160</td></tr> <tr><td>Column totals</td><td align="center">128</td><td align="center">(A)</td><td align="center">513 (B)</td></tr> <tr><td>Prevalence Index = B/A =</td><td align="center" colspan="3"><u>4.01</u></td></tr> </tbody> </table> |  | OBL species | 0 | x 1 = | 0 | FACW species | 3 | x 2 = | 6 | FAC species | 25 | x 3 = | 75 | FACU species | 68 | x 4 = | 272 | UPL species | 32 | x 5 = | 160 | Column totals | 128 | (A) | 513 (B) | Prevalence Index = B/A = | <u>4.01</u> |  |  |
| Herb Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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| <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:20%;">Woody Vine Stratum</th> <th style="width:20%;">Plot Size ( 15 ft. circle )</th> <th style="width:15%;">Absolute % Cover</th> <th style="width:15%;">Dominant Species</th> <th style="width:10%;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td align="center">0</td> <td colspan="2">= Total Cover</td> </tr> </tbody> </table>                                                                                                                                                                                                                                                                            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sheet)</p> <p><input type="checkbox"/> Problematic hydrophytic vegetation* (explain)</p> <p><small>*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic</small></p> |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |     |     |              |   |    |                       |   |    |              |    |    |                    |    |   |  |  |  |  |  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| Woody Vine Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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           |    |       |    |              |    |       |     |             |    |       |     |               |     |     |         |                          |             |  |  |
| <p>Remarks: (Include photo numbers here or on a separate sheet)</p> <p>Dominated by quaking aspen, box elder, Kentucky bluegrass and smooth brome</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                               |                  |                  |                  | <b>Definitions of Vegetation Strata:</b> <p><b>Tree</b> - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</p> <p><b>Sapling/shrub</b> - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.</p> <p><b>Herb</b> - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p><b>Woody vines</b> - All woody vines greater than 3.28 ft in height.</p> |                             |                  |                  |                  |   |                            |    |   |      |   |                       |    |   |     |   |                               |    |   |      |   |                      |   |   |     |   |                           |   |   |      |   |                            |   |               |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |     |     |              |   |    |                       |   |    |              |    |    |                    |    |   |  |  |  |  |  |     |               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |             |   |       |   |              |   |       |   |             |    |       |    |              |    |       |     |             |    |       |     |               |     |     |         |                          |             |  |  |
| <p><b>Plant List Used:</b> Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 (<a href="https://wetland_plants.usace.army.mil">https://wetland_plants.usace.army.mil</a>). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                               |                  |                  |                  | <p><b>Hydrophytic vegetation present?</b> <u>N</u></p>                                                                                                                                                                                                                                                                                                                                                                                                           |                             |                  |                  |                  |   |                            |    |   |      |   |                       |    |   |     |   |                               |    |   |      |   |                      |   |   |     |   |                           |   |   |      |   |                            |   |               |      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |  |     |     |              |   |    |                       |   |    |              |    |    |                    |    |   |  |  |  |  |  |     |               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |             |   |       |   |              |   |       |   |             |    |       |    |              |    |       |     |             |    |       |     |               |     |     |         |                          |             |  |  |

**SOIL**
**Sampling Point:** S1-UP

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

| Depth<br>(Inches) | Matrix        |     | Redox Features |   |       |       | Texture    | Remarks             |
|-------------------|---------------|-----|----------------|---|-------|-------|------------|---------------------|
|                   | Color (moist) | %   | Color (moist)  | % | Type* | Loc** |            |                     |
| 0-3               | 7.5YR 3/2     | 100 |                |   |       |       | Loamy sand | Refusal at 3 inches |
|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |
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|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |
|                   |               |     |                |   |       |       |            |                     |

\*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

\*\*Location: PL=Pore Lining, M=Matrix

**Hydric Soil Indicators:**

- |                                                                                |                                                                                   |
|--------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| <input type="checkbox"/> Histisol (A1)                                         | <input type="checkbox"/> Polyvalue Below Surface (S8) ( <b>LRR R, MLRA 149B</b> ) |
| <input type="checkbox"/> Histic Epipedon (A2)                                  | <input type="checkbox"/> Thin Dark Surface (S9) ( <b>LRR R, MLRA 149B</b> )       |
| <input type="checkbox"/> Black Histic (A3)                                     | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>LRR K, L</b> )             |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                                 | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                                 |
| <input type="checkbox"/> Stratified Layers (A5)                                | <input type="checkbox"/> Depleted Matrix (F3)                                     |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) ( <b>LRR K, L</b> ) | <input type="checkbox"/> Redox Dark Surface (F6)                                  |
| <input type="checkbox"/> Thick Dark Surface (A12)                              | <input type="checkbox"/> Depleted Dark Surface (F7)                               |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)                              | <input type="checkbox"/> Redox Depressions (F8)                                   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)                              |                                                                                   |
| <input type="checkbox"/> Sandy Redox (S5)                                      |                                                                                   |
| <input type="checkbox"/> Stripped Matrix (S6)                                  |                                                                                   |
| <input type="checkbox"/> Dark Surface (S7) ( <b>LRR R, MLRA 149B</b> )         |                                                                                   |

**Indicators for Problematic Hydric Soils:**

- |                                                                               |
|-------------------------------------------------------------------------------|
| <input type="checkbox"/> 2 cm Muck (A10) ( <b>LRR K, L, MLRA 149B</b> )       |
| <input type="checkbox"/> Coast Prairie Redox (A16) ( <b>LRR K, L, R</b> )     |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) ( <b>LRR K, L, R</b> )  |
| <input type="checkbox"/> Dark Surface (S7) ( <b>LRR K, L</b> )                |
| <input type="checkbox"/> Polyvalue Below Surface (S8) ( <b>LRR K, L</b> )     |
| <input type="checkbox"/> Thin Dark Surface (S9) ( <b>LRR K, L</b> )           |
| <input type="checkbox"/> Iron-Manganese Masses (F12) ( <b>LRR K, L, R</b> )   |
| <input type="checkbox"/> Piedmont Floodplain Soils (F19) ( <b>MLRA 149B</b> ) |
| <input type="checkbox"/> Mesic Spodic (TA6) ( <b>MLRA 144A, 145, 149B</b> )   |
| <input type="checkbox"/> Red Parent Material (F21)                            |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12)                     |
| <input type="checkbox"/> Other (Explain in Remarks)                           |

\*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed):

 Type: Gravel fill and concrete slab edge

 Depth (inches): 3
**Hydric soil present?** N

Remarks:

## WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region

Project/Site: Wisconsin Public Service - MGP City/County: Manitowoc Sampling Date: 7-26-2013  
 Applicant/Owner: Wisconsin Public Service State: Wisconsin Sampling Point: S2-WET  
 Investigator(s): K.Unke (AECOM) Section, Township, Range: Sec. 1 T19N R24E  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave  
 Slope (%): 1 Lat.: NA Long.: NA Datum: NA  
 Soil Map Unit Name: Gb Granby fine sandy loam NWI or WWI Classification: S3/E1K  
 Are climatic/hydrologic conditions of the site typical for this time of the year? Yes (If no, explain in remarks)  
 Are vegetation           , soil           , or hydrology            significantly disturbed? Are "normal  
 Are vegetation           , soil           , or hydrology            naturally problematic? circumstances" present? Yes  
 (If needed, explain any answers in remarks)

### SUMMARY OF FINDINGS

|                                                                                                                                                                                                                                  |                                                                                                                   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| Hydrophytic vegetation present? <u>Y</u><br>Hydric soil present? <u>Y</u><br>Indicators of wetland hydrology present? <u>Y</u>                                                                                                   | <b>Is the sampled area within a wetland?</b> <u>Yes</u><br><br>If yes, optional wetland site ID: <u>Wetland A</u> |
| Remarks: (Explain alternative procedures here or in a separate report.)<br><br><div style="border: 1px solid black; padding: 5px; margin: 10px 0;">           Soil core was taken on the east edge of the wetland         </div> |                                                                                                                   |

### HYDROLOGY

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Primary Indicators (minimum of one is required; check all that apply)<br><div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <input type="checkbox"/> Surface Water (A1)<br/> <input type="checkbox"/> High Water Table (A2)<br/> <input type="checkbox"/> Saturation (A3)<br/> <input type="checkbox"/> Water Marks (B1)<br/> <input type="checkbox"/> Sediment Deposits (B2)<br/> <input type="checkbox"/> Drift Deposits (B3)<br/> <input type="checkbox"/> Algal Mat or Crust (B4)<br/> <input type="checkbox"/> Iron Deposits (B5)<br/> <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)<br/> <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)           </div> <div style="width: 48%;"> <input type="checkbox"/> Water-Stained Leaves (B9)<br/> <input type="checkbox"/> Aquatic Fauna (B13)<br/> <input type="checkbox"/> Marl Deposits (B15)<br/> <input type="checkbox"/> Hydrogen Sulfide Odor (C1)<br/> <input type="checkbox"/> Oxidized Rhizospheres on Living<br/> <input checked="" type="checkbox"/> Roots (C3)<br/> <input type="checkbox"/> Presence of Reduced Iron (C4)<br/> <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)<br/> <input type="checkbox"/> Thin Muck Surface (C7)<br/> <input type="checkbox"/> Other (Explain in Remarks)           </div> </div> | Secondary Indicators (minimum of two required)<br><input type="checkbox"/> Surface Soil Cracks (B6)<br><input type="checkbox"/> Drainage Patterns (B10)<br><input type="checkbox"/> Moss Trim Lines (B16)<br><input type="checkbox"/> Dry-Season Water Table (C2)<br><input type="checkbox"/> Crayfish Burrows (C8)<br><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)<br><input type="checkbox"/> Stunted or Stressed Plants (D1)<br><input checked="" type="checkbox"/> Geomorphic Position (D2)<br><input type="checkbox"/> Shallow Aquitard (D3)<br><input type="checkbox"/> FAC-Neutral Test (D5)<br><input type="checkbox"/> Microtopographic Relief (D4) |
| Field Observations:<br>Surface water present? Yes <u>          </u> No <u>X</u> Depth (inches): <u>          </u><br>Water table present? Yes <u>          </u> No <u>X</u> Depth (inches): <u>          </u><br>Saturation present? Yes <u>          </u> No <u>X</u> Depth (inches): <u>          </u><br>(includes capillary fringe)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <b>Indicators of wetland hydrology present?</b> <u>Y</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:<br><br><div style="border: 1px solid black; height: 40px; margin-top: 5px;"></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Remarks:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

**VEGETATION - Use scientific names of plants**

**Sampling Point:** S2-WET

| <table style="width:100%; border-collapse: collapse;"> <tr> <th style="width:25%;">Tree Stratum</th> <th style="width:25%;">Plot Size ( 30 ft. circle )</th> <th style="width:15%;">Absolute % Cover</th> <th style="width:15%;">Dominant Species</th> <th style="width:20%;">Indicator Status</th> </tr> <tr><td>1</td><td><i>Populus tremuloides</i></td><td align="center">15</td><td align="center">Y</td><td align="center">FAC</td></tr> <tr><td>2</td><td><i>Betula papyrifera</i></td><td align="center">3</td><td align="center">N</td><td align="center">FACU</td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td align="center">18</td> <td align="center">=</td> <td align="center">Total Cover</td> </tr> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                             |                  |                  |                  | Tree Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                     | Plot Size ( 30 ft. circle ) | Absolute % Cover | Dominant Species | Indicator Status | 1 | <i>Populus tremuloides</i> | 15 | Y | FAC | 2 | <i>Betula papyrifera</i> | 3  | N | FACU | 3 |                             |   |   |      | 4 |                        |   |   |      | 5 |  |  |  |  | 6 |  |   |   |             | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  | 8 |  |  |  |  | 9 |  |  |  |  | 10 |  |  |  |  |    |  | 18 | = | Total Cover | <b>50/20 Thresholds</b><br><table style="width:100%; border-collapse: collapse;"> <tr> <td></td> <td align="center">20%</td> <td align="center">50%</td> </tr> <tr> <td>Tree Stratum</td> <td align="center">4</td> <td align="center">9</td> </tr> <tr> <td>Sapling/Shrub Stratum</td> <td align="center">2</td> <td align="center">4</td> </tr> <tr> <td>Herb Stratum</td> <td align="center">20</td> <td align="center">50</td> </tr> <tr> <td>Woody Vine Stratum</td> <td align="center">0</td> <td align="center">0</td> </tr> </table> |  |  |  | 20% | 50% | Tree Stratum | 4 | 9 | Sapling/Shrub Stratum | 2  | 4 | Herb Stratum | 20 | 50 | Woody Vine Stratum | 0 | 0 |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
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| Tree Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Plot Size ( 30 ft. circle ) | Absolute % Cover | Dominant Species | Indicator Status |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
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| Tree Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 4                           | 9                |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| Sapling/Shrub Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2                           | 4                |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| Herb Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 20                          | 50               |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| Woody Vine Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0                           | 0                |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| <table style="width:100%; border-collapse: collapse;"> <tr> <th style="width:25%;">Sapling/Shrub Stratum</th> <th style="width:25%;">Plot Size ( 15 ft. circle )</th> <th style="width:15%;">Absolute % Cover</th> <th style="width:15%;">Dominant Species</th> <th style="width:20%;">Indicator Status</th> </tr> <tr><td>1</td><td><i>Rubus idaeus</i></td><td align="center">5</td><td align="center">Y</td><td align="center">FAC</td></tr> <tr><td>2</td><td><i>Cornus alba</i></td><td align="center">3</td><td align="center">Y</td><td align="center">FACW</td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td align="center">8</td> <td align="center">=</td> <td align="center">Total Cover</td> </tr> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                             |                  |                  |                  | Sapling/Shrub Stratum                                                                                                                                                                                                                                                                                                                                                                                                                            | Plot Size ( 15 ft. circle ) | Absolute % Cover | Dominant Species | Indicator Status | 1 | <i>Rubus idaeus</i>        | 5  | Y | FAC | 2 | <i>Cornus alba</i>       | 3  | Y | FACW | 3 |                             |   |   |      | 4 |                        |   |   |      | 5 |  |  |  |  | 6 |  |   |   |             | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  | 8 |  |  |  |  | 9 |  |  |  |  | 10 |  |  |  |  |    |  | 8  | = | Total Cover | <b>Dominance Test Worksheet</b><br>Number of Dominant Species that are OBL, FACW, or FAC: <u>5</u> (A)<br>Total Number of Dominant Species Across all Strata: <u>5</u> (B)<br>Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)                                                                                                                                                                                                                                                                                   |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| Sapling/Shrub Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Plot Size ( 15 ft. circle ) | Absolute % Cover | Dominant Species | Indicator Status |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
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| <table style="width:100%; border-collapse: collapse;"> <tr> <th style="width:25%;">Herb Stratum</th> <th style="width:25%;">Plot Size ( 5 ft. circle )</th> <th style="width:15%;">Absolute % Cover</th> <th style="width:15%;">Dominant Species</th> <th style="width:20%;">Indicator Status</th> </tr> <tr><td>1</td><td><i>Scirpus atrovirens</i></td><td align="center">55</td><td align="center">Y</td><td align="center">OBL</td></tr> <tr><td>2</td><td><i>Equisetum arvense</i></td><td align="center">35</td><td align="center">Y</td><td align="center">FAC</td></tr> <tr><td>3</td><td><i>Phalaris arundinacea</i></td><td align="center">5</td><td align="center">N</td><td align="center">FACW</td></tr> <tr><td>4</td><td><i>Mentha arvensis</i></td><td align="center">5</td><td align="center">N</td><td align="center">FACW</td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td></tr> <tr><td>8</td><td></td><td></td><td></td><td></td></tr> <tr><td>9</td><td></td><td></td><td></td><td></td></tr> <tr><td>10</td><td></td><td></td><td></td><td></td></tr> <tr><td>11</td><td></td><td></td><td></td><td></td></tr> <tr><td>12</td><td></td><td></td><td></td><td></td></tr> <tr><td>13</td><td></td><td></td><td></td><td></td></tr> <tr><td>14</td><td></td><td></td><td></td><td></td></tr> <tr><td>15</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td align="center">100</td> <td align="center">=</td> <td align="center">Total Cover</td> </tr> </table> |                             |                  |                  |                  | Herb Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                     | Plot Size ( 5 ft. circle )  | Absolute % Cover | Dominant Species | Indicator Status | 1 | <i>Scirpus atrovirens</i>  | 55 | Y | OBL | 2 | <i>Equisetum arvense</i> | 35 | Y | FAC  | 3 | <i>Phalaris arundinacea</i> | 5 | N | FACW | 4 | <i>Mentha arvensis</i> | 5 | N | FACW | 5 |  |  |  |  | 6 |  |   |   |             | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |  |  |  | 8 |  |  |  |  | 9 |  |  |  |  | 10 |  |  |  |  | 11 |  |    |   |             | 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |  |  |     | 13  |              |   |   |                       | 14 |   |              |    |    | 15                 |   |   |  |  |  |  | 100 | = | Total Cover | <b>Prevalence Index Worksheet</b><br>Total % Cover of:<br>OBL species <u>55</u> x 1 = <u>55</u><br>FACW species <u>13</u> x 2 = <u>26</u><br>FAC species <u>55</u> x 3 = <u>165</u><br>FACU species <u>3</u> x 4 = <u>12</u><br>UPL species <u>0</u> x 5 = <u>0</u><br>Column totals <u>126</u> (A) <u>258</u> (B)<br>Prevalence Index = B/A = <u>2.05</u> |  |  |
| Herb Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Plot Size ( 5 ft. circle )  | Absolute % Cover | Dominant Species | Indicator Status |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
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| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                             | 100              | =                | Total Cover      |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| <table style="width:100%; border-collapse: collapse;"> <tr> <th style="width:25%;">Woody Vine Stratum</th> <th style="width:25%;">Plot Size ( 15 ft. circle )</th> <th style="width:15%;">Absolute % Cover</th> <th style="width:15%;">Dominant Species</th> <th style="width:20%;">Indicator Status</th> </tr> <tr><td>1</td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td></tr> <tr> <td colspan="2"></td> <td align="center">0</td> <td align="center">=</td> <td align="center">Total Cover</td> </tr> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |                  |                  |                  | Woody Vine Stratum                                                                                                                                                                                                                                                                                                                                                                                                                               | Plot Size ( 15 ft. circle ) | Absolute % Cover | Dominant Species | Indicator Status | 1 |                            |    |   |     | 2 |                          |    |   |      | 3 |                             |   |   |      | 4 |                        |   |   |      | 5 |  |  |  |  |   |  | 0 | = | Total Cover | <b>Hydrophytic Vegetation Indicators:</b><br><input checked="" type="checkbox"/> Rapid test for hydrophytic vegetation<br><input checked="" type="checkbox"/> Dominance test is >50%<br><input checked="" type="checkbox"/> Prevalence index is ≤3.0*<br>Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)<br>Problematic hydrophytic vegetation* (explain)<br>*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| Woody Vine Stratum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Plot Size ( 15 ft. circle ) | Absolute % Cover | Dominant Species | Indicator Status |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                             |                  |                  |                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                             | 0                | =                | Total Cover      |                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
| Remarks: (Include photo numbers here or on a separate sheet)<br>Dominated by quaking aspen, raspberry, red osier dogwood, green bulrush, and field horsetail<br><br><b>Plant List Used:</b> Robert W. Lichvar and John T. Kartesz. 2009. North American Digital Flora: National Wetland Plant List, version 2.4.0 ( <a href="https://wetland_plants.usace.army.mil">https://wetland_plants.usace.army.mil</a> ). U.S. Army Corps of Engineers, Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory, Hanover, NH, and BONAP, Chapel Hill, NC. (2012)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                             |                  |                  |                  | <b>Definitions of Vegetation Strata:</b><br><b>Tree</b> - Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.<br><b>Sapling/shrub</b> - Woody plants less than 3 in. DBH and greater than 3.28 ft (1 m) tall.<br><b>Herb</b> - All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.<br><b>Woody vines</b> - All woody vines greater than 3.28 ft in height. |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                             |                  |                  |                  | <b>Hydrophytic vegetation present?</b> <u>Y</u>                                                                                                                                                                                                                                                                                                                                                                                                  |                             |                  |                  |                  |   |                            |    |   |     |   |                          |    |   |      |   |                             |   |   |      |   |                        |   |   |      |   |  |  |  |  |   |  |   |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |  |  |  |   |  |  |  |  |   |  |  |  |  |    |  |  |  |  |    |  |    |   |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |  |  |     |     |              |   |   |                       |    |   |              |    |    |                    |   |   |  |  |  |  |     |   |             |                                                                                                                                                                                                                                                                                                                                                            |  |  |

## SOIL

**Sampling Point:** S2-WET

[illegible]

**ATTACHMENT 2**  
**PHOTOGRAPHS**

## PHOTOGRAPHIC LOG

|                                                                                                                                     |                           |                                                                                     |                                |
|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------|--------------------------------|
| <b>Client Name:</b><br>Wisconsin Public Service                                                                                     |                           | <b>Site Location:</b><br>Former MGP Site, Manitowoc County, WI                      | <b>Project No.</b><br>60269567 |
| <b>Photo No.</b><br><b>1</b>                                                                                                        | <b>Date:</b><br>7/26/2013 |  |                                |
| <b>Direction Photo Taken:</b><br><br>West                                                                                           |                           |                                                                                     |                                |
| <b>Description:</b><br><br>Wetland, looking towards reed canary grass area of the wetland on the north end of the property boundary |                           |                                                                                     |                                |

|                                                                                                                                     |                           |                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------|
| <b>Photo No.</b><br><b>2</b>                                                                                                        | <b>Date:</b><br>7/26/2013 |  |
| <b>Direction Photo Taken:</b><br><br>Southwest                                                                                      |                           |                                                                                      |
| <b>Description:</b><br><br>Wetland, looking towards the shrub-carr area of the wetland on the northern end of the property boundary |                           |                                                                                      |



## PHOTOGRAPHIC LOG

|                                                                                                              |                           |                                                                                     |                                |
|--------------------------------------------------------------------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------|--------------------------------|
| <b>Client Name:</b><br>Wisconsin Public Service                                                              |                           | <b>Site Location:</b><br>Former MGP Site, Manitowoc County, WI                      | <b>Project No.</b><br>60269567 |
| <b>Photo No.</b><br><b>3</b>                                                                                 | <b>Date:</b><br>7/26/2013 |  |                                |
| <b>Direction Photo Taken:</b><br><br>West                                                                    |                           |                                                                                     |                                |
| <b>Description:</b><br><br>Looking at the upland/wetland boundary on the south edge of the property boundary |                           |                                                                                     |                                |

|                                                                               |                           |                                                                                      |
|-------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------|
| <b>Photo No.</b><br><b>4</b>                                                  | <b>Date:</b><br>7/26/2013 |  |
| <b>Direction Photo Taken:</b><br><br>West                                     |                           |                                                                                      |
| <b>Description:</b><br><br>Looking at the wetland towards the West Twin River |                           |                                                                                      |



## PHOTOGRAPHIC LOG

|                                                 |                           |                                                                                     |                                |
|-------------------------------------------------|---------------------------|-------------------------------------------------------------------------------------|--------------------------------|
| <b>Client Name:</b><br>Wisconsin Public Service |                           | <b>Site Location:</b><br>Former MGP Site, Manitowoc County, WI                      | <b>Project No.</b><br>60269567 |
| <b>Photo No.</b><br><b>5</b>                    | <b>Date:</b><br>7/26/2013 |  |                                |
| <b>Direction Photo Taken:</b><br><br>North      |                           |                                                                                     |                                |
| <b>Description:</b><br><br>Looking at wetland   |                           |                                                                                     |                                |

|                                                                                       |                           |                                                                                      |
|---------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------|
| <b>Photo No.</b><br><b>6</b>                                                          | <b>Date:</b><br>7/26/2013 |  |
| <b>Direction Photo Taken:</b><br><br>North                                            |                           |                                                                                      |
| <b>Description:</b><br><br>Looking at the upland area (concrete slab) and the wetland |                           |                                                                                      |

**ATTACHMENT 3**

**FIGURE 1**








**FIGURE 1**  
**WETLAND DELINEATION MAP**  
FORMER MGP SITE  
MANITOWOC COUNTY, WISCONSIN

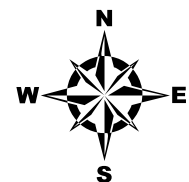
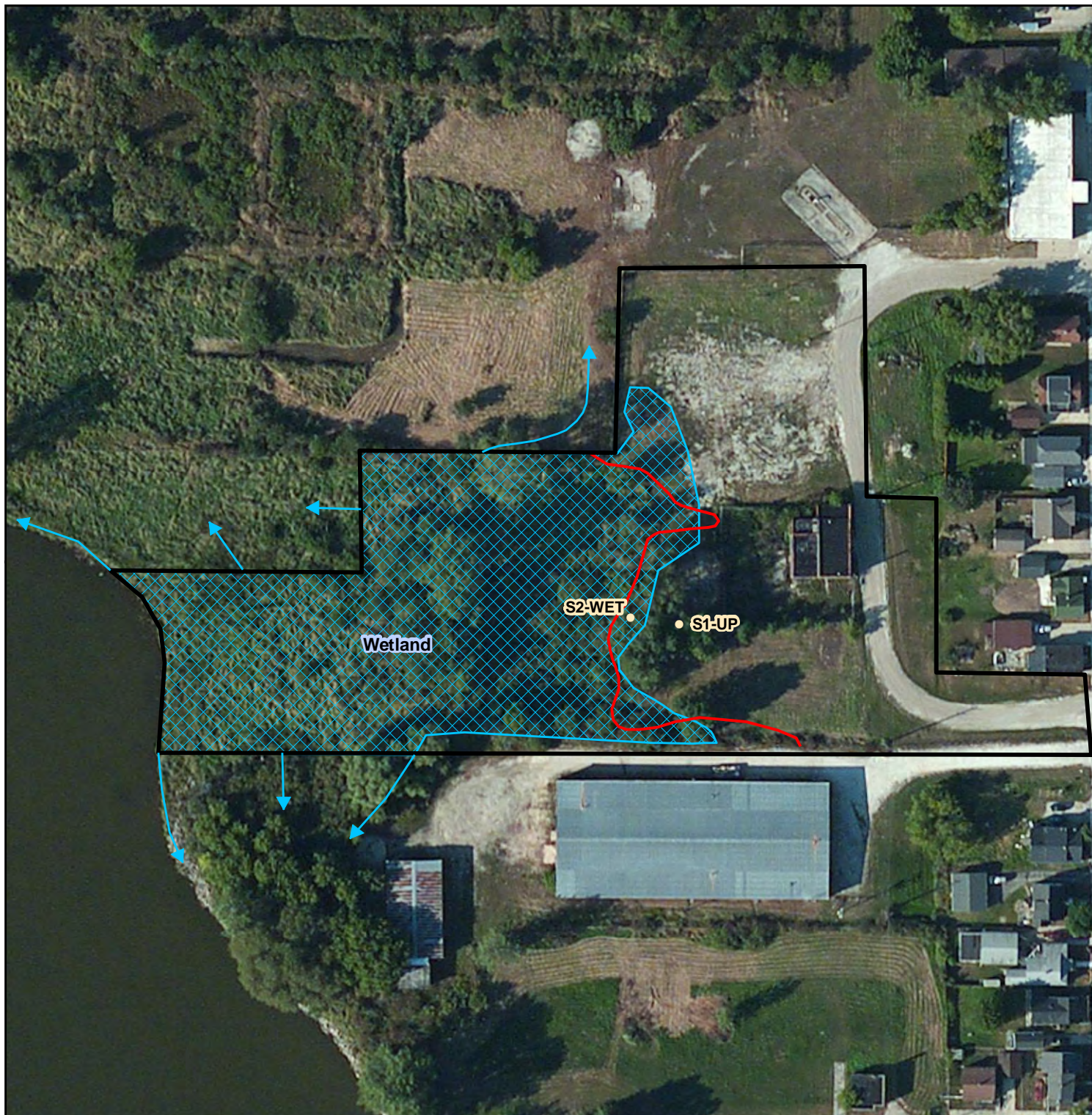
**AECOM**

July 2013

60269567

**Legend**

-  Soil Core
-  Wetland Direction
-  2013 Wetland Boundary
-  2003 Wetland Boundary (Approximate)
-  Property Boundary



0 50 100 200 Feet