ecology and environment, inc.
International Specialists in the Environment

720 Third Avenue, Suite 1700
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

May 19, 2010

Monica Tonel, Task Monitor
United States Environmental Protection Agency
1200 Sixth Avenue, Mail Stop ECL-112
Seattle, Washington 98101

Re: Contract Number: EP-S7-06-02
Technical Direction Document Number: 09-07-0007
Biffle Property Integrated Assessment Report

Dear Ms. Tonel:

Enclosed please find the Biffle Property Integrated Assessment Report, which is located in Vancouver, Washington. If you have any question regarding this submittal, please call me at (206) 624-9537.

Sincerely,
ECOLOGY AND ENVIRONMENT, INC.

Steve Hall
START-3 Removal Project Leader

cc: Jeffrey Fowlow, On-Scene Coordinator, EPA, Seattle, Washington, Mail Stop ECL-116
Linda Costello, Site Assessment Project Leader, E & E, Seattle, Washington
Ann Rivers, START-3 Site Assessment Project Manager, E & E, Seattle, Washington
Joshua Hancock, START-3 Removal Project Manager, E & E, Seattle, Washington

Biffle Property
Integrated Assessment Report

Vancouver, Washington

Technical Direction Document Number: 09-07-0007

May 2010

Prepared for:
United States Environmental Protection Agency
1200 Sixth Avenue, Mail Stop ECL-112
Seattle, Washington 98101

Prepared by:

ECOLOGY AND ENVIRONMENT, INC.
720 Third Avenue, Suite 1700
Seattle, Washington 98104

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List of Abbreviations and Acronyms

Acronym	Definition
%R	Surrogate spike percent recovery
µg/L	micrograms per liter
bgs	below ground surface
BS	Blank Spike
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CLP	Contract Laboratory Program
CPH	Clark County Public Health
CRQL	Contract Required Quantitation Limit
DQO	Data Quality Objectives
E & E	Ecology & Environment Inc.
Ecology	Washington State Department of Ecology
Electro Tech	Electro Tech LLC
EPA	United States Environmental Protection Agency
GPS	Global Positioning System
IA	Integrated Assessment
IDW	Investigation-Derived Waste
MCLs	Maximum Contaminant Levels
MEL	Manchester Environmental Laboratory
mg/kg	milligrams per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
MTCA	Washington State Model Toxics Control Act
OSC	On-Scene Coordinator
OUs	Operable Units
PUD	Public Utilities District
QA	Quality Assurance
QC	Quality Control
RP	Responsible Party
RPD	Relative Percent Difference
RSL	Regional Screening Level
SOP	Standard Operating Procedure
SOW	Statement of Work
SPAF	Sample Plan Alteration Form
SQAP	Sampling and Quality Assurance Plan
SQL	Sample Quantitation Limit
START	Superfund Technical Assessment and Response Team
SVOCs	Semivolatile Organic Compounds
TAL	Target Analyte List
TDD	Technical Direction Document

List of Abbreviations and Acronyms (cont.)

Acronym	Definition
TDL	Target Distance Limit
TM	Task Monitor
TPH-Dx	Total Petroleum Hydrocarbons-diesel range organics
TPH-Gx	Total Petroleum Hydrocarbons-gasoline range organics
VOCs	Volatile Organic Compounds
WAC	Washington Administrative Code
WDOH	Washington Department of Health
WDOR	Washington State Department of Revenue
WRCC	Western Regional Climate Center
XRF	X-ray flourescence

1 Introduction

Ecology and Environment, Inc., (E & E) was tasked by the United States Environmental Protection Agency (EPA) to provide technical support for completion of an Integrated Assessment (IA) at the Biffle Property in Vancouver, Washington. This IA merges features of the removal and site assessment programs to reduce duplication of effort. This IA involved collecting data that will meet the needs of both a removal assessment and site assessment. E & E completed IA activities under Technical Direction Document (TDD) Number 09-07-0007, issued under EPA, Region 10, Superfund Technical Assessment and Response Team (START)-3 Contract No. EP-S7-06-02.

The specific goals for the Biffle Property IA, identified by the EPA, are:

- Determine the potential threat to public health or the environment posed by the site;
- Determine the potential for a release of hazardous constituents into the environment;
- Determine the potential for placement of the site on the National Priorities List; and
- Collect sufficient data to document any threat or potential threat to public health or the environment.

Completion of the IA included reviewing existing site information, determining regional characteristics, collecting receptor information within the range of site influence, executing a sampling plan, and producing this report. The report is organized as follows:

- Section 1, Introduction – Authority for performance of this work, goals for the project, and summary of the report contents;
- Section 2, Background – Site description, site operations and waste characteristics, and a summary of investigation locations;
- Section 3, Field Activities and Analytical Protocol – Summary of the field effort;
- Section 4, Quality Assurance (QA)/Quality Control (QC) – Summary of the laboratory data;
- Section 5, Analytical Results Reporting and Background Samples - Discussion of results reporting criteria and background sample locations and analytical results;
- Section 6, Potential Sources – Discussion of site sources, sample locations, and analytical results;
- Section 7, Migration/Exposure Pathways and Targets – Discussion of the migration/exposure pathways, sample locations, and analytical results;

- Section 8, Removal Assessment – Discussion of the removal options and analytical results;
- Section 9, Summary and Conclusions – Summary of the investigation and recommendation for the site based on the information gathered during the investigation;
- Section 10, References – Alphabetical listing of the references cited throughout the text;
- Appendix A, Sample Plan Alteration Forms (SPAF) – Approved forms;
- Appendix B, Photographic Documentation – Photographs taken during the sampling event;
- Appendix C, Chain-of-Custody Documentation – Forms documenting sample chain-of-custody for the sampling event;
- Appendix D, Borehole Logs – Geologic logs of boring installed for the IA;
- Appendix E, Global Positioning System (GPS) Coordinates – Latitude and longitude coordinates of sample locations; and
- Appendix F, Data Validation Memoranda – Laboratory results and quality assurance evaluation for all samples.

2 Site Background

This section describes the background of the Biffle Property site, including location, description, ownership history, operations and source characteristics, previous investigations, and a summary of site features identified for inspection for the Biffle Property IA.

2.1 Site Location

Site Name:	Biffle Property
CERCLIS ID Number:	WAN001002815
Site Address:	13410 NE Fourth Plain Boulevard Vancouver, Washington 98682
Latitude:	45° 40' 21.67" North
Longitude:	122° 31' 59.44" West
Legal Description:	Township 2 North Range 2 East Section 11
County:	Clark
Congressional District:	3
Site Owner/Operator:	J & S Steel Jack and Sally Biffle 6519 NE 43rd Avenue Vancouver, Washington 98682
Lessee to Site Owner:	Electro Tech Metal Finishing, LLC 13510 NE Fourth Plain Boulevard Vancouver, Washington 98682

2.2 Site Description

The Biffle Property site is located northeast of Interstate 205 in the Orchards area of Vancouver, Washington, approximately 5 miles north of the Columbia River. Figure 2-1 illustrates the site vicinity and Figure 2-2 shows site features. The site consists of approximately 1.6 acres (69,696 square feet) and slopes an estimated 2 degrees from north to south. The site is fenced and accessible from the northwest on NE 135th Avenue and from the south on NE Fourth Plain Boulevard. In the northern portion of the site is an open, grassy area. The north-central area of the site consists of a storage unit building that is L-shaped and extends from the east to west borders of the property. The storage units abut a paved driveway and parking area on the north side, which is accessible from NE 135th Avenue. Two storm drains are located in the paved area north and west of the storage unit building. The southern portion of the site includes a building along the southwest

property border that contains an office with an attached pavilion providing a covered work area, four large stand alone pavilions in the center area, and three decommissioned subsurface septic tanks. The ground surface in the southern portion of the site is mostly unpaved gravel and dirt with a paved driveway to the office that is accessed from NE Plain Boulevard.

The primary land uses surrounding the site include residential, retail, and light industrial. A residence borders the site immediately west of the on-site storage unit building. There are two elementary schools within a mile of the site located approximately ¼ mile northeast and 1 mile west of the site (Maguire 2009). Burnt Bridge Creek is located approximately ¾ mile south of the site.

2.3 Site Ownership History

The current property owners of the site are Jack and Sally Biffle, who have operated J & S Steel on site since 1981 (WDOR 2009). As depicted on Figure 2-2, there are two buildings located on site. The northern building contains bays utilized for storage and the operation of small businesses and the southwest building contains an office. J & S Steel occupies a bay in the southeast corner of the building and the area south of the northern building. There are 12 other units in the northern building that are leased to others. One of the lessees was Electro Tech Metal Finishing, LLC (Electro Tech). Electro Tech began on-site operations in January 2000 and closed in approximately March 2009 (Ecology 2007a; McKenna 2009). Electro Tech was co-owned by Gary Robinson and Brad Reiner; however, that partnership ended prior to the closing of the operation, and Mr. Reiner was the operator of Electro Tech at the time of this IA. The Electro Tech facility occupies one unit in the east wing and four units in the south wing of the northern building. Two of the units are used as the metal processing area and two for storage of supplies for the facility and/or Brad Reiner's personal storage (Ecology 2007a). Of the remaining six storage units, two are used for a machine shop, two are used for boat and engine storage, one is storage space for Peterson Automotive, and one is storage for an individual.

2.4 Site Operations and Source Characteristics

2.4.1 J & S Steel

J & S Steel has operated at the site since 1981. This facility involves fabrication of steel mechanical racing parts and/or construction materials (WDOR 2009). The specific facility operations, disposal of waste, and general practices that have occurred on site are unknown.

2.4.2 Electro Tech, LLC.

Electro Tech is a metal finishing facility that began operations on site in January 2000 (Ecology 2007a). Metal finishing operations ceased in March 2009 following legal actions brought against the facility owners by the Washington State Department of Ecology (Ecology) (McKenna 2009). Workers at the facility consisted of the business's owners. Facility operations included chemically polishing stainless steel and copper and anodizing aluminum (Ecology 2007a).

Ecology has cited the facility owners with several violations of the dangerous waste regulations, including poor management of chemicals (e.g., lack of appropriate labeling of waste containers, improper storage of waste, and inadequate secondary containment); spills to the storm drain, lack of waste disposal documentation; and insufficient spill response requirements (e.g., staining of waste solution on doors and floor inside the facility). Waste materials have been observed inside a sump in the building and on the toilet and sink in the bathroom of the facility (Ecology 2007a; 2007b). Secondary containment features included a concrete curbing or berm and a liner under the processing area that was stained with waste solution and appeared to be bubbled or buckled, and the blackened insulation wrapped around a waste treatment tank that appeared to be soggy. Ecology determined that the facility regularly generated dangerous waste and had not adequately documented management of on-site recycled waste. Wastes included spent solutions and filtered solids designated as toxic and dangerous (e.g., chromium solution); debris (e.g., gloves and rags); and over-spray of solution accumulating within the containment berm (Ecology 2007a).

The EPA has entered into an agreement with the Biffle Property responsible party (RP) to conduct a removal action at the Electro Tech Facility, which is located on the Biffle Property. This removal action is an RP-led action conducted under EPA oversight. The purpose of the removal action is to remove the source material (acidic liquids with high concentrations of dissolved metals) that are present in several tanks located in the bays previously occupied by Electro Tech. As of the writing of this IA, an initial removal action has been performed by the RP with EPA oversight; however, EPA has not yet determined if additional actions will be required.

2.4.3 Other Property Features

Three septic tanks were present at the site from 1973 to 2009 (DeDoncker 2009a). Two septic tanks served the storage units building (septic tanks 1 and 2), and one serves the southwestern office building (septic tank 3). The septic tanks were decommissioned in the spring of 2009 prior to the facility connecting to the municipal sewer system (Waste Watch 2009; Wise 2009).

There are also two storm drains in the paved area north and west of the storage units building that are connected to a dry well located between the two drains. A dry well is an underground structure that collects and temporarily stores storm water from storm drains. Dry wells are usually perforated and will therefore fill with water during a storm and then slowly release water to the subsurface and, ultimately, to ground water. The pipe sections connecting onsite catch basins to the dry well are reportedly perforated to allow storm water to infiltrate into the subsurface as it flows to the dry well. As such, any liquids spilled to the storm drains are likely to infiltrate into the soil adjacent to the perforated pipes and the dry well. The following section provides additional information concerning these site features.

2.5 Previous and On-going Investigations

In August 2000, following a fire safety inspection, the Clark County Fire Department referred the Electro Tech facility to Ecology. Subsequently, Ecology conducted numerous site visits and inspections that involved the facility's repeated violation of dangerous waste regulations. Ecology's primary concerns have been the improper on-site treatment of dangerous wastes, the accumulation of dangerous wastes in containers, the release of dangerous wastes outside the building, and the inappropriate maintenance of the containment berm in the processing area. Other agencies or programs that have had concerns with Electro Tech's operational practices are the Vancouver Industrial Waste Program, Washington State Department of Labor and Industries (regarding hazardous materials management), Southwest Clean Air Agency (permitting issues), and a complaint to the Washington State Environmental Reporting Tracking System (Ecology 2007a).

On January 8, 2007, Ecology received a complaint that Electro Tech was boiling-off acid in one of their storage units and a tank containing an acid solution was leaking onto the floor in another unit. Ecology responded to this complaint on January 18, 2007, but was only able to access three of the four storage units. Ecology observed the main processing area, which encompassed two combined units and one of the other units. The main processing area, where the complaint stated a leak was observed, contained a phosphoric/sulfuric acid solution tank and three rinse tanks. Furthermore, approximately a ½ inch of liquid residue was observed on the containment floor around the tanks, but no active leaks in the tanks. The back end of the main process area had anodizing tanks that contained liquid; however, the tanks had been inactive more than a month. The containment for the anodizing tank contained approximately a ½ inch of liquid. The sulfuric acid used in the anodizing process is reportedly re-used in the electro-polish, and some residue is removed off site. Other observations included an uncovered plastic dish pan containing a liquid that had a pH of 1 to 2. A separate storage unit that contained the evaporation processing equipment was locked and not accessed during the inspection. The Ecology inspectors included their observations in a pending recommendation for enforcement of violations of the Dangerous Waste Regulations (Ecology 2007c).

On January 23, 2007, Ecology issued Administrative Order Number 4064 to Electro Tech and its then co-owners Gary Robinson and Brad Reiner for failing to comply with state dangerous waste regulations. Ecology cited three violations, and nine items of action were required of Electro Tech, Gary Robinson, and Brad Reiner. The three violations involved failure to mitigate releases to the environment, failure to meet container management, and failure to meet on-site treatment standards of dangerous waste (Ecology 2007b).

On July 17, 2007, representatives from Ecology and Clark County Public Health (CPH) visited the site in response to a complaint that a large release of metal finishing waste had flowed out of the Electro Tech facility into a storm drain. Visible signs of a release were observed near the two storm drains located on the

north side of the building. One sample was collected from the eastern storm drain (DeDoncker 2009a). The samples were analyzed for diesel and heavy oil range hydrocarbons by NWTPH-Dx and for metals by EPA Method 6000/7000. The results indicate arsenic, cadmium, chromium, lead, nickel, copper, and zinc above the method detection limits (Test America 2007a). Copper was detected at 154 milligrams per kilogram (mg/kg). During the inspection inside the Electro Tech facility, an Ecology representative observed waste material inside a sump (McKenna 2008).

On July 24, 2007, Ecology and CPH returned to the site and collected a sample from each of the two storm drains and one sample from the septic tank (septic tank 1) located near the southeastern corner of the storage unit building (DeDoncker 2009a). The samples were analyzed for diesel and heavy oil range hydrocarbons by NWTPH-Dx and for metals by EPA Method 6000/7000 (Test America 2007a). The septic tank sample contained diesel, heavy oil range hydrocarbons, lead, nickel, zinc, chromium, and copper above method detection limits. The eastern storm drain sample contained concentrations similar to the results reported in samples collected on July 17th, 2007. The western storm drain sample contained arsenic, cadmium, chromium, lead, nickel, copper, and zinc above method detection limits. The concentrations detected classified the material in all three samples as dangerous waste (DeDoncker 2009a; McKenna 2008).

On September 12, 2007, Ecology issued a Notice of Penalty of $30,000 to Electro Tech, Gary Robinson, and Brad Reiner for failure to comply with the Administrative Order Number 4064. Ecology cited failure to report or appropriately mitigate a spill to the storm drains that may eventually be released to Burnt Bridge Creek, address possible releases to the on-site septic system, or address possible releases to the soil and ground water under the process tanks (Ecology 2007d).

On September 20, 2007, representatives from Ecology and CPH returned to the site to sample septic tanks 2 and 3. A sample was collected from each of the two septic tanks and analyzed for gasoline range organics by Ecology Method NWTPH-Gx (NWTPH-Gx), diesel range organics by Ecology Method NWTPH-Dx (NWTPH-Dx), metals by EPA Method 6000/7000, and mercury by EPA Method 7470A. The test results of both samples detected diesel, oil, and gasoline range hydrocarbons in addition to the metals arsenic, antimony, chromium, cadmium, copper, lead, nickel, mercury, silver, and zinc above the method detection limits. The concentrations detected classified the sampled material as dangerous waste (DeDoncker 2009a; Test America 2007b).

On December 6, 2007, a CPH representative observed an investigation conducted by Waste Watch, Inc., on behalf of the property owners to comply with Ecology's Administrative Order Number 4064. A total of eight borings were completed on site. Two borings were completed between the storm drains and the dry well, one boring was completed near each of the three septic tanks, one boring was

completed east of the pavilion in the center of the J & S Steel work yard, one was located along the east border of the property, and one was located in the southeast corner of the property. One ground water sample was collected from each of the eight soil borings (DeDoncker 2007a). The ground water samples were analyzed for gasoline range organics by NWTPH-Gx, for diesel and oil by NWTPH-Dx, for metals by EPA Method 6000/7000, for mercury by EPA Method 7470A, and for volatile organic compounds (VOCs) by EPA Method 8260B (Test America 2007c). The ground water sample results indicate chromium and lead at concentrations above the Washington State Model Toxic Control Act (MTCA) Method A cleanup levels from the borings located in the center yard east of the pavilion, near septic tank 3, the southeast corner boring, and the storm drain borings. One subsurface soil sample was collected within the saturated zone in each boring located near septic tanks 1 and 2 (DeDoncker 2009a). The soil samples were analyzed for gasoline range organics by NWTPH-Gx, for diesel and oil by NWTPH-Dx, for metals by EPA Method 6020, and mercury by EPA Method 7471A (Test America 2008). The soil results indicated arsenic above the MTCA cleanup level.

In April 2008, the CPH conducted field work for an Ecology Initial Investigation Field Report of four nearby wells and collected ground water samples from each well to determine if contamination from the Biffle Property may be migrating from the site. Two of the wells were domestic drinking water wells, one was an irrigation well, and one was part of a community well system that is no longer active due to property redevelopment (Ecology 2008a). All samples were analyzed for total lead and chromium by EPA Method 200.8 by EDGE Analytical Laboratories (EDGE 2008). These analytes were not detected in the three downgradient wells; however, lead was detected in the upgradient domestic well located approximately ¼ mile north of the Biffle Property. All of the results were below MTCA Method A cleanup levels, and no further action was recommended (DeDoncker 2009a).

On April 10, 2008, Ecology Compliance Inspectors conducted a follow-up inspection of the Electro Tech facility. The inspection resulted in approximately 16 violations of dangerous waste regulations, several of which were those that were to be addressed under the Administrative Order Number 4064 issued in January 2007. The violations observed during the inspection included Electro Tech's failure to adequately designate and identify dangerous wastes, conduct weekly inspections of dangerous waste accumulation, develop and follow a general facility inspection, assess the integrity of the tanks used at the facility, maintain adequate space in the facility for movement of emergency personnel and equipment, and prepare an adequate contingency plan. Based on this and other supporting information dating back to 2001, Ecology filed a Complaint-Petition for Injunctive Relief in December 2008 (McKenna 2008, Ecology 2008b).

On January 15, 2009, Waste Watch, Inc., on behalf of the property owners, collected samples from septic tanks 1 and 2. Each sample was analyzed for pH by EPA Method 150.1, metals by EPA Method 6010b, and mercury by EPA

Method 7471 (Pyxis 2009). The reported concentrations were less than MTCA Method A cleanup levels. A report of these field activities or sample results was not available for review at the time of the writing of this IA report.

In February 2009, an Ecology representative met with the property owner, Ms. Sally Biffle, to discuss the decommissioning of the septic tanks on site and remediation activities. Based on prior sample results, Ecology required that the septic contents be labeled and treated as Washington State regulated dangerous waste WT02 (Ecology 2009a).

On February 20, 2009, the State of Washington Clark County Superior Court granted Ecology an order for a Preliminary Injunction against Electro Tech and Brad Reiner. The order requirements included compliance with dangerous waste regulations and to cease operating the metal finishing facility/business by March 31, 2009, or perform Site Assessment requirements. If the facility were to remain open, an assessment plan was to be submitted to the State within 30 days for approval, followed by site assessment activities completed within 60 days after the approval was granted. The assessment would include an illustration of the site providing secondary containment features, scale, elevations, construction materials, liner types, maintenance records, a certified inspection and photographs by a licensed independent engineer, and tank system tightness tests documents. If subsequent repairs to the tanks were required or the tanks were closed, then these activities were to be completed in accordance with State regulations. At the time, Mr. Reiner's attorney expressed the intent of Mr. Reiner to close his business by March 31, 2009 (McKenna 2009).

On March 24, 2009, Waste Watch, Inc., cleaned the two septic tanks (1 and 2) located south of the storage unit building on site prior to the facility connecting to the municipal sewer system. The solids in the tanks were designated as Washington State regulated dangerous waste WT02. The liquid contents of the tanks were pumped down to approximately 18 inches from the bottom of the tanks with the intention of reducing the quantity of solids removed in the process of pumping the tanks. Approximately 1,800 gallons were pumped from the two septic tanks and transported off-site by River City Environmental for disposal at Pacific Power Vac located in Vancouver, Washington. The tanks and septic influent lines were pressure washed and the influent lines were cleaned with a steel-braided snake. Approximately 300 gallons of wash water and remaining tank contents were containerized on site in plastic totes for disposal at US Ecology in Grandview, Idaho (Waste Watch 2009). The northern building was connected to the municipal sewer system in June 2009 (Wise 2009). During the IA field sampling event Ms. Sally Biffle stated that all three septic tanks had been decommissioned and the site facilities were connected to the city municipal sewer system. No access to the septic tanks was visible during the IA field event. Given that the tanks were pumped and cleaned on site, it is presumed that they were buried in place.

During the months of February and March 2009, EPA initiated a removal assessment of the Electro Tech facility that involved several site visits to Electro Tech and meetings with Ms. Biffle, Mr. Reiner, and state and local agencies. The findings of the removal assessment resulted in the initiation of this IA, whose scope includes the entire Biffle Property, including Electro Tech. The Biffle Property IA and the removal assessment for the Electro Tech facility were performed concurrently. START's tasks for each were performed under separate technical direction documents.

During the week of September 21, 2009, five product samples were collected from the Electro Tech facility as part of the ongoing removal assessment. EPA determined that the data associated with these product samples should be reported in this IA.

The five samples included three liquid phase samples and two solid phase samples. One solid and one liquid sample were collected from each of the two large fiber glass tanks found in the facility, and the third liquid sample was collected from a much smaller stainless steel container. The product material in the large fiber glass tanks was dark green in color, viscous, and dense. The liquid in the smaller stainless steel tank was blue and had a consistency much more like water. All samples were analyzed for Target Analyte List (TAL) metals by EPA Methods 6010, 7470, and 7471, for hexavalent chromium by EPA Method 7196A, for total cyanide by Standard Method 4500-E, and for various anions by EPA methods 300.0, 9056 and 365.3. Samples results are summarized in Table 2-1 and are evaluated in Section 8.3.

2.6 Summary of IA Investigation Locations

Sampling under the IA was conducted at possible sources of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)–regulated substances and at areas (i.e., targets) that may have been contaminated through the migration of hazardous substances from these site sources. The features identified for inspection for the Biffle Property IA were determined based on a site visit, interviews with the property owner Ms. Sally Biffle, interviews with regulatory agencies, and a review of background information. These features are discussed below.

Potential Sources:

- **Soil:** The Biffle Property consists of approximately 1.6 acres. The area between and near the storm drains and northern septic tanks 1 and 2 were suspected of containing contaminated soil. This IA was designed to assist in determining the nature and extent of contamination associated with soils at the site. The potential contaminants are TAL metals, hexavalent chromium, VOCs, semivolatile organic compounds (SVOCs), diesel, and gasoline.
- **Septic Tanks:** The three septic systems serve the two on-site buildings. Previous site investigations or inspections have included sampling of the tanks. Sample results indicate concentrations that designated the material in the tanks as dangerous waste. Consequently, the on-site septic systems were

decommissioned by order of Ecology. This IA was designed to assist in determining the extent of contamination associated with the septic tanks. The potential contaminants are TAL metals, hexavalent chromium, VOCs, SVOCs, diesel, and gasoline.

- **Storm Drains:** Two storm drains are located north and west of the storage unit building in the site's paved parking lot. These storm drains are connected to a dry well. The initial site investigation was prompted by a complaint of a spill to the storm drains. The subsequent investigations involved sampling the storm drains, and the results indicated concentrations that designated the material in the drains as dangerous waste. This IA was designed to assist in determining the extent of contamination associated with the storm drains. The potential contaminants are TAL metals, hexavalent chromium, VOCs, SVOCs, diesel, and gasoline.

Targets:

- **Ground Water:** On-site sources may be impacting ground water and nearby drinking water wells. This IA was designed to assist in determining if site contaminants are impacting ground water targets. The potential contaminants are TAL metals, hexavalent chromium, VOCs, SVOCs, diesel, and gasoline.
- **Soil:** Contaminated soils at the site, if present, may be impacting site workers. This IA was designed to assist in determining if site contaminants are impacting workers at the site. The potential contaminants are TAL metals, hexavalent chromium, VOCs, SVOCs, diesel, and gasoline.

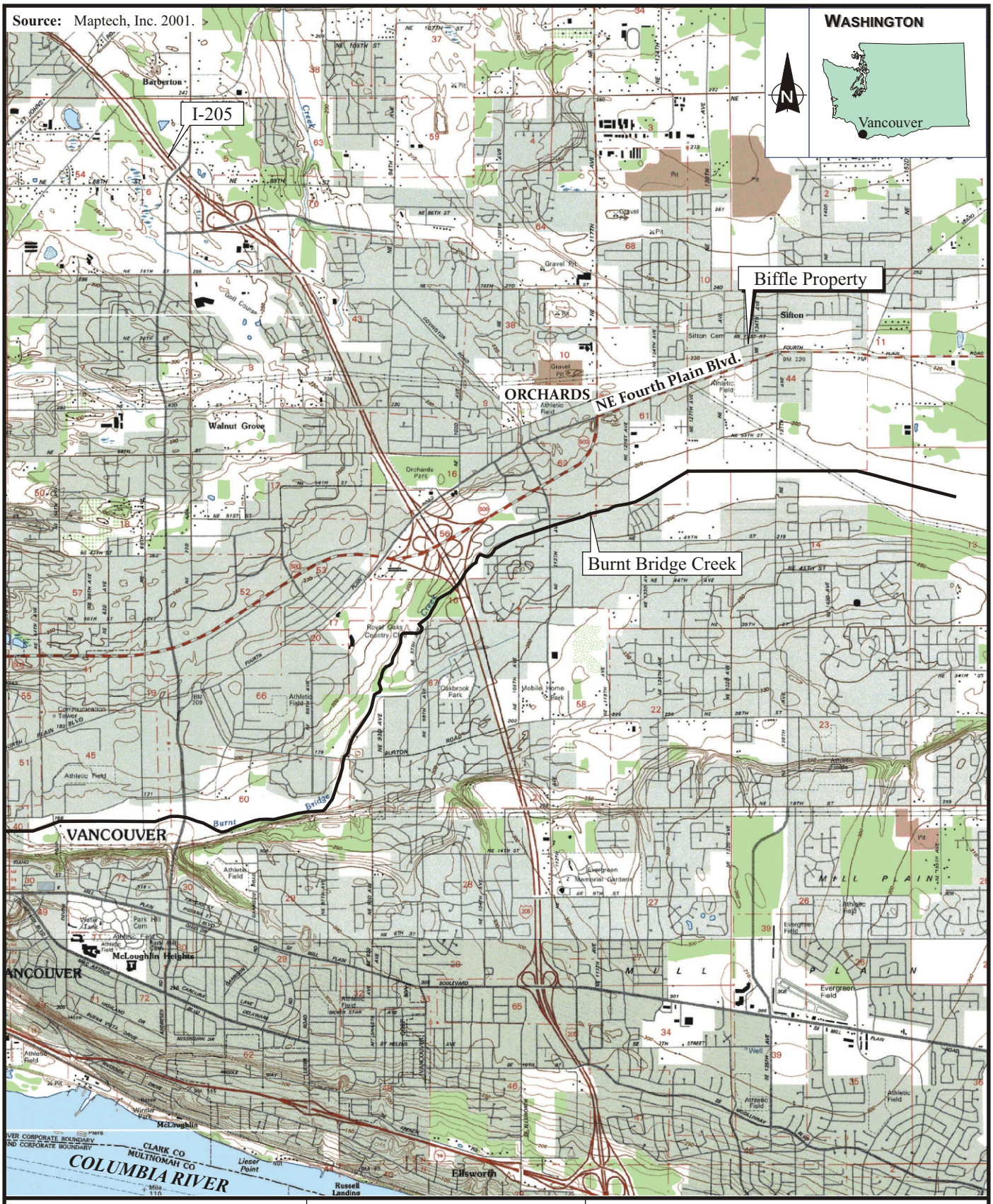
Table 2-1 Product Samples Analytical Results Summary

Sample ID	09090101	09090102	09090201	09090202	09090203
Sample Type	Solid Phase (mg/kg)		Liquid Phase (mg/L)		
Hexavalent Chromium					
Chromium, Hexavalent	41.3 J	4.03 J	8.5 J	5 UJ	5.0 UJ
Target Analyte List Metals					
Aluminum	**1790**	**1940**	**523**	**422**	**449**
Antimony	**10.5**	**6.2**	1.0 U	**1.28**	30 U
Arsenic	2.4 U	2.4 U	**2.49**	1.0 U	**0.415**
Barium	0.61 U	**4.52**	0.02 U	**0.84**	0.03 U
Beryllium	0.12 U	0.12 U	0.5 U	0.02 U	0.2 U
Cadmium	**1.53**	**61.5**	9.0 U	**0.07**	5.0 U
Calcium	**53.2**	**55.9**	**0.806**	**106**	**11.4**
Chromium	**29000**	**25900**	**9020**	**291**	**5550**
Cobalt	**77.8**	**54**	**20.0 U**	**1.0**	2.0 U
Copper	**6780**	**10800**	**1160**	**20800**	**1550**
Iron	**44600**	**54100**	11600 J	2690 J	11500 J
Lead	2.4 U	2.4 U	6.0 U	**6.0**	6.0 U
Magnesium	**178**	**281**	**46**	**35**	**42**
Manganese	**922**	**701**	**114**	**25**	**83.9**
Mercury	0.02 U	0.02 U	0.004 U	**0.0056**	0.004 U
Nickel	6630 J	8120 J	**1080**	**166**	**756**
Potassium	97 J	**131**	**25.8**	**13.2**	**30.3**
Selenium	4.8 U	4.8 U	0.2 U	2.0 U	0.2 U
Silver	0.6 U	0.6 U	0.02 U	**0.47**	0.02 U
Sodium	**2560**	**2800**	**777**	**133**	**613**
Thallium	2.4 U	2.4 U	1.0 U	1.0 U	1.0 U
Vanadium	**120**	**105**	**37**	**1.6**	**22.1**
Zinc	**70.2**	**84.6**	**8.53**	**36.5**	**10.3**
Anions					
Chloride	2000 U	2100 U	2000 U	2000 U	2000 U
Nitrate as nitrogen	1000 U	1100 U	1000 U	**81000**	**1140**
Sulfate	**11200**	**10600**	**317000**	**20200**	**160000**
Orthophosphate as phosphorus	**136000**	**121000**	**201000**	**9050**	**118000**
Total Cyanide	0.95 J	0.53 J	0.01 U	0.01 U	0.01 U

Note: Bold type indicates the sample result is above the instrument detection limit.
The Target Analyte List Metals results for liquid phase have been converted from micrograms per liter to milligrams per liter.

Key:

ID = Identification.
mg/kg = milligrams per kilogram.
mg/L = millligrams per liter.
J = The associated numerical value is an estimated quantity because the reported concentrations were less than the sample quantitation limits or because quality control criteria limits were not met.
U = The material was analyzed for but was not detected.



ecology and environment, inc. International Specialists in the Environment Seattle, Washington	BIFFLE PROPERTY Vancouver, Washington	Figure 2-1 SITE VICINITY MAP		
	0 2000 4000 Approximate Scale in Feet	Date: 2-18-10	Drawn by: AES	10:START-3\09070007\fig 2-1

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Ecology & Environment, Inc. GIS Department Project 09-07-0007
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0 40 80 160 Feet

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Seattle, Washington

BIFFLE PROPERTY

Vancouver, Washington

Figure 2-2

SITE LOCATION MAP

TDD Number:
09-01-0019

Map Reference:
GlobeXplorer, 2000

Date:
August 12, 2009

Drawn by:
amm

3 Field Activities and Analytical Protocol

A sampling and quality assurance plan (SQAP) for the Biffle Property IA was developed by the START prior to field sampling (E & E 2009). The SQAP describes the sampling strategy, sampling methodology, and analytical program used to investigate potential hazardous substance sources and potential targets. With few exceptions, the IA field activities were conducted in accordance with the approved SQAP. Deviations from the SQAP are described, when applicable, in this section and in the sampling location discussions in Section 6 (source areas) and Section 7 (target areas). All deviations from this SQAP were pre-approved by the EPA Task Monitor (TM) and/or On-Scene Coordinator (OSC) during the field sampling event. The approved SPAFs are provided in Appendix A.

The IA field sampling event was conducted from September 21, 2009 through September 26, 2009. Fifty-nine samples, including five background samples and six QA samples (one rinsate, one investigative derived waste (IDW), and four trip blanks) were collected for the Biffle Property IA. Sample types and methods of collection are described below. A list of all samples collected for laboratory analysis under this IA is contained in Table 3-1. Photographic documentation of IA field activities is included as Appendix B.

Alphanumeric identification numbers applied by the START to each sample location (e.g., BG01SB04) are used in the report as the sample location identifiers. Sample identification BP11 was the background sample location; therefore, the sample number was changed to BG01. Sample identification coding is provided in Table 3-2. In general, on-site sample locations are depicted on Figure 3-1 and off-site sample locations are depicted on Figure 3-2.

This section describes sampling methodology, analytical protocol, GPS, and IDW.

3.1 Sampling Methodology

Grass leaves and other vegetative material, rocks, and other debris unsuitable for analysis were removed as much as practicable from samples before being placed into sample containers. Samples were stored on ice in coolers continuously maintained under the custody of START personnel. Chain-of-custody forms are provided in Appendix C. Sampling methods used for each sample type are described below.

A field-portable X-ray fluorescence (XRF) was used to screen the soil from all boreholes. Field personnel recorded the results for chromium and lead on the borehole logs. Samples were then selected for laboratory analysis based on the range of detections (low, medium, and high). Additionally, when insufficient sample material was retrieved from the 4- to 8-foot interval for the entire analytical suite, the available material was only analyzed for TAL metals per OSC direction. The XRF screening results for chromium and lead are provided in Table 6-1.

3.1.1 Subsurface Soil Sampling

A total of thirty-six subsurface soil samples (including four background samples) were collected from 14 locations (Figure 3-1). Samples were collected at 4-foot intervals from 0 to a maximum of 28 feet below ground surface (bgs) with a direct-push Geoprobe ™ sampling rig. Sample material was collected in a dedicated Teflon-lined sleeve. Both VOC and total petroleum hydrocarbons-gasoline range organic (TPH-Gx) aliquots were collected first in 5-gram Core-n-One samplers prior to sample homogenization. Once the VOC and TPH-Gx aliquots were collected, the remaining material was placed in a dedicated stainless steel bowl, thoroughly homogenized with a dedicated stainless steel spoon, and placed into a pre-labeled sample container. All samples were placed on ice in a cooler.

In addition to sampling, the stratigraphy of each borehole was logged by the on-site geologist. Borehole logs were then reviewed by a Washington State–licensed geologist. The completed borehole logs are presented in Appendix D.

3.1.2 Ground Water Sampling

A total of six ground water samples were collected from temporary on-site bore holes (Figure 3-1). No background borehole sample for comparison to on-site samples could be collected due to refusal at the background location. An SPAF is provided in Appendix A documenting this deviation from the SQAP. Ground water sample locations were co-located with subsurface soil samples, with the exception of soil boring BP14. At this location, only ground water was collected. Prior to sampling, the static water level of ground water was measured to the nearest 0.01 foot using an electronic water level indicator, when possible.

Once ground water was encountered, a non-dedicated 4-foot by 2-inch 10-slot (0.010-inch) continuous wire wrap stainless steel screen was placed into the borehole. Screens were decontaminated after each use. Sampling was conducted using a non-dedicated electric low-flow pump with dedicated tubing placed at the bottom of each borehole. Sample containers for VOCs and TPH-Gx were pre-preserved with hydrochloric acid prior to sample collection. The TAL metal sample containers were preserved with nitric acid immediately after sample collection. Hexavalent chromium aliquots were filtered and preserved with ammonium sulfate immediately after sample collection. Ground water was pumped directly into the sample containers.

3.1.3 Off-site Ground Water Well Sampling

A total of seven ground water samples (including one background) were collected from existing private drinking water wells (Figure 3-2). Water quality parameters were collected prior to sample collection.

Sampling was conducted using the SPAF submitted with the SQAP, which is based on EPA Region 4 Science and Ecosystem Support Division Operating Procedure for Potable Water Supply Sampling and E & E staff knowledge. Based on this information, samples were collected from a spigot or port upstream from holding tanks, and if the spigot was located downgradient of a holding tank, the tank was purged at a rate of approximately 5 gallons a minute; then, the tank was refilled with one full volume. Following purging, the flow rate was reduced to 2 liters per minute, water quality monitoring was conducted, and then samples were collected.

Prior to collection of VOC and TPH-Gx aliquots, sample containers were pre-preserved with hydrochloric acid. TAL metal aliquots were preserved with nitric acid immediately after sample collection. Hexavalent chromium aliquots were filtered and preserved with ammonium sulfate immediately after sample collection. Ground water was pumped directly into the sample containers.

3.1.4 Surface Water Sampling

Two surface water samples were collected from two on-site storm drains using a dedicated polyethylene container to scoop out a sample and transferred in to pre-labeled containers (Figure 3-1). Prior to collection of VOC and TPH-Gx aliquots, sample containers were pre-preserved with hydrochloric acid. TAL metal aliquots were preserved with nitric acid immediately after sample collection. Hexavalent chromium aliquots were filtered and preserved with ammonium sulfate immediately after sample collection.

3.1.5 Sediment Sampling

Two sediment samples were collected from the two onsite storm drains (Figure 3-1). Sediment samples were collected from 0 to 6 inches below the aqueous surface using a dedicated stainless steel bowl and spoons. Collected material was homogenized thoroughly in dedicated stainless steel bowls and placed into pre-labeled containers. Both VOC and TPH-Gx aliquots were removed directly from the sampling locations using 5-gram Core-N-One samplers prior to homogenization. All samples were placed on ice in a cooler.

3.2 Analytical Protocol

Samples were submitted to the following Contract Laboratory Program (CLP), EPA, and subcontract laboratories for analysis.

- **Diesel Range Organics (NWTPH-Dx):** Twenty-two samples, including QA/QC samples, were submitted to Manchester Environmental Laboratory of Port Orchard, Washington, an EPA laboratory.

- **Gasoline Range Organics (NWTPH-Gx):** Twenty-eight samples, including QA/QC samples, were submitted to Manchester Environmental Laboratory (MEL) of Port Orchard, Washington, an EPA laboratory.
- **Hexavalent Chromium (EPA Method 218.6 for soil and EPA Method SW-846 3060A/7196 for water):** Forty-nine samples, including QA/QC samples, were submitted to Columbia Analytical Services, Inc. Rochester, New York, a subcontract laboratory.
- **SVOCs (CLP Statement of Work (SOW) SOM01.2):** Twenty-one samples, including QA/QC samples, were submitted to KAP Technologies, Inc., of The Woodlands, Texas a CLP laboratory.
- **TAL Metals (CLP SOW ILM05.4):** Fifty-three samples, including QA/QC samples, were submitted to ChemTech Consulting Group of Mountainside, New Jersey, a CLP laboratory.
- **VOCs (CLP SOW SOM01.2):** Twenty-eight samples, including QA/QC samples, were submitted to KAP Technologies, Inc., of The Woodlands, Texas, a CLP laboratory.
- **Grain Size (Method ASTM D-422):** Two samples were submitted to Columbia Analytical Services of Kelso, Washington, a subcontract laboratory.
- **Total Organic Carbon (EPA Method sw-846 9060):** Two samples were submitted to MEL of Port Orchard, Washington, an EPA laboratory.

Additionally, field screening for the presence of metals using an XRF was conducted. For this reason, some samples were not analyzed for all of the analytical methods listed above. Analyses applied to the samples are presented in Table 3-1.

3.3 Global Positioning System

Trimble GeoXH mapping grade GPS units were used by the START personnel to approximate sample location coordinates of the Biffle Property IA samples. Recorded GPS coordinates by sample point are listed in Appendix E.

3.4 Investigation-Derived Waste

IDW generated during the Biffle Property IA sampling effort included one 55-gallon drum of decontamination water. The container was left on site with an appropriate label identifying E & E contact information and container contents. At the time of this report, a subcontractor has been requested to pick up the drum and its contents for disposal at an appropriate facility based on sample results.

Table 3-1 Sample Collection and Analytical Summary

EPA Sample ID	Station Location	CLP Sample ID	Date	Time	Hex-Chrom	TAL Metals	VOC	SVOC	TPH-Gx	TPH-Dx	GS/ TOC	Description
09384400	BP01SB16	MJBQA2	9/21/2009	12:53	X	X					TOC	Silty gravel, well graded angular gravel, some fines, moist, gray brown.
09384401	BP01SB28	MJBQA3	9/21/2009	12:55	X	X						Silty gravel, well graded angular gravel, with sand/silt, wet at bottom of core, white salt present, gray brown.
09384402	BP01GW	MJBQA4	9/21/2009	13:50	X	X						Ground water, cloudy, tan, location south of septic tank 2.
09384403	BP02SB04	MJBQA5	9/21/2009	15:15	X	X						Sandy silt with gravel and organics, no odor, dry, brown.
09384404	BP03SB04	MJBQA6	9/22/2009	07:30	X	X						Silty gravel with sand, some organics, dry, gray brown, no odor.
09384405	BP03SB12	MJBQA7	9/22/2009	08:30	X	X						Clay gravel with silt, iron oxide stains, gray brown, no odor.
09384406	BP04SB04	MJBQA8	9/22/2009	9:40	X	X						Silty gravel with some sand and organics, metalic horizon, well graded, dry, dark brown-black, no odor.
09384407	BP04SB20	MJBQA9	9/21/2209	10:50	X	X	X		X			Silty gravel, well graded, subrounded gravel, iron oxide staining, moist.
09384408	DW12GW	MJBQB0	9/22/2009	11:05	X	X	X	X	X	X		Offsite private ground water well. MS/MSD
09384409	DW03GW	MJBQB1	9/22/2009	13:13	X	X	X	X	X	X		Offsite private ground water well.
09384410	BP04GW	MJBQB2	9/22/2009	13:45	X	X	X	X	X	X		Ground water, cloudy, tan, location south of septic tank 2 and southwest of septic tank 1.
09384411	DW11GW	MJBQB3	9/22/2009	14:17	X	X	X	X	X	X		Offsite private ground water well.
09384412	DW01GW	MJBQB4	9/23/2009	09:15	X	X	X	X	X	X		Offsite private ground water well.
09384413	TB01WT	JBQB6	9/23/2009	10:35			X		X			Trip Blank.
09384414	DW26GW	MJBQB5	9/23/2009	10:55	X	X	X	X	X	X		Background: Offsite private ground water well. MS/MSD
09384415	DW17GW	MJBQB7	9/23/2009	12:32	X	X	X	X	X	X		Offsite private ground water well.
09384416	DW35GW	MJBQB8	9/23/2009	14:43	X	X	X	X	X	X		Offsite private ground water well.
09384417	BP05SB08	MJBQB9	9/23/2009	08:05	X	X						Silty gravel, rounded, iron staining, some gray powdry staining, moist, no odor.
09384418	BP05SB16	MJBQC0	9/23/2009	08:50	X	X						Clayey gravel, angular to subrounded, gray brown, iron oxide staining, small black angular gravels, also contains large cobble fragments, moist.
09384419	BP05SB20	MJBQC1	9/23/2009	09:30	X	X						Clayey gravel, subrounded to angular gravels (1/4 inch) and fragments of cobbles, beige staining, iron staining, moist.
09384420	BP06SB04	MJBQC2	9/23/2009	10:08	X	X						Sandy gravel, poorly sorted, rounded gravel, lots of fine grained sand, iron oxide staining, moist, dark brown to gray.
09384421	BP06SB08	MJBQC3	9/23/2009	10:18	X	X						Silty gravel well graded, subrounded to angular gravel, iron oxide staining, cobble fragments, no odor, moist, red brown.
09384422	BP06SB24	MJBQC4	9/23/2009	11:24	X	X	X		X			Silty gravel, well graded, some rounded to subrounded pebbles, iron oxide staining, no odor, moist, black-brown angular gravel.
09384423	BP07SB04	MJBQC5	9/23/2009	13:40	X	X						Silty gravel with sandy, rounded to subrounded, moist, dark brown, no odor.

Table 3-1 Sample Collection and Analytical Summary

EPA Sample ID	Station Location	CLP Sample ID	Date	Time	Hex-Chrom	TAL Metals	VOC	SVOC	TPH-Gx	TPH-Dx	GS/ TOC	Description
09384424	BP07SB20	MJBQC6	9/23/2009	14:27	X	X						Clayey gravel, brown silt with black angular gravels, with rounded cobble fragments, wet at bottom of core.
09384425	TB02WT	JBQC7	9/24/2009	11:15			X		X			Trip Blank.
09384426	BP09SB08	MJBQC8	9/24/2009	12:10	X	X	X	X	X	X		Silty gravel, iron oxide staining, orange weathering, many cobbles, red brown, MS/MSD.
09384427	BP01SD	MJBQC9	9/24/2009	11:50	X	X	X	X	X	X		Silt, lots of organics (leaves), wet, strong petroleum and organic odor, black.
09384428	BP07SB12	MJBQD0	9/23/2009	13:56	X	X						Sandy gravel, poorly sorted, rounded to subrounded gravel, iron oxide staining, cobble fragments, moist, red-brown.
09384429	BP08SB04	MJBQD1	9/24/2009	8:10	X	X						Clayey gravel, stiff, angular to subangular pebbles, rounded cobbles, moist, black-brown, overlying silty gravel well graded with iron staining, subangular, moist, red-brown.
09384430	BP08SB08	MJBQD2	9/24/2009	8:20	X	X						Clayey gravel, stiff, angular to subangular pebbles, rounded cobbles, dry, black-brown, overlying thin lense of silty gravel with some orange sand, very weathered, subangular.
09384431	BP08SB16	MJBQD3	9/24/2009	8:40	X	X						Silty gravel, well graded, lenses of orange weathered sandy silty gravel, iron oxide stains, rounded cobbles, moist, gray brown.
09384432	BP08SB24	MJBQD4	9/24/2009	9:38	X	X						Gravel with silt, black angular gravel with lenses of orange weathered sandy silty gravels, some iron oxide staining and rounded cobbles, wet.
09384433	BP09SB16	MJBQD5	9/24/2009	13:00	X	X	X	X	X	X		Silty gravel, some sand, iron oxide staining, black angular gravel, few cobbles, wet, red brown.
09384434	BP01SW	MJBQD6	9/24/2009	14:00	X	X	X	X	X	X		Surface water, black, sheen on water, petroleum and organic odors, location: east storm drain.
09384435	BP09GW	MJBQD7	9/24/2009	15:20	X	X	X	X	X	X		Ground water, cloudy, location between east storm drain and sump.
09384436	BP02SW	MJBQD8	9/24/2009	16:45	X	X	X	X	X	X		Surface water, black/similar to east drain, location west storm drain
09384437	BP02SD	MJBQD9	9/24/2009	17:00	X	X	X	X	X	X		Sediment, black with leaves, petroleum and organic odors slightly less than the east drain sample, location west storm drain.
09384438	TB03WT	JBQE0	9/25/2009	7:50			X		X			Trip Blank.
09384439	BP10GW	MJBQE1	9/25/2009	10:20	X	X	X	X	X	X		Ground water, cloudy, tan, location east of septic tank 3.
09384440	BP04SB16	JBQE2	9/22/2009	10:20				X		X	GS/ TOC	Silty gravel well graded, angular gravel, iron oxide staining, gray brown.
09384441	BP12GW	MJBQE3	9/25/2009	18:00	X	X	X	X	X	X		Ground water, cloudy, tan, location south of storage units and Electro Tech facility. MS/MSD.
09384442	BG01SB04	MJBQE4	9/25/2009	12:45	X	X						Background: Silty gravel, rounded to subrounded, some sand, iron oxide stains, dry, brown gray, no odor. MS/MSD.
09384443	BG01SB08	MJBQE5	9/25/2009	15:54	X	X	X	X	X	X		Background: Silty gravel, rounded to subrounded, some sand, iron oxide stains, dry, brown gray, no odor.

Table 3-1 Sample Collection and Analytical Summary

EPA Sample ID	Station Location	CLP Sample ID	Date	Time	Hex-Chrom	TAL Metals	VOC	SVOC	TPH-Gx	TPH-Dx	GS/ TOC	Description
09384444	BG01SB12	MJBQE6	9/25/2009	13:13	X	X						Background: Silty gravel, rounded to subrounded, some sand, iron oxide stains, dry, brown gray, no odor.
09384445	BG01SB16	MJBQE7	9/25/2009	14:07	X	X	X	X	X	X		Background: Silty gravel, black angular to subangular gravel, fractured cobbles, iron oxide staining, dry, black to gray. MS/MSD
09384446	BP10SB08	MJBQE8	9/25/2009	8:20	X	X						Clayey gravel, rounded to subangular, no odor, moist, dark brown, over sandy gravel, poorly graded, subrounded to subangular gravel, iron oxide staining, fragments of cobbles, red brown.
09384447	BP10SB12	MJBQE9	9/25/2009	8:25	X	X						Sandy gravel, poorly graded, subrounded to subangular gravel, iron oxide staining, many cobble fragments, red brown.
09384448	BP10SB20	MJBQF0	9/25/2009	8:55	X	X						Silty gravel with black angular gravels, red-brown to black, iron staining, cobble fragments, moist.
09384449	BP10SB16		9/25/2009	8:40	X						TOC	Sandy gravel, poorly graded, subrounded to subangular gravel, iron oxide staining, many cobble fragments, red brown, overlying silty gravel with black angular gravels, red-brown to black, iron staining, cobble fragments, moist.
09384450	BP12SB04	MJBQF1	9/25/2009	16:00	X	X						Silty gravel, fractured cobbles, with some sand, iron oxide stains, rounded to subrounded, red-brown, dry.
09384451	BP12SB12	MJBQF2	9/25/2009	16:20	X	X					GS	Silty gravel, black angular gravel, some sand, red iron oxide staining, orange weathered cobbles, moist, brown.
09384452	BP14GW	MJBQF3	9/26/2009	10:30	X	X	X	X	X	X		Ground water, cloudy, tan, location south of storage units and southwest of Electro Tech facility.
09384453	ID01WT	MJBQF4	9/26/2009	12:45		X	X	X	X	X		Investigation-Derived Waste water sample.
09384454	RS01WT	MJBQF5	9/26/2009	12:15	X	X	X	X	X	X		Geoprobe rinsate water sample.
09384455	TB04WT	JEQF6	9/26/2009	13:00			X		X			Trip Blank.
09384456	BP13SB08	MJBQF7	9/26/2009	8:36	X	X						Silty gravel, round to subangular, some sand, iron oxide staining, organics, moist, red-brown.
09384457	BP13SB12	MJBQF8	9/26/2009	8:43	X	X						Silty gravel, round to subangular, some sand, iron oxide staining, organics, moist, red-brown, the bottom of core included small angular black gravel, cobble fragments, moist.
09384458	BP13SB20	MJBQF9	9/26/2009	9:15	X	X						Silty gravel, round to subangular, some sand, iron oxide staining, organics, moist, red-brown, the bottom of core included small angular black gravel, cobble fragments, moist.

Key:

CLP = Contract Laboratory Program.
EPA = United States Environmental Protection Agency.
GS = Grain Size.
Hex-Chrom = Hexavalent Chromium.
ID = Identification.
MS/MSD = Matrix Spike/Matrix Spike Duplicate.
SVOC = Semivolatile Organic Compounds.
TAL = Target Analyte List.
TOC = Total Organic Carbon.
TPH-Gx = Total Petroleum Hydrocarbons-gasoline range organics.
TPH-Dx = Total Petroleum Hydrocarbons-diesel range organics.
VOC = Volatile Organic Compounds.
X = Selected sample analysis.

Table 3-2 Sample Identification Coding

Digits	Description	Code	Example
1,2	Source Code	BG =	Background
		BP =	Biffle Property
		DW =	Drinking Water Well
		ID =	Investigation-Derived Waste
		RS =	Rinsate Blank
		TB =	Trip Blank
3, 4	Consecutive Number	01	First number of source code
5,6	Matrix Code	GW =	Ground water
		SB =	Subsurface Soil
		SD =	Sediment
		WT =	Water
7,8	Consecutive Number	01	Lowest depth of sample matrix

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\SEANAS1\3START3\Biffle\fig 3-1 on-site sample locations.mxd 4/28/2010

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0 45 90 180 Feet

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Seattle, Washington

BIFFLE PROPERTY

Vancouver, Washington

Figure 3-1

On-site Sample Locations Map

TDD Number:
09-01-0019

Map Reference:
GlobeXplorer, 2000

Date:
October 30, 2009

Drawn by:
amm

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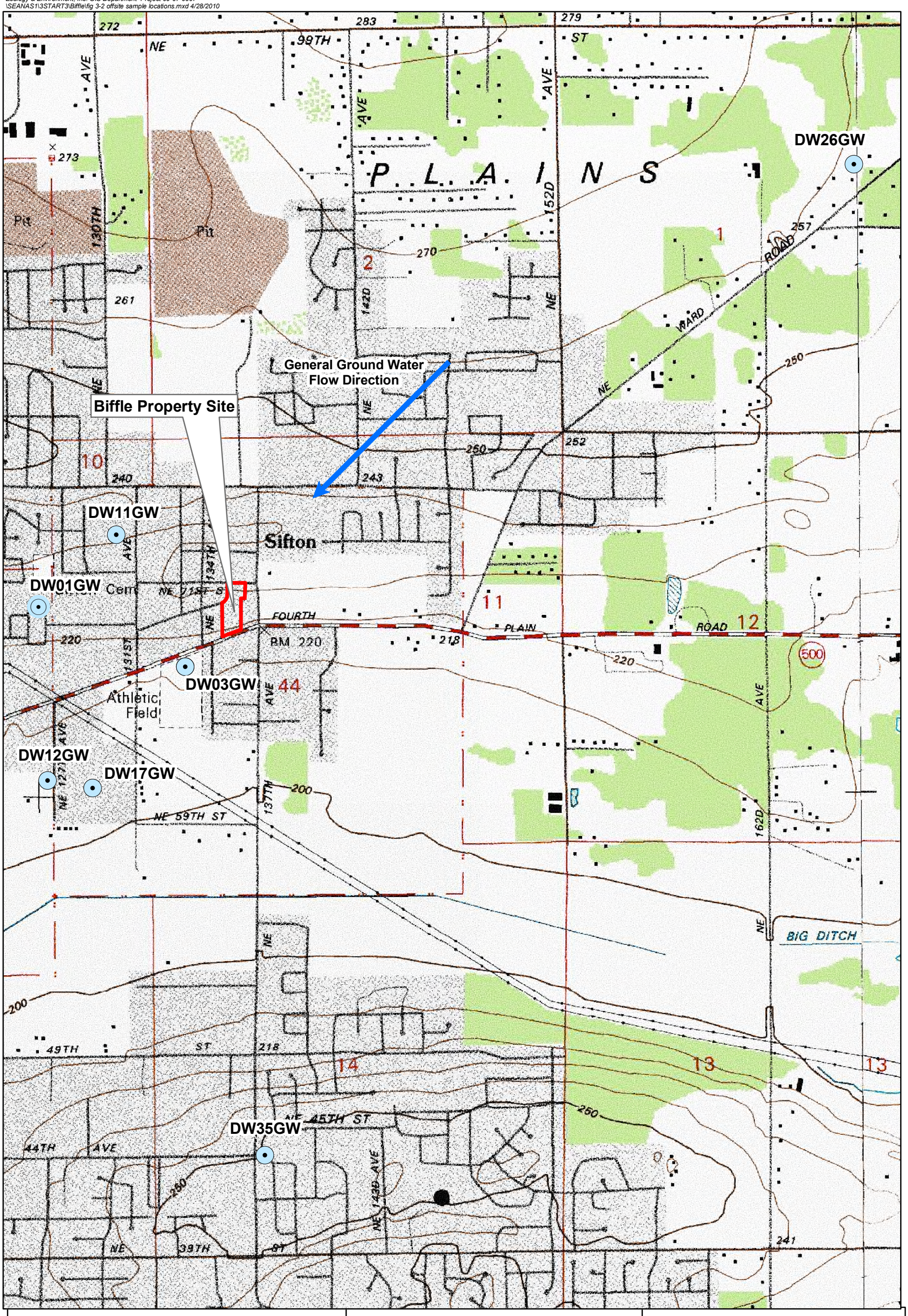


Legend

- Biffle Property Boundary
- General Groundwater Flow
- Offsite Ground Water Well Samples

Map Reference: USGS Topographical Maps 1:100,000

Biffle Property Site

Vancouver, Washington

Figure 3-2

Off-site Groundwater Well Sample Locations Map

0 0.05 0.1 0.2 0.3 0.4 0.5
Miles

0 100 200 400 600 800
Meters

4 Quality Assurance/ Quality Control

QA/QC data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of sampling equipment, glassware, and reagents. Specific QC requirements for laboratory analyses are incorporated in the *Contract Laboratory Program Statement of Work for Inorganic Analyses* (EPA 2007a) and *Contract Laboratory Program Statement of Work for Organic Analyses* (EPA 2007b). These QC requirements, or equivalent requirements found in the analytical methods, were followed for analytical work on the project. This section describes the QA/QC measures taken for the project and provides an evaluation of the usability of data presented in this report.

Data from the CLP laboratories and the MEL were reviewed and validated by EPA chemists. Metals (EPA SW-846 method 6200) analyses were performed in the field by START personnel, and the data from the field analyses were reviewed and validated by a START chemist. Data from the subcontracted commercial laboratories were reviewed and qualified by E & E START chemists. Data qualifiers were applied as necessary according to the following guidance:

- EPA (2004) *Contract Laboratory Program National Functional Guidelines for Inorganic Data Review*; and
- EPA (2008) *USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review*.

In the absence of other QC guidance, method- and/or Standard Operating Procedure (SOP)-specific QC limits were also utilized to apply qualifiers to the data. All field sample results were qualified "F" to indicate that the analyses were performed utilizing field methodologies.

4.1 Satisfaction of Data Quality Objectives

The following EPA (EPA 2000) guidance document was used to establish data quality objectives (DQOs) for this project:

- *Guidance for the Data Quality Objectives Process* (EPA QA/G-4), EPA/600/R-96/055.

The TM and OSC determined that definitive data without error and bias determination would be used for the sampling and analyses conducted during the field activities. The data quality achieved during the field work produced data

sufficient to meet the DQOs stated in the SQAP (E & E 2009). A detailed discussion of accomplished IA objectives is presented in the following sections.

4.2 QA/QC Samples

One rinsate blank QA sample was collected from non-dedicated sampling equipment. Trip blank samples were collected at the required frequency of 1 per sample cooler of VOC and NWTPH-Gx samples. QC samples included matrix spike/matrix spike duplicate (MS/MSD) and/or blank spike (BS) samples for organic analyses at a rate of one MS/MSD per 20 samples per matrix and MS/duplicate samples for inorganic analyses at a rate of one MS/duplicate per 20 samples per matrix.

4.3 Project-Specific Data Quality Objectives

The laboratory data were reviewed to ensure that they met project DQOs. The following sections describe the laboratories' abilities to meet project DQOs for precision, accuracy, and completeness, and the field team's ability to meet project DQOs for representativeness and comparability. The laboratories and the field team were able to meet DQOs for the project.

4.3.1 Precision

Precision measures the reproducibility of the sampling and analytical methodology. Laboratory and field precision is defined as the relative percent difference (RPD) between duplicate sample analyses. The fixed laboratory duplicate samples or MS/MSD samples measure the precision of the analytical method. The RPD values were reviewed for all commercial laboratory samples. A total of forty-five sample results (approximately 2.0% of the data) were qualified as estimated quantities (J or UJ) based on laboratory duplicate QC outliers.

4.3.2 Accuracy

Accuracy indicates the conformity of the measurements to fact. Laboratory accuracy is defined as the surrogate spike percent recovery (%R) or the MS/MSD/BS %Rs for all laboratory analyses. The surrogate %R values were reviewed for all appropriate sample analyses. A total of 172 sample results (approximately 7.5% of the data) were qualified as estimated quantities (J or UJ) based on surrogate QC outliers.

The MS %R values were reviewed for all MS/MSD/BS analyses. A total of seventy-eight sample results (approximately 3.4% of the data) were qualified as estimated quantities (J or UJ) based on spike QC outliers.

4.3.3 Completeness

Data completeness is defined as the percentage of usable data (usable data divided by the total possible data). All laboratory data were reviewed for data validation and usability. A total of nine sample results were rejected (approximately 0.4% of the data); therefore, the project DQO for completeness of 90% was met.

4.3.4 Representativeness

Data representativeness expresses the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or environmental condition. The number and selection of samples were determined in the field to account accurately for site variations and sample matrices. The DQO for representativeness was met.

4.3.5 Comparability

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another. Data produced for this site followed applicable field sampling techniques and specific analytical methodology. The DQO for comparability was met.

4.4 Laboratory QA/QC Parameters

The laboratory data also were reviewed for holding times/temperatures, laboratory blank samples, rinsate blank samples, trip blank samples, serial dilution analyses, interference check sample analyses, and internal standards. These QA/QC parameters are summarized below. In general, the laboratory and field QA/QC parameters were considered acceptable.

4.4.1 Holding Times/Temperatures

Eleven sample results were qualified as estimated quantities based on chemical preservation outliers (approximately 0.5% of the data). Sample aliquots for hexavalent chromium were preserved in the field with ammonium sulfate as soon as possible after sample collection. The subcontract laboratory checked the pH of samples upon receipt on September 29, 2009. The pH results were listed as outside QC limits. A project chemist at the subcontract laboratory indicated that in his experience, pH often changes between the time of preservation and laboratory receipt for this method of preservation. Based on this information, associated sample results were qualified as estimated with an assumed low bias (JL or UJL) since QC criteria of less than 24 hours between collection and analysis for unpreserved water hexavalent chromium samples were exceeded. All sample temperatures were maintained within QC limits.

4.4.2 Laboratory Blanks

All laboratory blanks met the frequency criteria. The following potential contaminants of concern were detected in the laboratory blanks:

- TAL Metals: Antimony, arsenic, cadmium, silver, sodium, and thallium; and
- VOCs: Acetone, methylene chloride, toluene, 1,2,3-trichlorobenzene, and 1,2,4-trichlorobenzene.

See data validation memoranda for qualifiers applied based on laboratory blank contamination.

4.4.3 Rinsate Blanks

The rinsate blank of a Geoprobe™ drill rod met the frequency criteria. No potential contaminants of concern were detected in the rinsate blank except barium, cadmium, chromium, copper, lead, manganese, nickel, and zinc. No associated sample results (all subsurface soil samples) were less than five times the rinsate blank concentrations; therefore, no qualifications were applied based on positive rinsate blank results.

4.4.4 Trip Blanks

All trip blanks met the frequency criteria. No potential contaminants of concern were detected in the trip blanks except acetone (10 micrograms per liter [ug/L] and 2-butanone [29 ug/L]) in trip blank TB03WT. Only one associated sample result was less than 10 times the concentrations of these common laboratory contaminants (acetone in sample BP01SW). This result was qualified as not detected (U).

4.4.5 Serial Dilution

Serial dilution analyses were performed at a frequency of one per 20 samples per matrix, meeting QC frequency criteria. A total of 359 sample results (approximately 15.7 %of the data) were qualified as estimated quantities (J or UJ) based on serial dilution outliers.

4.4.6 Interference Check Samples

Interference check sample analyses were performed at a frequency of one per 20 samples per matrix, meeting QC frequency criteria. All interference check sample results were within QC limits.

4.4.7 Internal Standards

Internal standard analyses were performed at the appropriate frequency. A total of twenty-three sample results (approximately 1.0% of the data) were qualified as estimated quantities (J or UJ) based on internal standard outliers.

4.5 Field Laboratory Results and Correlation

A total of thirty-two samples were analyzed for lead and chromium in the field and at the commercial laboratory. A correlation was not performed for the chromium data, as all field data were below detection limits. A correlation was performed for the lead results to compare the field and commercial laboratory concentrations, and a correlation coefficient of 0.906 was obtained. A minimum value of 0.700 is required for the field data to be considered screening level data (EPA 2007c); therefore, the lead field results are acceptable.

5 Analytical Results Reporting and Background Samples

This section describes the reporting and methods applied to analytical results presented in Sections 6, 7, and 8 of this report, and discusses background locations and sample results. Table 3-1 lists all samples collected for laboratory analysis.

5.1 Analytical Results Evaluation Criteria

Analytical results presented in the summary tables of Sections 6 and 7 show all analytes detected above laboratory detection or Contract Required Quantitation Limits (CRQL) in bold type. Analytical results indicating significant/elevated concentrations of contaminants in source samples (Section 6) and target samples (Section 7) with respect to background concentrations are shown underlined and in bold type. For the purposes of this investigation, significant/elevated concentrations are defined, using Table 2-3 of the EPA Hazard Ranking System model criteria for observed release, as follows:

- Equal to or greater than the sample's CRQL or the Sample Quantitation Limit (SQL) when a non-CLP laboratory was used; and
- Equal to or greater than the background sample's CRQL or SQL when the background concentration was below detection limits; or
- At least three times greater than the background concentration when the background concentration equals or exceeds the detection limits.

Further, only those analytes that exceed cleanup criteria are discussed in the removal assessment (Section 8) discussion. Site cleanup criteria values are used for the purpose of characterizing the hazardous substances for the Removal Assessment (Section 8). The cleanup criteria values were not used when characterizing sources (Section 6) or targets (Section 7) in this report. All detected concentrations are also discussed for the background samples. When samples were diluted for re-analysis at a laboratory, the dilution results were considered for evaluation and are provided in the tables.

5.1.1 Sample Results Reporting

The analytes aluminum, calcium, iron, magnesium, potassium, and sodium are common earth crust elements. Based on EPA, Region 10 policy, these common earth crust elements will not be discussed in this report.

5.2 Background Samples

Background samples were collected for subsurface soil and ground water. No background sediment or surface water samples were collected for comparison to on-site storm drains because they are not naturally occurring features. Results for the appropriate background samples are shown in the first column of the analytical results summary tables in Sections 6 and 7 for comparison against source or target results.

5.2.1 Background Soil Samples

On-site soil samples were collected from a maximum depth of 28 feet bgs. Three attempts were made to drill the background boring to this depth; however, drilling met refusal at a maximum depth of 16 feet; therefore, no soil samples were collected from deeper intervals. In addition, the analytical suite for samples collected from the 4- and 12-foot sample intervals were reduced to the analysis of TAL metals and hexavalent chromium due to insufficient sample volume (see SPAF in Appendix A). The on-site subsurface soil samples collected from depths greater than 16 feet bgs are compared to the 16-foot background sample because they are a similar soil type even though they are not from the same sample depth.

5.2.1.1 Background Borehole Location

One background soil boring (BG01) was located approximately 430 feet north of the site. A total of four subsurface soil samples (BG01SB04, BG01SB08, BG01SB012, and BG01SB16) were collected from the background soil boring location. This sample location was determined to be an appropriate background sample for the site because the subsurface soil is a similar type. The sample location is presented in Figure 3-1.

5.2.1.2 Background Soil Sample Results

The results for background subsurface soil samples were used for comparison to samples collected on the Biffle Property. The comparison is presented in Tables 6-1 through 6-7.

The sample BG01SB04 was collected from zero to four-foot interval. The sample was analyzed for hexavalent chromium and TAL metals. The results indicate the presence of 11 TAL metals (arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc). Hexavalent chromium was not detected above the CRQL.

The sample BG01SB08 was collected from the 4- to 8-foot interval. The sample was analyzed for hexavalent chromium, TAL metals, VOCs, SVOCs, TPH-Gx, and total petroleum hydrocarbons-diesel range organics (TPH-Dx). The results indicate the presence of 11 TAL metals (arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc). Hexavalent chromium, VOC, SVOCs, TPH-Gx, and TPH-Dx were not detected above the CRQLs.

The sample BG01SB12 was collected from the 8- to 12-foot interval. The sample was analyzed for hexavalent chromium and TAL metals. The results indicate the presence of 11 TAL metals (arsenic, barium, beryllium, chromium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc). Hexavalent chromium was not detected above the CRQL.

The sample BG01SB16 was collected from the 12- to 16-foot interval. The sample was analyzed for hexavalent chromium, TAL metals, VOCs, SVOCs, TPH-Gx, and TPH-Dx. The results indicate ten TAL metals (arsenic, barium, chromium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc). Hexavalent chromium, VOC, SVOCs, TPH-Gx, and TPH-Dx were not detected above the CRQLs.

5.2.2 Background Water Samples

In accordance with the SQAP, two background ground water samples were to be collected: one co-located with the background soil boring and another from an off-site water well.

5.2.2.1 Background Ground Water Sample Location

The background soil boring BG01 was located approximately 0.08 mile (430 feet) north of the site. Three attempts were made at this location to drill a boring to the depth of ground water. Drilling met refusal at a maximum depth of 16 feet bgs, and ground water was not encountered. Therefore, no ground water sample was collected from this location (see the SPAF contained in Appendix A). After a discussion with the TM, it was decided to use off-site drinking water well DW26GW as the background ground water sample location because this well is hydrologically upgradient of the site and draws from the same aquifer as the on-site borings and the nearby well sample locations.

5.2.2.2 Ground Water Well Sample Results

The results for background ground water sample DW26GW are presented in Table 7-3. The sample was analyzed for hexavalent chromium, TAL metals, VOCs, SVOCs, TPH-Gx, and TPH-Dx. The results indicate the presence of four TAL metals (barium, copper, manganese, and zinc). The VOC results indicate the presence of methylene chloride. No other analytes were detected above the CRQLs.

A comparison of the background ground water sample results to the on-site ground water sample results is presented in Table 7-3. A comparison of the background ground water sample results to the nearby ground water well sample results is presented in Table 7-4.

6 Potential Sources

This section describes the potential sources, sample locations, and analytical results of Biffle Property IA samples obtained from potential sources. Laboratory data sheets of analytical results for all samples are provided in Appendix F.

6.1 Soil

The Biffle Property consists of approximately 1.6 acres. The potential site contaminants are hexavalent chromium, TAL metals, VOCs, SVOCs, diesel, and gasoline. Observation of the soil borings include iron oxide staining in borings BP03 through BP13; beige powder in the core from sample interval BP03SB08, BP04SB08, and BP05SB04; and metallic rocky lenses in core BP04SB04. Soil boring logs are provided in Appendix D. On-site sample locations are depicted on Figure 3-1.

6.1.1 Sample Locations

A total of 32 subsurface soil samples were collected from 13 borings completed on site. Borings are labeled BP01 through BP10, and BP12 and BP13. Boring BP11 was relabeled BG01 as the background sample location. Samples were collected at 4-foot intervals ranging from 4 to 28 feet bgs (e.g., BP01SB04 and BP01SB28). Borings were drilled to the depth of ground water, approximately 32 feet bgs, or to refusal, whichever was encountered first.

The four borings (BP01 through BP04) were located downgradient and stepped-out in a linear formation from septic tank 2 to assess potential contamination within or migrating from the septic tank leach field. The borings BP01 and BP04 were located in the gravel road southwest of septic tank 2. Borings BP02 and BP03 were located in the grassy area west-southwest of septic tank 2. Borings BP05, BP06, and BP07 were located southwest, downgradient, and stepped-out from septic tank 1 to assess potential contamination within or migrating from the septic tank 1 leach field. Borings BP08 and BP09 were located between the storm drains and, respectively, west and east of the storm drain dry well north of the storage units to assess potential contamination released from the storm drains to the dry well. Borings BP10 and BP13 were located, respectively, east and north of septic tank 3 to assess potential contamination within or migrating from the septic tank 3 leach field. The location of borings BP12 and BP14 were located, respectively, south and southwest of the storage units and the Electro Tech shop to assess potential contaminants downgradient from the Electro Tech storage units. Sample locations are illustrated in Figure 3-1.

Soil samples were analyzed for a combination of hexavalent chromium, TAL metals, VOCs, SVOCs, TPH-Dx, TPH-Gx, total organic carbon, and grain size. The type of analysis completed for the soil samples is provided in Table 3-1.

6.1.2 Sample Results

The samples are discussed by sample intervals. XRF sample results are provided in Table 6-1. Soil sample fixed laboratory results are provided in Tables 6-2 through 6-7.

- **Four-foot Subsurface Soil Samples:** Fixed laboratory sample results are presented in Table 6-2. A total of 12 samples were collected from the 4-foot subsurface soil sample interval, of which seven were submitted for off-site fixed laboratory analysis. All samples submitted for off-site fixed laboratory analysis were analyzed for hexavalent chromium and TAL metals. Field screening of all 12 samples results indicated total lead ranging from 9 to 1,333 mg/kg. The XRF results did not detect total chromium above the instrument detection level. Fixed laboratory analytical results indicate the presence of two TAL metals (lead and zinc) at significant concentrations with respect to background concentrations. Lead was detected at significant concentrations in two samples, and zinc was detected at a significant concentration in one sample. Hexavalent chromium was not detected.
- **Eight-foot Subsurface Soil Samples:** Fixed laboratory sample results are presented in Table 6-3. A total of 12 samples were collected from the 8-foot subsurface soil sample interval, of which six were submitted for off-site fixed laboratory analysis of hexavalent chromium and TAL metals. Additionally, sample BP09SB08 was submitted for off-site fixed laboratory analysis of VOCs, SVOCs, TPH-Gx, and TPH-Dx. Field screening of all 12 samples indicated the presence of total lead in five samples, ranging from 12 to 23 mg/kg. The XRF results did not detect total chromium above the instrument detection level. Fixed laboratory sample results indicate the presence of lead, one SVOC (butylbenzylphthalate), and TPH-Dx at significant concentrations with respect to background concentrations in one sample. Hexavalent chromium and VOCs were not detected.
- **Twelve-foot Subsurface Soil Samples:** Fixed laboratory samples results are presented in Table 6-4. A total of 12 samples were collected from the 12-foot subsurface soil sample interval, of which five were submitted for off-site fixed laboratory analysis of hexavalent chromium and TAL metals. Additionally, one sample was submitted for grain size analysis. Field screening of all 12 samples indicate lead in six samples, ranging from 10 to 33 mg/kg. The XRF results did not detect total chromium above the instrument detection level. Fixed laboratory results indicate that no analytes were detected at significant concentrations with respect to background concentrations at this interval. Additionally, hexavalent chromium was not detected.
- **Sixteen-foot Subsurface Soil Samples:** Fixed laboratory sample results are presented in Table 6-5. A total of nine samples were collected from the 16-foot subsurface soil sample interval, of which six were submitted for

off-site fixed laboratory analysis. All fixed laboratory samples were analyzed for hexavalent chromium. This analyte was not detected above the CRQL in any of the samples. Four samples (BP01SB16, BP05SB16, BP08SB16, and BP09SB16) were analyzed for TAL metals, two samples (BP01SB16 and BP09SB16) were analyzed for VOCs, three samples (BP01SB16, BP04SB16, and BP09SB16) were analyzed for TPH-Dx and SVOCs, and two samples (BP01SB16, BP09SB16) were analyzed for TPH-Gx. Field screening of all nine samples indicate the presence of total chromium in one sample (BP01) at 207 mg/kg and total lead in six samples ranging from 10 to 28 mg/kg. Fixed laboratory results indicate the presence of lead and thallium at significant concentrations with respect to background concentrations each in one sample. Toluene was detected at a significant concentration with respect to the background concentration in one sample.

- **Twenty-foot Subsurface Soil Samples:** Fixed laboratory sample results are presented in Table 6-6. A total of nine samples were collected from the 20-foot subsurface soil sample interval, of which five were submitted for off-site fixed laboratory analysis of hexavalent chromium and TAL metals. Additionally, one sample (BP04SB20) was analyzed for VOCs and TPH-Gx. The XRF results did not detect total chromium above the instrument detection level. Total lead was detected in three samples, ranging from 10 to 14 mg/kg. Fixed laboratory results indicate that no TAL metals are present at significant concentrations with respect to background concentrations. Hexavalent chromium, VOCs, and TPH-Gx were not detected.
- **Twenty-four-foot Subsurface Soil Samples:** Off-site fixed laboratory results are presented in Table 6-7. A total of five samples were collected from the 24-foot subsurface sample interval, of which two were submitted for off-site fixed laboratory analysis of hexavalent chromium and TAL metals. Additionally, one sample (BP06SB24) was analyzed for VOCs and TPH-Gx. Field screening of all six samples indicate total chromium and lead detected in one sample (BP09), respectively, at 154 and 10 mg/kg. Fixed laboratory results indicate the presence of four TAL metals at significant concentrations with respect to background concentrations. These are arsenic in sample BP06SB24 and chromium, copper, and nickel in sample BP08SB24. Hexavalent chromium, VOCs, and TPH-Gx were not detected.
- **Twenty-eight-foot Subsurface Soil Samples:** Fixed laboratory sample results are presented in Table 6-8. Two samples were collected from the 28-foot interval, of which one was submitted for off-site fixed laboratory analysis of hexavalent chromium and TAL metals. Neither total chromium nor total lead was detected. One TAL metal (beryllium) was detected in the sample submitted for fixed laboratory analysis at a significant concentration with respect to background concentrations. Hexavalent chromium was not detected.

6.2 Septic Tanks

The facility is currently connected to the City of Vancouver sewer system; however, three septic systems historically served the two on-site buildings. Previous investigations or inspections of the site included sampling the tanks. The results indicate concentrations that designated the material as dangerous waste. Consequently, Ecology ordered the decommissioning of the on-site septic systems. It is documented that the septic tanks were subsequently inspected and cleaned out; however, it was not confirmed prior to the field event whether the septic tanks were decommissioned. During the field event, the portals to the buried septic tanks were not located. This is due to either burial or removal of the septic tanks during decommissioning. The septic tanks were not sampled as anticipated. An SPAF is provided in Appendix A. The approximate location of the decommissioned septic tanks is shown in Figure 3-1.

6.3 Storm Drains

Two storm drains are located in a paved driveway that abuts the north side of the storage units building. The initial regulatory investigation was prompted by a complaint of a spill to the storm drains. Subsequent investigations involved sampling the storm drains, and the results indicated concentrations that designated the material as dangerous waste.

6.3.1 Sample Locations

The co-located surface water and sediment sample set BP01SW/BP01SD were collected from the storm drain on the east side of the paved driveway. The co-located surface water and sediment sample set BP02SW/BP02SD were collected from the storm drain on the western side of the paved driveway. Both samples had strong petroleum and organic odors. Figure 3-1 illustrates the location of the storm drain sample locations.

6.3.1.1 Surface Water Results

No background surface water samples were specified in the SQAP, and none were collected for comparison to the storm drain samples. The purpose of the storm drain samples was to assist with the removal assessment of the site. The two storm drain surface water samples (BP01SW and BP02SW) were analyzed for hexavalent chromium, TAL metals, VOCs, SVOCs, TPH-Gx, and TPH-Dx. Surface water sample results are provided in Table 6-9. For evaluation purposes, any detection above the CRQL for VOCs, SVOCs, TPH-Gx, and TPH-Dx are considered significant because these are not naturally occurring compounds.

Sample results indicate the presence of two VOCs (acetone and toluene), 10 SVOCs [2-methylnaphthalene, benzo(a)anthracene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3) pyrene, naphthalene, phenanthrene, and pyrene], and TPH-Gx at significant concentrations in at least one of the samples. Of these analytes, acetone, toluene, phenanthrene, and TPH-Gx were detected at significant concentrations in both samples. Hexavalent chromium was not detected above the CRQL. The TAL metal results for the east storm drain indicated the presence of 10 analytes (arsenic, barium,

chromium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc). The TAL metal results for the west storm drain indicated the presence of 10 analytes (arsenic, barium, chromium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc).

6.3.1.2 Sediment Sample Results

No background sediment samples were specified in the SQAP, and none were collected for comparison to the storm drain samples. The purpose of the storm drain samples was to assist with the removal assessment of the site. Both samples (BP01SD and BP02SD) were submitted for off-site fixed laboratory analysis for hexavalent chromium, TAL metals, VOCs, SVOCs, TPH-Dx, and TPH-Gx. Sediment sample results are provided in Table 6-10. For evaluation purposes, any detection above the CRQL for VOCs, SVOCs, TPH-Gx, and TPH-Dx will be considered significant because these are not naturally occurring compounds. TAL metals, including hexavalent chromium, are naturally occurring elements. The sediment sample metal results were compared to natural background soil concentrations established by Ecology for Clark County (i.e., arsenic, cadmium, chromium, copper, lead, manganese, nickel, zinc, and hexavalent chromium) (Ecology 1994).

Analytical results indicate the presence of five VOCs (ethylbenzene, m,p-xylene, methyl acetate, o-xylene, and toluene); 14 SVOCs [benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenzo(a,h)anthracene, di-n-butylphthalate, di-n-octophthalate, fluoranthene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene]; TPH-Dx; and TPH-Gx at significant concentrations in at least one of the sediment samples. Of these analytes, toluene, bis(2-ethylhexyl)phthalate, TPH-Dx, and TPH-Gx were detected at significant concentrations in both samples. The results of the west storm drain sample indicate the presence of hexavalent chromium. This analyte was not detected above the CRQL in the east storm drain sample.

The TAL metal results of the east storm drain (BP01SD) indicate the presence of 11 analytes (arsenic, barium, cadmium, chromium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc). The TAL metal results of the west storm drain sample (BP02SD) indicate the presence of the same analytes as the east drain in addition to antimony and silver. The results for arsenic, cadmium, chromium, copper, lead, nickel, and zinc were above the naturally occurring background levels determined by Ecology for Clark County. The west storm drain chromium result of 327 mg/kg was more than 12 times higher than the natural 90th percentile value of 26.57 mg/kg. Naturally occurring background chromium concentrations range from 4.425 to 28.83 mg/kg. The naturally occurring background arsenic concentration in Clark County has been established as ranging from 1.45 to 6.89 mg/kg with a 90th percentile value of 5.81 mg/kg. The results of the storm drain sediment samples indicate the presence of arsenic at concentrations that exceed the 90th percentile value (Ecology 1994).

Table 6-1 XRF Field Screening Chromium and Lead Results Summary

Station Location	Sample Depth (ft)	BG01	BP01	BP02	BP03	BP04	BP05	BP06	BP07	BP08	BP09	BP10	BP12	BP13	BP14*
XRF Analytes (mg/kg)															
Chromium	4	<158	<278	<197	<184	<177	<249	<179	<111	<124	<136	<133	<163	<146	NA
	8	<177	<268	<198	<208	<197	NA	<301	<219	<167	<181	<166	<138	<171	NA
	12	<164	<232	<225	<193	<179	<318	<291	<162	<157	<152	<155	<150	<172	NA
	16	<161	**207**	NA	NA	<210	<161	<296	<165	<145	<140	<161	NA	<158	NA
	20	NA	<233	NA	NA	<195	<221	<376	<159	<139	<139	<157	NA	<169	NA
	24	NA	<183	NA	NA	NA	NA	<346	NA	<154	**154**	<149	NA	NA	NA
	28	NA	<181	NA	NA	NA	NA	NA	NA	NA	<138	NA	NA	NA	NA
Lead															
	4	**12**	**25**	**61**	**31**	**1333**	**21**	**32**	**10**	**14**	**12**	**29**	**10**	**9**	NA
	8	**14**	<14	<12	<11	<11	NA	**23**	<14	**14**	<10	**12**	**15**	**13**	NA
	12	**15**	<13	<13	**27**	<10	<10	<19	**17**	<9	**33**	**14**	**16**	**10**	NA
	16	**12**	<8	NA	NA	<12	**16**	<19	**10**	**12**	**28**	**12**	NA	**12**	NA
	20	NA	<12	NA	NA	<11	<14	<19	**10**	**13**	**14**	<10	NA	<9	NA
	24	NA	<12	NA	NA	NA	NA	<22	NA	<9	**10**	<9	NA	NA	NA
	28	NA	<11	NA	NA	NA	NA	NA	NA	NA	<9	NA	NA	NA	NA

Key:
mg/kg = milligrams per kilograms.
XRF = X-ray Flourescence.
ft = Feet.
NA = Not Analyzed because no soil sample was collected.
BP14* = No soil samples were collected from this boring.

Table 6-2 Subsurface Soil 4-Foot Interval Sample Analytical Results Summary

EPA Sample ID	9384442	9384403	9384404	9384406	9384420	9384423	9384429	9384450
CLP Sample ID	JBQE4	JBQA5	JBQA6	JBQA8	JBQC2	JBQC5	JBQD1	JBQF1
Station Location	BG01SB04	BP02SB04	BP03SB04	BP04SB04	BP06SB04	BP07SB04	BP08SB04	BP12SB04
Description	Background	Biffle Property						
Target Analyte List Metals (mg/kg)								
Aluminum	**18000 JL**	**28700 JL**	**22700 JL**	**29100 JL**	**20700 JL**	**27600 JL**	**24200 JL**	**17300 JL**
Arsenic	**1.9**	2.3 U	2.2 U	2.9 U	**5.2**	2.4 U	**2.4**	**1.6**
Barium	**170 JL**	**206 JL**	**203 JL**	**262 JL**	**174 JL**	**241 JL**	**246 JL**	**180 JL**
Beryllium	**0.63**	**0.76**	**0.63**	**0.79**	**0.58**	**0.76**	**0.73**	**0.62**
Calcium	**3710 JL**	**2560 JL**	**2890 JL**	**3790 JL**	**3110 JL**	**1980 JL**	**3020 JL**	**3200 JL**
Chromium	**10.6 JL**	**10.5 JL**	**10.6 JL**	**15.1 JL**	**12.4 JL**	**11.7 JL**	**15.3 JL**	**8.3 JL**
Cobalt	**19.0**	**20.0**	**19.3**	**21.1**	**17.4**	**20.8**	**18.4**	**16.3**
Copper	**25.2**	**25.6 JL**	**22.8 JL**	**36.1 JL**	**27.4 JL**	**22.3 JL**	**17.8**	**19.9**
Iron	**30000 JL**	**34100 JL**	**33000 JL**	**39100 JL**	**30200 JL**	**35700 JL**	**34200 JL**	**26700 JL**
Lead	**8.1**	**45.1**	**19.2**	**110**	**24.0**	**18.7**	**8.7**	**8.8**
Magnesium	**3610 JL**	**2620 JL**	**3640 JL**	**2880 JL**	**3450 JL**	**3210 JL**	**3870 JL**	**3050 JL**
Manganese	**579 JL**	**630 JL**	**554 JL**	**655 JL**	**536 JL**	**707 JL**	**662 JL**	**518 JL**
Nickel	**11.0**	**10.0**	**13.6**	**12.6**	**12.8**	**11.7**	**12.8**	**9.1**
Potassium	400 JQ	**625 JL**	**553 JL**	**756 JL**	**542 JL**	**607 JL**	**914**	**650**
Vanadium	**81.2 JL**	**101 JL**	**90.4 JL**	**132 JL**	**82.8 JL**	**104 JL**	**89.2 JL**	**63.0 JL**
Zinc	**52.3 JL**	**111 JL**	**72.7 JL**	**200 JL**	**73.0 JL**	**71.8 JL**	**58.5 JL**	**46.9 JL**

Note: **BOLD** type indicates the sample result is above the Contract-Required Quantitation Limit.
Underline type indicates the sample result is significant as defined in Section 5.

Key:

CLP = Contract Laboratory Program.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
mg/kg = Milligrams per kilogram.
U = The analyte was not detected at or above the reported result.

Table 6-3 Subsurface Soil 8-Foot Interval Sample Analytical Results Summary

EPA Sample ID	9384443	9384417	9384421	9384430	9384426	9384446	9384456
CLP Sample ID	JBQE5	JBQB9	JBQC3	JBQD2	JBQC8	JBQE8	JBQE7
Station Location	BG01SB08	BP05SB08	BP06SB08	BP08SB08	BP09SB08	BP10SB08	BP13SB08
Description	Background	Biffle Property					
Target Analyte List Metals (mg/kg)							
Aluminum	**12000 JL**	**17100 JL**	**18800 JL**	**14300 JL**	**14300 JL**	**16700 JL**	**14100 JL**
Arsenic	**1.2**	1.4 U	2.5 U	**1.1**	**2.9**	**1.5**	**1.2**
Barium	**147 JL**	**167 JL**	**183 JL**	**125 JL**	**127 JL**	**237 JL**	**343 JL**
Beryllium	**0.47**	**0.53**	**0.57**	**0.43**	0.55 JQ	0.54 JQ	**0.48**
Calcium	**3830 JL**	**3600 JL**	**2940 JL**	**4120 JL**	**4290 JL**	**2990 JL**	**3580 JL**
Chromium	**9.3 JL**	**13.6 JL**	**10.6 JL**	**22 JL**	**14.4 JL**	**9.1 JL**	**5.6 JL**
Cobalt	**16.5**	**19.9**	**19.0**	**18.6**	**20.9**	**16.4**	**15.1**
Copper	**18.6**	**24.3 JL**	**21.5 JL**	**21.7**	**34.0 JL**	**18.5**	**18.9**
Iron	**26200 JL**	**30900 JL**	**31200 JL**	**27900 JL**	**33500 JL**	**28700 JL**	**24600 JL**
Lead	**4.0**	**6.2**	**8.8**	**3.4**	**27.2**	**5.4**	**5.3**
Magnesium	**3200 JL**	**4240 JL**	**3220 JL**	**4830 JL**	**3970 JL**	**2880 JL**	**2460 JL**
Manganese	**401 JL**	**523 JL**	**558 JL**	**477 JL**	**478 JL**	**456 JL**	**383 JL**
Nickel	**11.2**	**18.5**	**10.9**	**19.7**	**17.6**	**9.8**	**7.6**
Potassium	327 JQ	**757 JL**	**630 JL**	**1140**	**622 JL**	526 JQ	**555**
Vanadium	**71.5 JL**	**80.1 JL**	**88.3 JL**	**57.9 JL**	**92.4 JL**	**78.2 JL**	**66 JL**
Zinc	**44.6 JL**	**56.3 JL**	**56.3 JL**	**43 JL**	**86.6 JL**	**48.3 JL**	**46.7 JL**
Semivolatile Organic Compounds (ug/kg)							
1,4-Dioxane	R	NA	NA	NA	R	NA	NA
Butylbenzylphthalate	180 U	NA	NA	NA	**270**	NA	NA
TPH-Dx (mg/kg)							
TPH Motor Oil Range Organics	7.9 U	NA	NA	NA	**53**	NA	NA

Note: **BOLD** type indicates the sample result is above the Contract-Required Quantitation Limit.
Underline type indicates the sample result is significant as defined in Section 5.

Key:

µg/kg = Micrograms per kilogram.
CLP = Contract Laboratory Program.
Dx = Diesel Range.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
NA = Not Analyzed.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
R = The data is rejected and not usuable for any purpose.
TPH = Total Petroleum Hydrcarbons.
U = The analyte was not detected at or above the reported result.

Table 6-4 Subsurface Soil 12-Foot Interval Sample Analytical Results Summary

EPA Sample ID	9384444	9384405	9384428	9384447	9384451	9384457
CLP Sample ID	JBQE2	JBQA7	JBQD0	JBQE9	JBQF2	JBQF8
Station Location	BG01SB12	BP03SB12	BP07SB12	BP10SB12	BP12SB12	BP13SB12
Description	Background	Biffle Property				
Target Analyte List Metals (mg/kg)						
Aluminum	**10900 JL**	**13000 JL**	**10500 JL**	**13300 JL**	**10400 JL**	**8270 JL**
Arsenic	**1.4**	1.1 U	1.2 U	**1.1**	**1.4**	**0.90**
Barium	**126 JL**	**136 JL**	**123 JL**	**131 JL**	**114 JL**	**102 JL**
Beryllium	**0.52**	0.49 JQ	0.4 JQ	**0.52**	0.49 JQ	0.33 JQ
Calcium	**4860 JL**	**3920 JL**	**3850 JL**	**3760 JL**	**4920 JL**	**3490 JL**
Chromium	**10.9 JL**	**16.4 JL**	**9.8 JL**	**9.4 JL**	**12.0 JL**	**5.2 JL**
Cobalt	**16.3**	**19.6**	**16.6**	**16.5**	**15.9**	**12.9**
Copper	**23.5**	**25.1 JL**	**22.0 JL**	**19.1**	**24.2**	**16.6**
Iron	**28300 JL**	**30600 JL**	**26800 JL**	**24600 JL**	**26600 JL**	**19500 JL**
Lead	**4.1**	**6.8**	**5.3**	**5.9**	**4.4**	**3.2**
Magnesium	**4270 JL**	**3710 JL**	**3550 JL**	**3190 JL**	**3790 JL**	**2400 JL**
Manganese	**414 JL**	**476 JL**	**394 JL**	**494 JL**	**427 JL**	**332 JL**
Nickel	**13.8**	**13.2**	**11.3**	**11.8**	**12.0**	**8.4**
Potassium	**480**	**992 JL**	**536 JL**	402 JQ	**556**	267 JQ
Vanadium	**66.8 JL**	**90.1 JL**	**78.3 JL**	**57.3 JL**	**66.9 JL**	**52.8 JL**
Zinc	**45.7 JL**	**55.1 JL**	**49 JL**	**45.7 JL**	**48.7 JL**	**34.1 JL**
Percent Grain Size						
Clay	NA	NA	NA	NA	**0**	NA
Gravel	NA	NA	NA	NA	**100**	NA
Gravel, Fine	NA	NA	NA	NA	**52.8**	NA
Gravel, Medium	NA	NA	NA	NA	**81.2**	NA
Sand, Coarse	NA	NA	NA	NA	**27.2**	NA
Sand, Fine	NA	NA	NA	NA	**22.8**	NA
Sand, Medium	NA	NA	NA	NA	**24.0**	NA
Sand, Very Coarse	NA	NA	NA	NA	**34.9**	NA
Sand, Very Fine	NA	NA	NA	NA	**21.9**	NA
Silt	NA	NA	NA	NA	**17.6**	NA

Note: **BOLD** type indicates the sample result is above the Contract-Required Quantitation Limit.

Key:

CLP = Contract Laboratory Program.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
NA = Not Analyzed.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
U = The analyte was not detected at or above the reported result.

Table 6-5 Subsurface Soil 16-Foot Interval Sample Analytical Results Summary

EPA Sample ID	9384445	9384400	9384440	9384418	9384431	9384433	9384449
CLP Sample ID	JBQE7	JBQA4	JEQE2	JBQC0	JBQD3	JBQD5	
Station Location	BG01SB16	BP01SB16	BP04SB16	BP05SB16	BP08SB16	BP09SB16	BP10SB16
Description	Background	Biffle Property					
Target Analyte List Metals (mg/kg)							
Aluminum	**6260 JL**	**10600 JL**	NA	**7950 JL**	**9650 JL**	**8950 JL**	NA
Arsenic	**1.3**	1.2 U	NA	1.1 U	**1.1**	1.9 U	NA
Barium	**68.8 JL**	**130 JL**	NA	**79.7 JL**	**130 JL**	**110 JL**	NA
Beryllium	0.31 JQ (SQL = 0.43)	**0.42**	NA	0.34 JQ	0.42 JQ	0.38 JQ	NA
Calcium	**3720 JL**	**4130 JL**	NA	**4020 JL**	**4200 JL**	**3640 JL**	NA
Chromium	**6.7 JL**	**10.1 JL**	NA	**8.7 JL**	**7.6 JL**	**15.1 JL**	NA
Cobalt	**9.9**	**14.8**	NA	**15.7**	**13.7**	**15.9**	NA
Copper	**18.4**	**19.7 JL**	NA	**19.2 JL**	**20.2**	**24.7 JL**	NA
Iron	**19000 JL**	**23500 JL**	NA	**24300 JL**	**25300 JL**	**24500 JL**	NA
Lead	**3.0**	**4.0**	NA	**3.5**	**3.7**	**9.3**	NA
Magnesium	**2780 JL**	**3350 JL**	NA	**3710 JL**	**2880 JL**	**3810 JL**	NA
Manganese	**287 JL**	**319 JL**	NA	**383 JL**	**351 JL**	**393 JL**	NA
Nickel	**7.6**	**13.2**	NA	**11.6**	**8.8**	**15.2**	NA
Potassium	**452**	**594 JL**	NA	411 JQ	**702**	**569 JL**	NA
Thallium	2.1 UJL	1.9 UJL	NA	**2.8 JL**	2.6 UJL	2.8 UJL	NA
Vanadium	**45.8 JL**	**55.7 JL**	NA	**62.8 JL**	**66.3 JL**	**62.6 JL**	NA
Zinc	**33.4 JL**	**38.8 JL**	NA	**41.4**	**42.9 JL**	**52.5 JL**	NA
Volatile Organic Compounds (ug/kg)							
Toluene	4.7 U	NA	NA	NA	NA	**6.3**	NA
Semivolatile Organic Compounds (ug/kg)							
1,4-Dioxane	R	NA	R	NA	NA	R	NA
Percent Grain Size							
Clay	NA	NA	**1.80**	NA	NA	NA	NA
Gravel	NA	NA	**47.6**	NA	NA	NA	NA
Gravel, Fine	NA	NA	**12.0**	NA	NA	NA	NA
Gravel, Medium	NA	NA	**19.7**	NA	NA	NA	NA
Sand, Coarse	NA	NA	**7.71**	NA	NA	NA	NA
Sand, Fine	NA	NA	**6.20**	NA	NA	NA	NA
Sand, Medium	NA	NA	**7.04**	NA	NA	NA	NA
Sand, Very Coarse	NA	NA	**8.78**	NA	NA	NA	NA
Sand, Very Fine	NA	NA	**5.96**	NA	NA	NA	NA
Silt	NA	NA	**5.19**	NA	NA	NA	NA
Total Organic Carbon (mg/kg-dry)							
Total Organic Carbon	NA	NA	**1250**	NA	NA	NA	**146**

Note: **BOLD** type indicates the sample result is above the Contract-Required Quantitation Limit.
Underline type indicates the sample result is significant as defined in Section 5.

Key:

µg/kg = Micrograms per kilogram.
CLP = Contract Laboratory Program.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
NA = Not Analyzed.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
R = The data is rejected and not useable for any purpose.
SQL = Sample quantitation limit.
U = The analyte was not detected at or above the reported result.

Table 6-6 Subsurface Soil 20-Foot Interval Sample Anlaytical Results Summary

EPA Sample ID	9384445	9384407	9384419	9384424	9384448	9384458
CLP Sample ID	JBQE7	JBQA9	QC1	JBQC6	JBQF0	JBQF9
Station Location	BG01SB16	BP04SB20	BP05SB20	BP07SB20	BP10SB20	BP13SB20
Description	Background	Biffle Property				
Target Analyte List Metals (mg/kg)						
Aluminum	**6260 JL**	**8590 JL**	**11900 JL**	**7810 JL**	**8880 JL**	**7140 JL**
Arsenic	**1.3**	1.2 U	0.72 U	1.2 U	**1.4**	0.95 JQ
Barium	**68.8 JL**	**85.4 JL**	**123 JL**	**137 JL**	**111 JL**	**113 JL**
Calcium	**3720 JL**	**4350 JL**	**5050 JL**	**4220 JL**	**3920 JL**	**3960 JL**
Chromium	**6.7 JL**	**14.4 JL**	**15.4 JL**	**11.2 JL**	**8.3 JL**	**8.9 JL**
Cobalt	**9.9**	**14.8**	**20.1**	**13.8**	**12.0**	**11.1**
Copper	**18.4**	**20.7 JL**	**26.7 JL**	**18.0 JL**	**19.3**	**19.3**
Iron	**19000 JL**	**25800 JL**	**31800 JL**	**23100 JL**	**21200 JL**	**20900 JL**
Lead	**3.0**	**3.7**	**4.1**	**2.9**	**3.7**	**2.7**
Magnesium	**2780 JL**	**3640 JL**	**4780 JL**	**3390 JL**	**3160 JL**	**3110 JL**
Manganese	**287 JL**	**335 JL**	**543 JL**	**317 JL**	**313 JL**	**291 JL**
Nickel	**7.6**	**12.5**	**18.6**	**13.0**	**10.4**	**9.4**
Potassium	**452**	**516 JL**	**572 JL**	455 JQ	**444**	396 JQ
Vanadium	**45.8 JL**	**72.8 JL**	**85.6 JL**	**61.6 JL**	**50.8 JL**	**41.9 JL**
Zinc	**33.4 JL**	**44.0 JL**	**52.7 JL**	**41.1 JL**	**37.0 JL**	**30.8 JL**
Semivolatile Organic Compounds (ug/kg)						
1,4-Dioxane	R	R	NA	NA	NA	NA

Note: **BOLD** type indicates the sample result is above the Contract-Required Quantitation Limit.

Key:

µg/kg = Micrograms per kilogram.
CLP = Contract Laboratory Program.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
NA = Not Analyzed.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
R = The data is rejected and not useable for any purpose.

Table 6-7 Subsurface Soil 24-Foot Interval Sample Analytical Results Summary

EPA Sample ID	9384445	9384422	9384432
CLP Sample ID	JBQE7	JBQC4	JBQD4
Station Location	BG01SB16	BP06SB24	BP08SB24
Description	Background	Biffle Property	
Target Analyte List Metals (mg/kg)			
Aluminum	**6260 JL**	**10300 JL**	**7730 JL**
Arsenic	**1.3**	**4.5**	**3.3**
Barium	**68.8 JL**	**91.9 JL**	**66.6 JL**
Calcium	**3720 JL**	**4240 JL**	**3700 JL**
Chromium	**6.7 JL**	**12.9 JL**	**1000 JL**
Cobalt	**9.9**	**16.0**	**13.6**
Copper	**18.4**	**22.5 JL**	**71.3**
Iron	**19000 JL**	**28000 JL**	**50800 JL**
Lead	**3.0**	**4.9**	**2.8**
Magnesium	**2780 JL**	**3400 JL**	**2480 JL**
Manganese	**287 JL**	**377 JL**	**501 JL**
Nickel	**7.6**	**11.1**	**57.0**
Vanadium	**45.8 JL**	**80.3 JL**	**132 JL**
Zinc	**33.4 JL**	**47.2 JL**	**33.1 JL**
Semi-Volatile Organic Compounds (ug/kg)			
1,4-Dioxane	R	R	NA

Note: **BOLD** type indicates the sample result is above the Contract-Required Quantitation Limit.
Underline type indicates the sample result is significant as defined in Section 5.

Key:

µg/kg = Micrograms per kilogram.
CLP = Contract Laboratory Program.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
NA = Not Analyzed.
R = The data is rejected and not useable for any purpose.

Table 6-8 Subsurface Soil 28-Foot Interval Sample Analytical Results Summary

EPA Sample ID	9384445	9384401
CLP Sample ID	JBQE7	JBQA3
Station Location	BG01SB16	BP01SB28
Description	Background	Biffle Property
Target Analyte List Metals (mg/kg)		
Aluminum	**6260 JL**	**11600 JL**
Barium	**68.8 JL**	**122 JL**
Beryllium	0.31 JQ (SQL = 0.43)	**<u>0.44</u>**
Calcium	**3720 JL**	**4240 JL**
Chromium	**6.7 JL**	**11.7 JL**
Cobalt	**9.9**	**15.6**
Copper	**18.4**	**21.7 JL**
Iron	**19000 JL**	**28100 JL**
Lead	**3.0**	**3.8**
Magnesium	**2780 JL**	**3960 JL**
Manganese	**287 JL**	**372 JL**
Nickel	**7.6**	**17.1**
Potassium	**452**	**573 JL**
Vanadium	**45.8 JL**	**72.6 JL**
Zinc	**33.4 JL**	**45 JL**
Semivolatile Organic Compounds (ug/kg)		
1,4-Dioxane	R	NA

Note: **BOLD** type indicates the sample result is above the Contract-Required Quantitation Limit.
<u>Underline</u> type indicates the sample result is significant as defined in Section 5.

Key:

µg/kg = Micrograms per kilogram.
CLP = Contract Laboratory Program.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
SQL = Sample Quantitation Limit.
NA = Not Analyzed.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
R = The data is rejected and not useable for any purpose.

Table 6-9 Storm Drain Surface Water Samples Analytical Results Summary

EPA Sample ID	9384434	9384436
CLP Sample ID	JBQD6	JBQD8
Station Location	BP01SW	BP02SW
Description	East Storm Drain	West Storm Drain
Hexavalent Chromium (mg/L)		
Chromium, Hexavalent	0.01 UJ	0.01 UJ
Target Analyte List Metals (ug/L)		
Arsenic	**1.9**	0.90 JQ
Barium	**112**	**1170**
Cadmium	0.86 JQ	**2.7**
Chromium	**10**	**4.0**
Cobalt	**5.3**	**4.8**
Copper	**62.9 JK**	**48.8 JK**
Lead	**61.4**	**18.4**
Manganese	**576 JK**	**568 JK**
Nickel	**14.4**	**8.2**
Vanadium	**15.9**	2.2 JQ
Zinc	**241 JK**	**70.2 JK**
Volatile Organic Compounds (ug/L)		
Acetone	**52**	**31**
Toluene	**68**	**41**
Semivolatile Organic Compounds (ug/L)		
2-Methylnaphthalene	0.1 U	**0.19**
Benzo(a)anthracene	**0.13**	0.1 U
Benzo(g,h,i)perylene	**0.13**	0.1 U
Chrysene	**0.32**	0.1 U
Dibenzo(a,h)anthracene	**0.1**	0.1 U
Fluoranthene	**0.23**	0.1 U
Indeno(1,2,3-cd)pyrene	**0.11**	0.1 U
Naphthalene	0.1 U	**0.12**
Phenanthrene	**0.13**	**0.19**
Pyrene	**0.22**	0.1 U
TPH-Gasoline Range Organics (ug/L)		
Unleaded gasoline composite	**170**	**150**

Note: **BOLD** type indicates the sample result is above the Contract-Required Quantitation Limit.
Underline type indicates the sample result is elevated as defined in Section 5.

Key:

µg/L = Micrograms per liter.
CLP = Contract Laboratory Program.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
K = Unknown bias.
mg/L = Milligrams per liter.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
TPH = Total Petroleum Hydrocarbons.
U = The analyte was not detected at or above the reported result.

Table 6-10 Storm Drain Sediment Samples Analytical Results Summary

EPA Sample ID	9384427	9384437
CLP Sample ID	JBQC9	JBQD9
Station Location	BP01SD	BP02SD
Description	East Storm Drain	West Storm Drain
Hexavalent Chromium (mg/kg)		
Chromium, Hexavalent	0.96 UJL	**0.85 JL**
Target Analyte List Metals (mg/kg)		
Aluminum	**14800 JL**	**15700 JL**
Antimony	2.1 JQ	**10.4 JL**
Arsenic	**17.7**	**8.3**
Barium	**124 JL**	**138 JL**
Cadmium	**1.3**	**3.6**
Calcium	**5170 JL**	**3970 JL**
Chromium	**71.6 JL**	**327 JL**
Cobalt	**12.0**	**22.6**
Copper	**121 JL**	**3700**
Iron	**33600 JL**	**88300 JL**
Lead	**120**	**348**
Magnesium	**2700 JL**	**2550 JL**
Manganese	**366 JL**	**780 JL**
Nickel	**27.9**	**191**
Silver	0.17 JQ	**5.0**
Vanadium	**88.2 JL**	**66.1 JL**
Zinc	**490 JL**	**1100 JL**
Volatile Organic Compounds (ug/kg)		
Ethylbenzene	65 U	**87**
Methyl acetate	**360**	60 U
m,p-Xylene	65 U	**310**
o-Xylene	65 U	**180**
Toluene	**8200**	**17000**
Semivolatile Organics (ug/kg)		
1,4-Dioxane	R R	
Benzo(a)anthracene	**820**	280 U
Benzo(a)pyrene	**870**	280 U
Benzo(b)fluoranthene	**1200 JL**	280 UJK
Benzo(g,h,i)perylene	**1200**	280 U
Benzo(k)fluoranthene	**870**	280 U
Bis(2-ethylhexyl)phthalate	**2100**	**1400**
Chrysene	**920**	280 U
Dibenzo(a,h)anthracene	**440**	280 U
Di-n-butylphthalate	220 U	**290**
Di-n-octylphthalate	91 JQ	**350**
Fluoranthene	**1400**	280 U
Indeno(1,2,3-cd)pyrene	**940**	280 U
Phenanthrene	**500**	280 U
Pyrene	**960**	280 U
TPH-Gasoline Range Organics (mg/kg)		
Unleaded gasoline composite	**56**	**80**
TPH-Diesel Range Organics (mg/kg)		
TPH-GC/Motor Oil Range Organics	**8300**	**11000**

Note: **BOLD** type indicates the sample result is above the Contract-Required Quantitation Limit.
Underline type indicates the sample result is elevated as defined in Section 5.

Key:

µg/kg = Micrograms per kilogram.
CLP = Contract Laboratory Program.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
K = Unknown bias.
L = Low bias.
mg/kg = Milligrams per kilogram.
NA = Not Analyzed.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
R = The data is rejected and not useable for any purpose.
TPH = Total Petroluem Hydrocarbons.
U = The analyte was not detected at or above the reported result.

7 Migration/Exposure Pathways and Targets

The following subsections describe migration pathways and potential targets within the site's range of influence (Figure 7-1). The surface water migration and air migration pathways are not included in this IA because it is not expected that these pathways would be impacted by site activities. However, these pathways may be addressed in future investigations.

7.1 Ground Water Migration Pathway

The target distance limit (TDL) for the ground water migration pathway is a 4-mile radius that extends from the sources at the site. Figure 7-1 depicts the ground water 4-mile TDL.

7.1.1 Geologic Setting

Clark County, Washington is located within the Portland Basin, surrounded by the Cascade Mountains to the east and the Coast Range to the west, with the Columbia River flowing through it, separating the states of Washington and Oregon (Korney 2000; Mundorff 1964). This low land basin consists of broad, relatively flat flood plain terraces rising approximately 800 feet above sea level from the Columbia River to the foothills northeast of Vancouver (Mundorff 1964). At depth, Miocene age and older volcanic lava flows formed the Columbia River Group, which is over-lain by sedimentary deposits estimated at up to 1,400 feet thick (Korney 2000).

The base of the sedimentary deposits is the Sandy River Mudstone, consisting of 400 to 600 feet of siltstone and claystone. The Troutdale Formation is of Miocene to Pliocene age, and it unconformably overlies the Sandy River Mudstone with fluvial deposits up to 1,000 feet thick. The Troutdale Formation is composed of coarse-grained sand and gravel deposits separated by layers of fine-grained silt, siltstone, and sand, all of which are a result of the erosion of basalt deposits from the Cascade Range and Cascade Plateau volcanic events (Korney 2000). This formation dips towards the center of the basin, with a change of elevation over 500 feet from the eastern perimeter to the center (Korney 2000). The Troutdale formation includes an Upper and Lower Troutdale member. The Upper Troutdale member has been weathered in areas, but is estimated to have been 300 to 400 feet thick originally. The Lower Troutdale member maximum thickness is estimated to be 660 feet (Mundorff 1964). Overlying the Troutdale Formation are Quaternary alluvial silt, sand, and gravel deposits (Korney 2000).

The Biffle Property is located in the Orchards or Fourth Plains area on a Columbia River flood plain terrace approximately 225 feet above sea level (Mundorff 1964; USGS 1990). Borings completed during a previous investigation with oversight conducted by CPH encountered coarse sand in all eight borings to the maximum depth of the borings at 22 to 31 feet bgs (DeDoncker 2009b). Subsurface soil encountered during the IA drilling activities consistently encountered silty, sandy gravel with some cobbles. A thin, orange, clayey horizon was observed in boring BP05 at 8 feet bgs. Generally, the soil was dark brown to gray from 0 to 4 feet bgs, red to brown or black from 4 to 16 feet bgs, and gray brown from 16 to 28 feet bgs. Additional observations include iron oxide staining in borings BP03 through BP13; beige powder in the core from sample interval BP03SB08, BP04SB08, and BP05SB04/08/20; and metallic rocky lenses in core BP04SB04.

The average total annual precipitation for the area is 39.36 inches as measured from Vancouver, Washington (WRCC 2005).

7.1.2 Aquifer System

There are two primary aquifer systems within the sedimentary deposits of the Portland Basin, each of which consists of three or more aquifers. The upper aquifer system is separated by the Columbia River. On the Washington State side of the basin in the area between the mouth of the gorge and the confluence of the Columbia River and Willamette River, the upper aquifer system consists of up to 400 feet of the Undifferentiated Gravel Aquifer, which includes the Columbia River Sand Aquifer, Orchards Aquifer, and the Troutdale Gravel Aquifer (Korney 2000).

The EPA established a sole source aquifer program authorized under Section 1424(e) of the Safe Drinking Water Act of 1974 (Public Law 93-523, 42 U.S.C. 300 et Seq.). A sole source aquifer is defined as one that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. In addition, the aquifer can have no alternative drinking water source(s) that could physically, legally, and economically supply all those who depend upon the aquifer for drinking water. Currently, the EPA has designated 68 sole source aquifers nationwide. Of the 68 aquifers, 14 are in EPA Region 10, which consists of Idaho, Oregon, Washington, and Alaska (there are no sole source aquifers in Alaska at this time). The Troutdale Sole Source Aquifer System, E6-14710, was established on October 5, 2006. This aquifer system provides approximately 99 percent of the available drinking water to the people living over the area that encompasses approximately half of Clark County. The aquifer system is up to 2,000 feet thick in some areas (EPA 2009).

There is a hydraulic connection between the upper and lower aquifer systems in the Washougal area at the mouth of the Columbia Gorge and near the Columbia River and Willamette River confluence. Near the confluence, the upper aquifer system overlies a confining layer, the Upper Troutdale Aquifer, a lower confining

layer, and the Lower Troutdale Aquifer/Sandy River Mudstone Aquifer, which includes the coarse and fine-grained Sand and Gravel Aquifers. It is estimated that a confining layer separates the lower aquifers and the basement volcanic deposits. The Lower Troutdale consists of the Sandy River Mudstone/Sand and Gravel Aquifer, which is the primary drinking water source for municipalities (Korney 2000).

The site is located approximately half the distance between the center and the perimeter of the Portland Basin. It is estimated that the geological deposits within the TDL consist of 400 feet of the Undifferentiated Gravel Aquifer overlying 200 feet of a confining layer, which overlies the coarse-grained and silty Sand and Gravel Aquifer, which overlies the fine-grained Sand and Gravel Aquifer, which overlies a 100-foot thick confining unit, which overlies volcanic basement rock. The ground water flow is to the south-southwest (Korney 2000).

The depth to ground water encountered during a previous on-site investigation was less than 30 feet bgs (DeDoncker 2009a). During the IA, ground water was encountered at 24.75 to 32.6 feet bgs. The ground water level was lowest near the storm drain dry well (BP09) and highest near septic tank 3 (BP10). The site is located inside the northern boundary of a ten-year wellhead protection area for a Vancouver city well located less than 2 miles southwest of the site

7.1.3 Drinking Water Targets

Approximately 88,838 people use ground water for drinking water purposes within the 4-mile TDL. A combination of Group A and Group B community water systems are present. The Washington Administrative Code (WAC) defines the group designation for community water systems. The definitions, as provided by the Washington State Department of Health, are as follows.

Group A: (WAC 246-290) Group A water systems with 15 or more service connections, regardless of the number of people; or systems serving an average of 25 or more people per day for 60 or more days within a calendar year, regardless of the number of service connections. Group A water systems do not include systems serving fewer than 15 single-family residences, regardless of the number of people.

Group B: (WAC 246-291) Group B water systems serve less than 15 residential connections and less than 25 people per day; or 25 or more people per day fewer than 60 days per year. Group B water system public water systems are those that do not meet the definition of a Group A water system.

The Washington State Department of Health (WDOH) maintains records of all active public water systems. Public water systems, regardless of group designation, indicate the total number of wells in the system, number of connections, and total population served. A search of the WDOH Sentry Internet revealed the presence of 147 Group B community wells serving a total population of 1,686 people (WDOH 2009). The number of drinking water wells and associated population within the TDL by distance ring is presented in Table 7-1.

Additionally, two municipal water systems (the City of Vancouver and Clark County Public Utilities District [PUD]) have wells that are located within the TDL. The City of Vancouver water system consists of 48 active permanent wells that serve a population of 188,307 people. The system is blended prior to distribution, and no single well provides more than 40% of the total capacity. Based on this information, it is estimated that each well serves approximately 3,923 people (i.e., 188,307 people/48 wells). Of these wells, 20 are located within the TDL. Based on this, it is estimated that approximately 78,460 people are served by drinking water from this system within the TDL (i.e., 3,923 people per well x 20 wells). The City of Vancouver collects samples from the wells and from the distribution point. The most recent results for samples collected from this water system on June 16, 2009, did not indicate the presence of any TAL metals or VOCs at concentrations that exceeded Federal Safe Drinking Water Act Maximum Contaminant Levels (MCLs) (WDOH 2009)

The Clark County PUD system consists of 26 active permanent wells and five seasonal/emergency wells that serve a population of 79,948 people. The seasonal/emergency wells are maintained and used for at least one 24-hour period annually. The system is blended prior to distribution, and no single well provides more than 40% of the total capacity. Based on this information, it is estimated that each well serves approximately 2,579 people (i.e., 79,948 people/31 wells). Of these wells, two are within the TDL; therefore, approximately 5,158 people are served within the TDL (i.e., 2,579 people per well times two wells). The most recent samples collected from this water system and analyzed for inorganic compounds, pesticides, and VOCs were taken on May 6, 2009. The most recent samples collected from this water system with an exceedance other than coliform were taken in December 2005 for beryllium from a well located outside of the TDL (WDOH 2009). The wells in this system are located north or more than 4 miles west of the site (WDOH 2009).

Additionally, approximately 1,285 domestic wells are located within the TDL (Ecology 2009b). Based on the average number of people per household for Clark County, Washington (2.75), approximately 3,534 people use domestic wells as a source for drinking water within the TDL (i.e., 1,285 wells times 2.75 people per household) (DOC 2007; Ecology 2009a). Table 7-1 presents wells and drinking water population within 4 miles of the site.

The nearest drinking water well is a domestic well located 0.15 miles southwest of the site. Ground water is not used in commercial food preparation within the TDL. The western half of the site lies within a 10-year well head protection area for a City of Vancouver municipal well located approximately 2.2 miles southwest of the site. Generally, most wells within TDL are drilled to 200 feet bgs or less and are supplied with water from the shallow Alluvial or Orchards Aquifer. More than 2 miles north of the site and 3 or more miles south of the site, municipal wells are drilled to depths over 200 feet, likely within the underlying Upper Troutdale Aquifer or the Sand and Gravel Aquifer.

7.1.4 Ground Water Well Samples

Ground water samples were collected from six nearby private water wells and six temporary borings located on site. Of the six nearby water wells, four were private domestic drinking water wells, one was a small community drinking water well, and one was an irrigation well that was also sampled as part of a previous investigation completed by Clark County. The community well supplies a population of 300. The private drinking water wells supply approximately 11 persons based on the average number of persons per household and four wells (2.75 times 4). Figures 3-1 and 3-2, respectively, illustrate the on-site and off-site ground water sample locations.

7.1.4.1 On-site Ground Water Sample Locations

A total of six ground water samples were collected from six soil borings (BP01, BP04, BP09, BP10, BP12, and BP14). Samples BP01GW and BP04GW were collected from borings located immediately downgradient of septic tank 2. Sample BP10GW was collected from the boring located approximately east of septic tank 3. Samples BP12GW and BP14GW were located south and southwest of the northern building and the Electro Tech storage units. Ground water was not collected from the remaining boreholes due to refusal. The depth to ground water in on-site borings was between 24.75 and 32.6 feet bgs.

7.1.4.2 On-site Ground Water Sample Results

All samples were analyzed for hexavalent chromium, TAL metals, VOCs, SVOCs, TPH-Dx, and TPH-Gx. Sample results are presented in Table 7-3. A total of 14 TAL metals (arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, manganese, mercury, nickel, thallium, vanadium, and zinc) were detected at elevated concentrations with respect to background concentrations. Of these TAL metals, arsenic, barium, chromium, cobalt, copper, lead, manganese, nickel, vanadium, and zinc were detected at elevated concentrations in all six samples. Additionally, beryllium and cadmium were detected at elevated concentrations in five of the six samples. Although all 14 of these TAL metals were detected at elevated concentrations with respect to background concentrations, barium, cadmium, manganese, mercury, and vanadium were not likewise detected at significant concentrations in the source samples and, therefore, may not be attributable to the site.

Two VOCs (1,4-dichlorobenzene and chlorobenzene) were detected at elevated concentrations with respect to background concentrations. Neither of these VOCs were detected in the source samples; therefore, they also may not be attributable to the site.

Two SVOCs (1,2-dichlorobenzene and bis(2-ethylhexyl)phthalate) were detected at elevated concentrations with respect to background concentrations. The constituent 1,2-dichlorobenzene was not detected in the source samples and therefore may not be attributable to the site.

7.1.4.3 Off-site Ground Water Well Sample Locations

A total of six nearby wells were sampled, consisting of five drinking water wells and one irrigation well. Sample DW01GW, collected from a small community well, is located approximately 0.21 miles west and hydrologically downgradient of the site. Sample DW03GW was collected from a location approximately 0.12 miles south and downgradient of the site. Sample DW11GW was collected from a location 0.23 miles northwest and hydrologically cross gradient of the site. Samples DW12GW and DW17GW were collected from locations approximately 0.5 miles west-southwest and southwest of the site; respectively. Sample DW35GW was collected from a location approximately 1.26 miles south of the site.

7.1.4.4 Off-site Ground Water Well Sample Results

All ground water samples were analyzed for hexavalent chromium, TAL metals, VOCs, SVOCs, TPH-Gx, and TPH-Dx. Sample results are presented in Table 7-4.

Sample results indicate the presence of four TAL metals (copper, lead, vanadium, and zinc) at elevated concentrations with respect to background concentrations. Of these TAL metals, lead was detected at elevated concentrations in five of the six samples, and zinc was detected at elevated concentrations in four samples.

Two VOCs (1,4-dichlorobenzene and chlorobenzene) were detected at elevated concentrations with respect to background concentrations. Because these analytes were not detected at significant concentrations in any of the source samples, they may not be attributable to the site.

Five SVOCs (1,2,4-trichlorobenzene, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, indeno(1,2,3-cd)pyrene, and 1,2-dichlorobenzene) were detected at elevated concentrations with respect to background concentrations. Of these analytes, benzo(g,h,i)perylene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene were likewise detected at significant concentrations in at least one source sample.

7.2 Soil Exposure Pathway

The soil exposure pathway is evaluated based on the threat to resident and nearby populations from soil contamination within the first 2 feet of the surface.

7.2.1 Site Setting and Exposed Sources

The Biffle Property site consists of a grass-covered area in the northern portion of the site, a paved area north and west of the northern building, and a mostly gravel and dirt area in the southern portion of the site. The site area is approximately 1.6 acres (69,696 square feet), including the building areas. The on-site topography slopes an estimated 2 degrees from north to south. A fence surrounds the site with driveway access from the northwest on NE 135th Avenue and from the south on NE Fourth Plain Boulevard.

The soil within the site consists of the Sifton Series soil, which is a gravelly loam approximately 16 inches thick with zero to three percent slopes. The underlying soil is approximately 8 inches of dark brown, highly friable, coarse sand and gravelly loam overlying dark grayish-brown, very gravelly coarse sand up to 60 inches bgs. The soil is relatively well drained, the runoff at the surface is slow, and there is no erosion hazard (USDA 1972).

7.2.2 Targets

Approximately six individual lessees occupy building space within the Biffle Property, including the property owner's business, J & S Steel. The Electro Tech facility recently closed; therefore, workers are no longer associated with this operation. The number of workers at the other on-site business is unknown; however, it is estimated to be less than 10. Adjacent to the site are residences and retail facilities. The nearest school is ¼ mile northeast of the site. The total student and resident population within one mile of the site is 13,118 (Maguire 2009). The population by distance ring is provided in Table 7-4. No commercial agriculture, silviculture, or livestock production occurs with 200 feet of the site. No terrestrial sensitive environments are located within 200 feet of known site contamination.

7.2.2.1 Subsurface Soil Sample Locations and Results

Subsurface soil samples were collected at the site. Section 6 of this document provides information regarding the locations and analytical results of these samples.

Table 7-1 Ground Water Drinking Water Population

Distance Ring (miles)	Number of Wells	Well Population	Cumulative Population per Distance Ring
0 – ¼	Municipal	588	613
	Community – 1	17	
	Domestic – 3	8	
¼ to ½	Municipal	1,765	1,824
	Community – 2	48	
	Domestic – 4	11	
½ to 1	Municipal	14,123	14,564
	Community – 9	262	
	Domestic – 65	179	
1 to 2	Municipal	20,120	20,894
	Community – 36	227	
	Domestic – 199	547	
2 to 3	Municipal	7,040	8,287
	Community – 38	218	
	Domestic – 374	1029	
3 to 4	Municipal	39,982	42,656
	Community – 61	914	
	Domestic – 640	1760	
Total			**88,838**

Source: DOC 2007, WDOH 2009, Ecology 2009b

Note: Population for domestic wells is based on the average number of people per household for Clark County of 2.75 people.

Table 7-2 Population by Distance Ring within One Mile

Distance Ring	Population
0 to ¼ mile	617
¼ to ½ mile	5,380
½ to 1 mile	7,121
Total	**13,118**

Source: Maguire 2009

Table 7-3 On-site Ground Water Sample Analytical Results Summary

EPA Sample ID	9384414	9384402	9384410	9384435	9384439	9384441	9384452
CLP Sample ID	MJBQB5	JBQA4	JBQB2	JBQD7	JEQE1	JEQE3	JEQF3
Station Location	DW26GW	BP01GW	BP04GW	BP09GW	BP10GW	BP12GW	BP14GW
Description	Background	Biffle Property					
Target Analyte List Metals (µg/L)							
Arsenic	1.0 U	**2.8**	**3.3**	**6.15 JL**	**1.9**	**4.4**	**5.5**
Barium	**10.2**	**1220**	**1410**	**2860**	**220**	**1980**	**506**
Beryllium	1.0 U	**3.9**	**3.9**	**11.0 JL**	0.85 JQ	**5.7**	**1.5**
Cadmium	0.093 JQ (SQL =1.0)	**1.4**	**1.4**	**5.0**	0.43 JQ	**2.1**	**2.0**
Chromium	1.1 JQ (SQL = 2.0)	**36.5**	**33.4**	**57.63 JL**	**21.9**	**50.7**	**147**
Cobalt	0.22 JQ (SQL = 1.0)	**88.9**	**102**	**190.9 JL**	**17.2**	**154**	**39.0**
Copper	**4.8 JK**	**128 JK**	**132 JK**	**239 JL**	**32.4 JK**	**192 JK**	**205 JK**
Lead	0.51 JQ (SQL = 1.0)	**30.0**	**37.4**	**87.4**	**6.8**	**43.2**	**21.4**
Manganese	**10.5 JK**	**4140 JK**	**4070 JK**	**9615.0 JL**	**618 JK**	**6120 JK**	**1480 JK**
Mercury	0.20 U	0.13 JQ	**0.32**	**0.55**	0.2 U	**0.29**	0.15 JQ
Nickel	0.46 JQ (SQL = 1.0)	**62.8**	**55.8**	**122.1 JL**	**16.8**	**76.4**	**120**
Thallium	1.0 U	0.98 JQ	0.59 JQ	**4.0**	0.29 U	**1.5**	0.42 U
Vanadium	2.1 JQ (SQL = 5.0)	**61.2**	**53.1**	**72.3 JL**	**27.1**	**70.6**	**39.6**
Zinc	**7.5 JK**	**197 JK**	**296 JK**	**347.8 JL**	**77.8 JK**	**331 JK**	**2860 JK**
Volatile Organic Compounds (µg/L)							
1,4-Dichlorobenzene	0.50 U	NA	0.5 U	**5.3**	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.50 U	NA	0.5 U	**1.5**	0.5 U	0.5 U	0.5 U
Methylene chloride	**0.54**	NA	0.5 U	0.49 JQ	0.5 U	0.5 U	0.5 U
Semivolatile Organic Compounds (µg/L)							
1,2-Dichlorobenzene	0.50 U	NA	0.50 U	**4.9**	0.50 U	0.50 U	0.50 U
Benzo(g,h,i)perylene	0.14 U	NA	0.20 U	0.10 U	**0.12**	**0.12**	0.29 JK
Bis(2-ethylhexyl)phthalate	5.0 U	NA	5.0 U	5.0 U	5.0 UJK	5.0 U	**67**
Dibenzo(a,h)anthracene	0.14 U	NA	0.19 U	0.10 U	**0.12**	**0.12**	0.28 JK
Indeno(1,2,3-cd)pyrene	0.12 U	NA	0.18 U	0.093 JQ	**0.11**	**0.11**	0.26 JK

Note: **BOLD** type indicates the sample result is above the Contract-Required Quantitation Limit.
Underline type indicates the sample result is elevated as defined in Section 5.

Key:

µg/L = Micrograms per liter.
CLP = Contract Laboratory Program.
EPA = United States Environmental Protection Agency.
J = The analyte was positively identified. The associated numerical result is an estimate.
K = Unknown bias.
L = Low bias.
NA = Not Applicable.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
U = The analyte was not detected at or above the reported result.

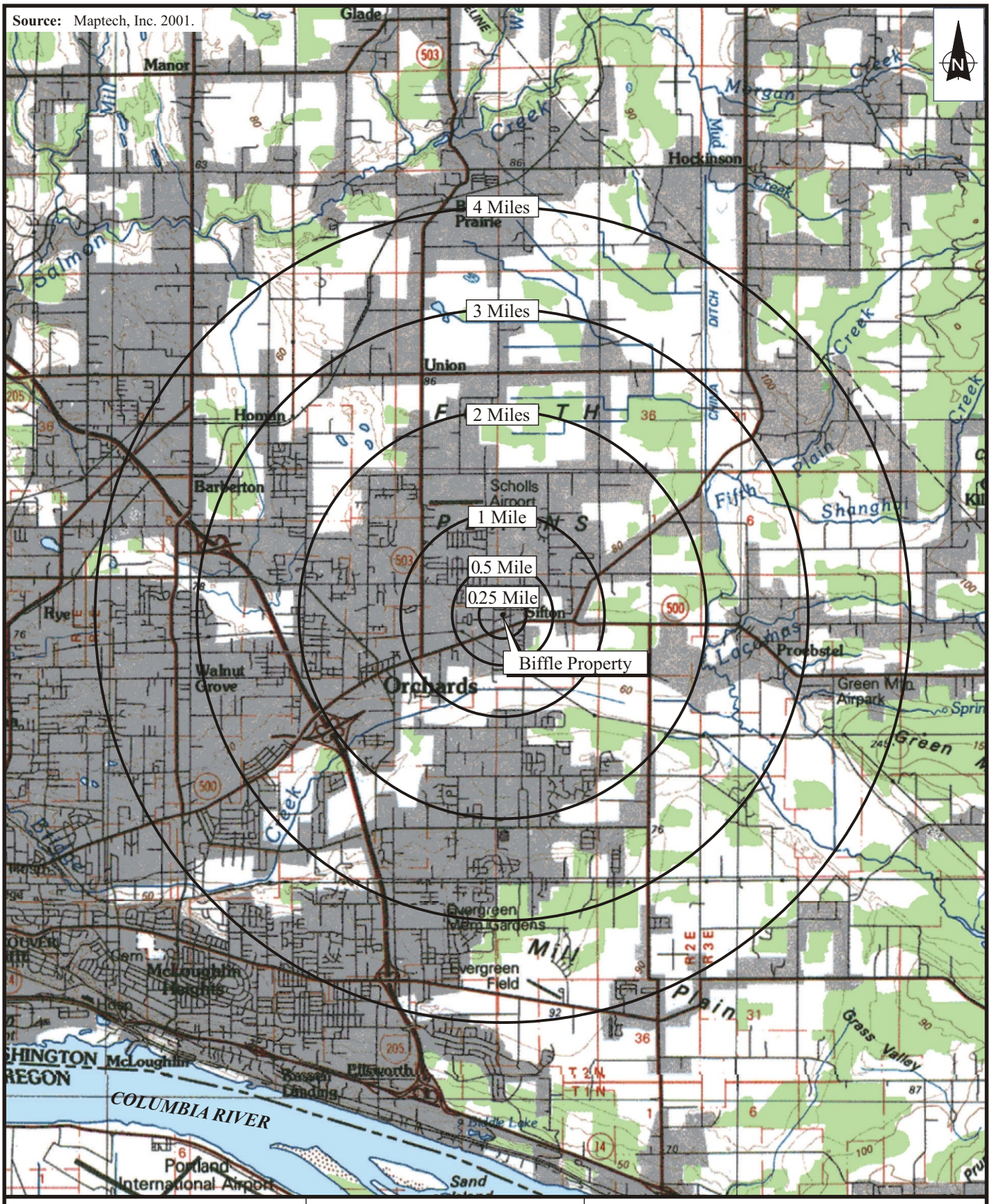
Table 7-4 Off-site Ground Water Well Sample Analytical Results Summary

EPA Sample ID	9384414	9384412	9384409	9384411	9384408	9384415	9384416
CLP Sample ID	MJBQB5	MJBAB4	MJBQB1	MJBQB3	MJBQB0	MJBQB7	MJBQB8
Station Location	DW26GW	DW01GW	DW03GW	DW11GW	DW12GW	DW17GW	DW35GW
Description	Background	Off-site Groundwater Wells					
Target Analyte List Metals (µg/L)							
Barium	**10.2**	**11.6**	**15.0**	**11.4**	**13.5**	**14.2**	4.4 JQ
Copper	**4.8 JK**	**9.8 JK**	**10.0 JK**	**14.2 JK**	**2.7 JK**	**362 JK**	**19.1 JK**
Lead	0.51 JQ (SQL = 1.0)	**1.9**	**1.3**	**2.4**	0.41 JQ	**15.2**	**19.0**
Manganese	**10.5 JK**	**1.2 JK**	0.54 JQ	**3.3 JK**	**4.4 JK**	0.89 JQ	**6.0 JK**
Vanadium	2.1 JQ (SQL = 5.0)	3.3 JQ	2.2 JQ	0.56 JQ	2.6 JQ	3.1 JQ	**7.5**
Zinc	**7.5 JK**	**75.8 JK**	**15.5 JK**	**20.2 JK**	**24.8 JK**	**131 JK**	**214 JK**
Volatile Organic Compounds (µg/L)							
1,4-Dichlorobenzene	0.50 U	0.50 U	0.50 U	**0.64**	0.50 U	0.50 U	**8.1**
Chlorobenzene	0.50 U	0.50 U	0.50 U	0.42 JQ	0.50 U	0.50 U	**3.8**
Methylene chloride	**0.54**	0.50 U	0.73 U	0.50 U	0.50 U	0.50 U	**0.51**
Semivolatile Organic Compounds (µg/L)							
1,2-Dichlorobenzene	0.50 U	0.50 U	0.50 U	**0.56**	0.50 U	0.50 U	**6.7**
1,2,4-Trichlorobenzene	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	**0.66**
Benzo(g,h,i)perylene	0.14 U	0.18 U	0.13 U	0.13 U	0.16 U	0.32 JK	**0.19**
Dibenzo(a,h)anthracene	0.14 U	0.18 U	0.14 U	0.13 U	0.16 U	0.29 JK	**0.18**
Indeno(1,2,3-cd)pyrene	0.12 U	0.16 U	0.12 U	0.12 U	0.14 U	0.27 JK	**0.16**

Note: **BOLD** type indicates the sample result is above the Contract-Required Quantitation Limit.
Underline type indicates the sample result is elevated as defined in Section 5.

Key:

µg/L = Micrograms per liter.
CLP = Contract Laboratory Program.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
K = Unknown bias.
mg/L = Milligrams per liter.
L = Low Bias.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
SQL = Sample quantitation limit.
U = The analyte was not detected at or above the reported result.



ecology and environment, inc.
International Specialists in the Environment
Seattle, Washington

BIFFLE PROPERTY
Vancouver, Washington

Figure 7-1

4-MILE MAP

0 .5 1
Approximate Scale in Miles

Date: 2-11-10

Drawn by: AES

10:START-3\09070007\fig 7-1

8 Removal Assessment

This section summarizes some of the work conducted in association with the Removal Assessment tasks for this Integrated Assessment and provides a comparison of the data collected as a part of this IA to screening criteria. Previous investigations identified conditions at the site that may present an imminent and substantial risk to human health and the environment and the potential to contaminate drinking water supplies via off-site migration of hazardous substances.

As previously mentioned, the matrices sampled included on-site subsurface soil, sediment and surface water from storm drains, and both on- and off-site ground water. In addition to the samples collected for the IA and discussed in this report, the removal program also collected two solid and three liquid product samples from the Electro Tech facility at the same time field work for the IA was performed.

8.1 Screening Criteria

The applicable regulatory screening criteria for contamination observed in site media include values developed by Ecology and EPA. These values are discussed in the following subsections and are presented with the analytical data provided in Tables 8-1 through 8-11.

8.1.1 Soil/Sediment Screening Criteria

In the state of Washington, Ecology sets standards under MTCA for residential and industrial facilities for a variety of media.

Because the Biffle Property is located in the state of Washington and is an operational light-industrial facility, MTCA Method C standard soil cleanup criteria based on an industrial workers exposure scenario and cancer risk of 1 in 100,000 may be used to screen analytical data for soil. MTCA Method B standard soil cleanup criteria also are provided for comparison purposes. Method B values are based on a residential exposure scenario and a cancer risk of 1 in 1,000,000.

MTCA Method A soil cleanup criteria were selected for comparison with TPH results because screening criteria for TPH are not available in Methods B and C. MTCA Method A does not distinguish between residential and industrial standards for TPH.

EPA Regional Screening Levels (RSLs) were also included for industrial sites for comparison purposes to MTCA criteria. RSLs are risk-based levels based on an industrial worker exposure scenario and a target cancer risk of 1 in 1,000,000.

For the purposes of this removal assessment, sediment samples collected from the storm drains have been compared to soil cleanup and screening values because they are not sediments in a water way, but rather are the result of storm water deposition in a controlled structure. As a result, they more resemble soil than sediment from a removal perspective.

8.1.2 Surface Water/Ground Water Screening Criteria

In this area of Washington, it almost always must be assumed that ground water is or can be used as drinking water because it is frequently used for consumption or irrigation. For this reason, MTCA Method B cleanup criteria for tap water (i.e., residential) were selected for the ground water evaluation. EPA RSLs for tap water were also used for screening criteria. Federal MCLs also were used to evaluate ground water; these are the highest level of a contaminant legally allowed in public drinking water supplies, and they are often used as screening criteria for private drinking water supplies.

Drinking water screening criteria were also selected for evaluation of the storm water samples because the storm water system is connected to a dry well and directly impacts ground water at the site. Because storm water is expected to infiltrate into the ground water and potentially impact a drinking water supply, the comparison of surface water sample results to drinking water standards (e.g., federal MCLs) is appropriate.

8.1.3 Product Sample Screening Criteria

Product samples have not been compared to screening criteria because pure product is not expected to be encountered in the environment. Rather, it is a source material that may contaminate other site media such as the soil, storm water, and ground water as discussed above. Product samples are often assumed to represent the highest contaminant concentrations of materials at a site and are, therefore, sometimes used to make decisions regarding the most appropriate means of disposing of contaminated media.

8.2 Discussion of Exceedances

This section documents and discusses sample locations where contaminants were found to exceed the screening criteria discussed in Section 8.1.

8.2.1 Soil and Sediment Results

Soil samples collected at the site include two sediment samples from the storm drains located in the northern parking lot at the site and thirty-six subsurface soil samples (including four background samples) collected from Geoprobe ™ boreholes. Subsurface soil samples were collected at 4-foot intervals. Sample results are presented for each soil interval in Tables 8-1 through 8-7. Sediment

results are presented in Table 8-9. Analyses applied to the samples submitted for off-site fixed laboratory analysis are presented in Table 3-1.

8.2.1.1 Subsurface Soil Results

A total of 13 boreholes were installed at various locations around the Biffle Property. Sample locations were selected to fill data gaps from previous investigations and to target suspected potential source areas. Samples were collected continuously at 4-foot intervals from 0 to 28 feet bgs, or until refusal. Subsurface soil sampling results are summarized in Tables 8-1 through 8-7. Note that because of variations in soil recovery, samples were not able to be collected at all intervals for all boreholes, including the background sample. After samples were collected, they were screened with an XRF, and a subset of these samples was selected for fixed laboratory analysis, as described in Sections 3 and 6. On-site sample locations and the background sample location are depicted on Figure 3-1.

Arsenic was detected above the screening criteria in most subsurface samples and in at least one sample from each interval except the 28-foot interval. No other metal was observed at a concentration that exceeded the screening criteria in any of the subsurface soil samples. The highest detection of arsenic was 5.2 mg/kg, observed at sample location BP06SB04. Arsenic was also observed in the background borehole at several sample intervals at concentrations as high as 1.9 mg/kg. The naturally occurring background arsenic concentration in Clark County has been established at ranging from 1.45 to 6.89 mg/kg with a 90th percentile value of 5.81 mg/kg; therefore, the arsenic present at the site is most likely naturally occurring (Ecology 1994).

Total chromium did not exceed screening criteria in any sample. Hexavalent chromium was not detected in any subsurface soil sample, although the samples were identified as having a low bias (i.e., sample concentrations could be higher than observed). Site soil conditions are indicative of a reducing environment; therefore, it is likely that any chromium present at the site is predominantly in the trivalent form rather than hexavalent.

8.2.1.2 Sediment Results

Two sediment samples were collected at the site: one from each of the storm drains located in the parking lot at the northern end of the site. The sediment sample BP01SD was collected from the storm drain on the east side of the paved driveway, and sample BP02SD was collected from the storm drain on the western side of the paved driveway. Figure 3-1 depicts the storm drain locations.

Soil sediment sample results are presented in Table 8-9. At sample location BP01SD, arsenic was detected at a level that exceeded the MTCA Method B screening criteria and the RSL. In sample BP02SD, arsenic also exceeded the MTCA Method B criteria and the RSL, and copper exceeded the MTCA Method B criteria. Hexavalent chromium was detected in sample BP02SD at a concentration that was approximately one order of magnitude lower than the most

conservative screening criteria. This was the only IA sample location where hexavalent chromium was detected.

Gasoline-related VOCs, including ethylbenzene, toluene, m,p-xylene, and o-xylene, were detected in both sediment samples at concentrations below the screening criteria.

A number of SVOCs were also detected in these samples, but only one compound was detected in either sample above the screening criteria. Benzo(a)pyrene was detected in BP01SD above the MTCA Method B screening criteria and the RSL. This analyte was not detected in sample BP02SD.

Gasoline-range organics were detected in both samples at concentrations that are below the MTCA Method A screening criteria. Diesel-range organic compounds were detected in both samples at levels approximately four to five times above the MTCA Method C and Method B screening criteria.

8.2.2 Surface Water and Ground Water Results

A total of 15 surface and ground water samples were collected, including seven ground water samples from drinking water wells (including one background sample), six ground water samples collected from on-site boreholes, and two surface water samples collected from the storm drains located in the northern parking lot. The on-site sample locations are depicted in Figure 3-1, and off-site ground water sample locations are depicted in Figure 3-2.

8.2.2.1 Storm Water Drain/Surface Water Samples

Sample results and screening criteria for the surface water samples collected from the storm water drains are summarized in Table 8-8.

Arsenic was detected above the MTCA Method B cleanup level and RSL in sample BP01SW but below the MCL. Vanadium was detected above the RSL in sample BP01SW; however, there is no MCL for vanadium. Lead was detected above screening criteria (MCL and RSL) at both sample locations. Toluene was detected at both sample locations at a concentration above the MTCA Method B cleanup level for tap water, but below the EPA RSL and MCL. In sample BP01SW, several SVOCs exceeded the EPA RSL for tap water. EPA does not publish MCL values for any of the SVOCs that exceeded the RSL.

8.2.2.2 Ground Water Samples from On-site Sample Locations

Sample results are presented in Table 8-10. Arsenic, cobalt, lead, manganese, and vanadium were observed above screening criteria at most sample locations. Of these compounds, lead was detected above the MCL (in five of the six samples); the arsenic detections were below the MCL, and cobalt, manganese, and vanadium do not have an MCL. Additionally, barium, beryllium, cadmium, chromium, and thallium were each observed in one to two sample locations at concentrations equal to or greater than the EPA MCL for tap water.

Total chromium was detected in one sample above the screening criteria (MCL of 100 ug/L) at a concentration of 147 ug/L at sample location BP14GW.

Sample location BP09GW contained some chlorinated VOCs and SVOCs above screening criteria. Three other on-site ground water samples contained SVOCs above screening criteria. Bis(2-ethylhexyl)phthalate exceeded the MCL in sample BP14GW. None of the other VOCs or SVOCs exceeded available MCLs.

8.2.2.3 Off-Site Drinking Water Samples

A total of seven off-site drinking water samples were collected, including a single background sample. Sample results are presented in Table 8-11. Off-site sample locations are depicted in Figure 3-2. Lead was the only compound that exceeded the federal MCL (15 µg/L) in these samples. Lead was observed at a concentration of 15.2 µg/L at sample location DW17GW and 19 µg/L at sample location DW35GW.

Sample location DW35GW also contained several chlorinated VOCs and SVOCs and other SVOCs at concentrations that were above MTCA Method B and the RSL screening criteria. These compounds were either below the corresponding MCLs, or no MCLs were available for those compounds.

8.3 Product Sample Results

As discussed in Section 2, a total of five product samples were collected, including two solid phase samples and three liquid phase samples. Data results for these samples are summarized in Table 2-1.

Both the solid and liquid phase samples were found to contain high concentrations of TAL metals relative to typical concentrations encountered in soil and water. Hexavalent chromium was present in both solid samples. Hexavalent chromium was not detected in the liquid phase samples.

Chloride was not detected in any of the samples, suggesting that hydrochloric acid was likely not used in the metal finishing process. Nitrate was detected in two of the three liquid phase samples, suggesting that nitric acid may have been present in the product mixture. Sulfate and orthophosphate as phosphorus were both found in all five of the samples in both the solid and liquid phases, suggesting that sulfuric acid and phosphoric acid were likely used in the metal finishing process. Total cyanide was detected at low and estimated concentrations in the solid phase samples but not in the liquid phase samples.

8.4 Potential Source Areas

To evaluate the data collected during the IA with respect to the goals of this removal assessment, the following discussion has been based on the division of the site into three Operable Units (OUs):

(1) The septic tank potential source area,
(2) The storm drain potential source area, and
(3) The site ground water.

8.4.1 Septic Tank Potential Source Area

A number of boreholes were driven in the vicinity of the three septic tanks located at the site. Data collected by Ecology in 2007 demonstrate that all three septic tanks had been impacted by hydrocarbons and metals. The locations of the septic tanks are illustrated in Figure 2-2. These septic tanks were cleaned and abandoned in the fall of 2009, and the site is now connected to the city sewer.

If the septic system (including the tanks and leaching pipes) were a source of contamination at the site, the soil immediately adjacent to the leach pipes is the most likely media at the site to be affected. The exact location of the leach fields could not be determined in the field. As a result, the boreholes may or may not have been advanced through soils immediately adjacent to the drainage system.

Data from these soil borings did not indicate that metals were present at levels higher than the background sample or screening criteria, except for arsenic, which is believed to be naturally occurring at the site.

Because these tanks have been cleaned and abandoned, and the adjacent soil does not contain metals with concentrations suggestive of a source area, the septic tanks are not believed at this time to represent an ongoing source of ground water contamination.

8.4.2 Storm Water System

Based upon Ecology's prior investigations, fluids from Electro Tech's metal finishing process are known to have been spilled into this drainage system on multiple occasions in the past. It is believed that the product samples discussed in Section 8.3 may be representative of liquids that are suspected to have been spilled into the stormwater system. These samples indicate that the process liquid contained high concentrations of metals and also likely contained sulfuric, phosphoric, and nitric acid.

As discussed in Sections 8.2.1 and 8.2.2, the water and sediment samples from the storm drains contained metals and petroleum-related compounds at concentrations above screening criteria. Petroleum compounds may have been introduced by vehicles in the parking lot and are not uncommon in storm drains. Subsurface soil sample results from boreholes advanced near the estimated location of the dry well were generally below screening criteria except for one result at borehole BP08SB24, where chromium was detected at a concentration below the screening criteria but roughly 100 times greater than in other boreholes throughout the site. It is possible that liquids spilled into the storm drains could have impacted the soil immediately adjacent to the perforated pipes and dry well; however, the boreholes installed by START may not have been close enough to the storm water infrastructure to detect this potential contamination. If there is source material in the storm water system or the soil immediately adjacent to it, contaminant releases to ground water would only be expected to occur during precipitation or melt events because the storm water system is located above the water table.

8.4.3 Ground Water

As discussed above and summarized in Table 8-10, metals were observed in ground water throughout the site at concentrations greater than screening criteria. Every borehole location where ground water was collected contained at least one metal that exceeded screening criteria. Additionally, organic compounds (chlorinated solvents and SVOCs) were detected above screening criteria in some of the borehole ground water samples. Contamination in ground water is not generally a hazardous substance source, but rather is the result of a current or historic source area that has discharged to ground water.

Table 8-1 Removal Subsurface Soil 4-Foot Interval Sample Analytical Results Summary

EPA Sample ID CLP Sample ID Station Location Description	MTCA Method B CULs Unrestricted Land Use	MTCA Method C CULs Industrial Land Use	EPA RSLs for Soil Industrial Worker	9384442 JBQE4 BG01SB04 Background	9384403 JBQA5 BP02SB04	9384404 JBQA6 BP03SB04	9384406 JBQA8 BP04SB04	9384420 JBQC2 BP06SB04	9384423 JBQC5 BP07SB04	9384429 JBQD1 BP08SB04	9384450 JBQF1 BP12SB04
					Biffle Property						
Hexavalent Chromium (mg/kg)											
Chromium, Hexavalent	240	10500	5.6	0.54 UJL	0.56 UJL	0.56 UJL	0.61 UJL	0.59 UJL	0.62 UJL	0.65 UJL	0.55 UJL
Target Analyte List Metals (mg/kg)											
Aluminum	--	--	990000	**18000 JL**	**28700 JL**	**22700 JL**	**29100 JL**	**20700 JL**	**27600 JL**	**24200 JL**	**17300 JL**
Arsenic	0.67	24	1.6	**1.9**	2.3 U	2.2 U	2.9 U	**5.2**	2.4 U	**2.4**	**1.6**
Barium	--	--	190000	**170 JL**	**206 JL**	**203 JL**	**262 JL**	**174 JL**	**241 JL**	**246 JL**	**180 JL**
Beryllium	160	7000	2000	**0.63**	**0.76**	**0.63**	**0.79**	**0.58**	**0.76**	**0.73**	**0.62**
Calcium	--	--	--	**3710 JL**	**2560 JL**	**2890 JL**	**3790 JL**	**3110 JL**	**1980 JL**	**3020 JL**	**3200 JL**
Chromium (1)	120000	5250000	1500000	**10.6 JL**	**10.5 JL**	**10.6 JL**	**15.1 JL**	**12.4 JL**	**11.7 JL**	**15.3 JL**	**8.3 JL**
Cobalt	--	--	300	**19.0**	**20.0**	**19.3**	**21.1**	**17.4**	**20.8**	**18.4**	**16.3**
Copper	2960	129500	41000	**25.2**	**25.6 JL**	**22.8 JL**	**36.1 JL**	**27.4 JL**	**22.3 JL**	**17.8**	**19.9**
Iron	--	--	720000	**30000 JL**	**34100 JL**	**33000 JL**	**39100 JL**	**30200 JL**	**35700 JL**	**34200 JL**	**26700 JL**
Lead	--	--	800	**8.1**	**45.1**	**19.2**	**110**	**24.0**	**18.7**	**8.7**	**8.8**
Magnesium	--	--	--	**3610 JL**	**2620 JL**	**3640 JL**	**2880 JL**	**3450 JL**	**3210 JL**	**3870 JL**	**3050 JL**
Manganese	11200	490000	--	**579 JL**	**630 JL**	**554 JL**	**655 JL**	**536 JL**	**707 JL**	**662 JL**	**518 JL**
Nickel	1600	70000	20000	**11.0**	**10.0**	**13.6**	**12.6**	**12.8**	**11.7**	**12.8**	**9.1**
Potassium	--	--	--	400 JQ	**625 JL**	**553 JL**	**756 JL**	**542 JL**	**607 JL**	**914**	**650**
Vanadium	--	--	7200	**81.2 JL**	**101 JL**	**90.4 JL**	**132 JL**	**82.8 JL**	**104 JL**	**89.2 JL**	**63.0 JL**
Zinc	24000	1050000	310000	**52.3 JL**	**111 JL**	**72.7 JL**	**200 JL**	**73.0 JL**	**71.8 JL**	**58.5 JL**	**46.9 JL**

Note: This table generally only includes those analytes that were detected. Analytes that were not detected and are not included in this table.
BOLD type indicates the sample result is above the Contract-Required Quantitation Limit.
Gray highlight indicates the sample result exceeds one of the screening levels.
(1) The MTCA and RSL values for chromium are for trivalent chromium.

Key:

-- = No screening criteria avaialble for this analyte.
CLP = Contract Laboratory Program.
CUL = Cleanup Level.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
MTCA = Model Toxics Control Act.
RSL = Regional Screening Level.
U = The analyte was not detected at or above the reported result.

Table 8-2 Removal Subsurface Soil 8-Foot Interval Sample Analytical Results Summary

EPA Sample ID CLP Sample ID Station Location Description	MTCA Method B CULs Unrestricted Land Use	MTCA Method C CULs Industrial Land Use	EPA RSLs for Soil Industrial Worker	9384443 JBQE5 BG01SB08 Background	9384417 JBQB9 BP05SB08	9384421 JBQC3 BP06SB08	9384430 JBQD2 BP08SB08	9384426 JBQC8 BP09SB08	9384446 JBQE8 BP10SB08	9384456 JBQE7 BP13SB08
					Biffle Property					
Hexavalent Chromium (mg/kg)										
Chromium, Hexavalent	240	10500	5.6	0.53 U	0.56 U	0.58 UJL	0.57 UJL	0.57 UJL	0.56 U	0.55 U
Target Analyte List Metals (mg/kg)										
Aluminum	--	--	990000	**12000 JL**	**17100 JL**	**18800 JL**	**14300 JL**	**14300 JL**	**16700 JL**	**14100 JL**
Arsenic	0.67	24	1.6	**1.2**	1.4 U	2.5 U	**1.1**	**2.9**	**1.5**	**1.2**
Barium	--	--	190000	**147 JL**	**167 JL**	**183 JL**	**125 JL**	**127 JL**	**237 JL**	**343 JL**
Beryllium	160	7000	2000	**0.47**	**0.53**	**0.57**	**0.43**	0.55 JQ	0.54 JQ	**0.48**
Calcium	--	--	--	**3830 JL**	**3600 JL**	**2940 JL**	**4120 JL**	**4290 JL**	**2990 JL**	**3580 JL**
Chromium (1)	120000	5250000	1500000	**9.3 JL**	**13.6 JL**	**10.6 JL**	**22 JL**	**14.4 JL**	**9.1 JL**	**5.6 JL**
Cobalt	--	--	300	**16.5**	**19.9**	**19.0**	**18.6**	**20.9**	**16.4**	**15.1**
Copper	2960	129500	41000	**18.6**	**24.3 JL**	**21.5 JL**	**21.7**	**34.0 JL**	**18.5**	**18.9**
Iron	--	--	720000	**26200 JL**	**30900 JL**	**31200 JL**	**27900 JL**	**33500 JL**	**28700 JL**	**24600 JL**
Lead	--	--	800	**4.0**	**6.2**	**8.8**	**3.4**	**27.2**	**5.4**	**5.3**
Magnesium	--	--	--	**3200 JL**	**4240 JL**	**3220 JL**	**4830 JL**	**3970 JL**	**2880 JL**	**2460 JL**
Manganese	11200	490000	--	**401 JL**	**523 JL**	**558 JL**	**477 JL**	**478 JL**	**456 JL**	**383 JL**
Nickel	1600	70000	20000	**11.2**	**18.5**	**10.9**	**19.7**	**17.6**	**9.8**	**7.6**
Potassium	--	--	--	327 JQ	**757 JL**	**630 JL**	**1140**	**622 JL**	526 JQ	**555**
Vanadium	--	--	7200	**71.5 JL**	**80.1 JL**	**88.3 JL**	**57.9 JL**	**92.4 JL**	**78.2 JL**	**66 JL**
Zinc	24000	1050000	310000	**44.6 JL**	**56.3 JL**	**56.3 JL**	**43 JL**	**86.6 JL**	**48.3 JL**	**46.7 JL**
Semivolatile Organic Compounds (ug/kg)										
1,4-Dioxane	--	--	160000	R NA		NA	NA	R	NA	NA
Butylbenzylphthalate	16000000	700000000	910000	180 U	NA	NA	NA	**270**	NA	NA
TPH-Diesel Range Organics (mg/kg)										
TPH Motor Oil Range Organics (2)	2000	2000	--	7.9 U	NA	NA	NA	**53**	NA	NA

Note: This table generally only includes those analytes that were detected. Analytes that were not detected and are not included in this table.
BOLD type indicates the sample result is above the Contract-Required Quantitation Limit.
Gray highlight indicates the sample result exceeds one of the screening levels.
(1) The MTCA and RSL values for chromium are for trivalent chromium.
(2) MTCA values for Total Petroleum Hydrocarbons are Method A.

Key:

-- = No screening criteria avaialble for this analyte.
µg/kg = Micrograms per kilogram.
CLP = Contract Laboratory Program.
CUL = Cleanup level.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
MTCA = Model Toxics Control Act.
NA = Not Analyzed.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
R = The data is rejected and not useable for any purpose.
RSL = Regional Screening Level.
TPH = Total petroleum hydrocarbons.
U = The analyte was not detected at or above the reported result.

Table 8-3 Removal Subsurface Soil 12-Foot Interval Sample Analytical Results Summary

EPA Sample ID CLP Sample ID Station Location Description	MTCA Method B CULs Unrestricted Land Use	MTCA Method C CULs Industrial Land Use	EPA RSLs for Soil Industrial Worker	9384444 JBQE2 BG01SB12 Background	9384405 JBQA7 BP03SB12	9384428 JBQD0 BP07SB12	9384447 JBQE9 BP10SB12	9384451 JBQF2 BP12SB12	9384457 JBQF8 BP13SB12
					Biffle Property				
Hexavalent Chromium (mg/kg)									
Chromium, Hexavalent	240	10500	5.6	0.53 U	0.55 UJL	0.56 UJL	0.56 U	0.55 U	0.54 U
Target Analyte List Metals (mg/kg)									
Aluminum	--	--	990000	**10900 JL**	**13000 JL**	**10500 JL**	**13300 JL**	**10400 JL**	**8270 JL**
Arsenic	0.67	24	1.6	**1.4**	1.1 U	1.2 U	**1.1**	**1.4**	**0.90**
Barium	--	--	190000	**126 JL**	**136 JL**	**123 JL**	**131 JL**	**114 JL**	**102 JL**
Beryllium	160	7000	2000	**0.52**	0.49 JQ	0.4 JQ	**0.52**	0.49 JQ	0.33 JQ
Calcium	--	--	--	**4860 JL**	**3920 JL**	**3850 JL**	**3760 JL**	**4920 JL**	**3490 JL**
Chromium (1)	120000	5250000	1500000	**10.9 JL**	**16.4 JL**	**9.8 JL**	**9.4 JL**	**12.0 JL**	**5.2 JL**
Cobalt	--	--	300	**16.3**	**19.6**	**16.6**	**16.5**	**15.9**	**12.9**
Copper	2960	129500	41000	**23.5**	**25.1 JL**	**22.0 JL**	**19.1**	**24.2**	**16.6**
Iron	--	--	720000	**28300 JL**	**30600 JL**	**26800 JL**	**24600 JL**	**26600 JL**	**19500 JL**
Lead	--	--	800	**4.1**	**6.8**	**5.3**	**5.9**	**4.4**	**3.2**
Magnesium	--	--	--	**4270 JL**	**3710 JL**	**3550 JL**	**3190 JL**	**3790 JL**	**2400 JL**
Manganese	11200	490000	--	**414 JL**	**476 JL**	**394 JL**	**494 JL**	**427 JL**	**332 JL**
Nickel	1600	70000	20000	**13.8**	**13.2**	**11.3**	**11.8**	**12.0**	**8.4**
Potassium	--	--	--	**480**	**992 JL**	**536 JL**	402 JQ	**556**	267 JQ
Vanadium	--	--	7200	**66.8 JL**	**90.1 JL**	**78.3 JL**	**57.3 JL**	**66.9 JL**	**52.8 JL**
Zinc	24000	1050000	310000	**45.7 JL**	**55.1 JL**	**49 JL**	**45.7 JL**	**48.7 JL**	**34.1 JL**
Percent Grain Size									
Clay	--	--	--	NA	NA	NA	NA	**0**	NA
Gravel	--	--	--	NA	NA	NA	NA	**100**	NA
Gravel, Fine	--	--	--	NA	NA	NA	NA	**52.8**	NA
Gravel, Medium	--	--	--	NA	NA	NA	NA	**81.2**	NA
Sand, Coarse	--	--	--	NA	NA	NA	NA	**27.2**	NA
Sand, Fine	--	--	--	NA	NA	NA	NA	**22.8**	NA
Sand, Medium	--	--	--	NA	NA	NA	NA	**24.0**	NA
Sand, Very Coarse	--	--	--	NA	NA	NA	NA	**34.9**	NA
Sand, Very Fine	--	--	--	NA	NA	NA	NA	**21.9**	NA
Silt	--	--	--	NA	NA	NA	NA	**17.6**	NA

Note: This table generally only includes those analytes that were detected. Analytes that were not detected and are not included in this table.
BOLD type indicates the sample result is above the Contract-Required Quantitation Limit.
Gray highlight indicates the sample result exceeds one of the screening levels.
(1) The MTCA and RSL values for chromium are for trivalent chromium.

Key:

-- = No screening criteria avaialble for this analyte.
CLP = Contract Laboratory Program.
CUL = Cleanup level.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
MTCA = Model Toxics Control Act.
NA = Not Analyzed.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
RSL = Regional Screening Level.
U= The analyte was not detected at or above the reported result.

Table 8-4 Removal Subsurface Soil 16-Foot Interval Sample Analytical Results Summary

EPA Sample ID CLP Sample ID Station Location Description	MTCA Method B CULs Unrestricted Land Use	MTCA Method C CULs Industrial Land Use	EPA RSLs for Soil Industrial Worker	9384445 JBQE7 BG01SB16	9384400 JBQA4 BP01SB16	9384440 JEQE2 BP04SB16	9384418 JBQC0 BP05SB16	9384431 JBQD3 BP08SB16	9384433 JBQD5 BP09SB16	9384449 BP10SB16
				Background	Biffle Property					
Hexavalent Chromium (mg/kg)										
Chromium, Hexavalent	240	10500	5.6	0.54 U	0.55 UJL	0.53 U	0.56 UJL	0.56 UJL	0.57 UJL	0.56 U
Target Analyte List Metals (mg/kg)										
Aluminum	--	--	990000	**6260 JL**	**10600 JL**	NA	**7950 JL**	**9650 JL**	**8950 JL**	NA
Arsenic	0.67	24	1.6	**1.3**	1.2 U	NA	1.1 U	**1.1**	1.9 U	NA
Barium	--	--	190000	**68.8 JL**	**130 JL**	NA	**79.7 JL**	**130 JL**	**110 JL**	NA
Beryllium	160	7000	2000	0.31 JQ (SQL = 0.43)	**0.42**	NA	0.34 JQ	0.42 JQ	0.38 JQ	NA
Calcium	--	--	--	**3720 JL**	**4130 JL**	NA	**4020 JL**	**4200 JL**	**3640 JL**	NA
Chromium (1)	120000	5250000	1500000	**6.7 JL**	**10.1 JL**	NA	**8.7 JL**	**7.6 JL**	**15.1 JL**	NA
Cobalt	--	--	300	**9.9**	**14.8**	NA	**15.7**	**13.7**	**15.9**	NA
Copper	2960	129500	41000	**18.4**	**19.7 JL**	NA	**19.2 JL**	**20.2**	**24.7 JL**	NA
Iron	--	--	720000	**19000 JL**	**23500 JL**	NA	**24300 JL**	**25300 JL**	**24500 JL**	NA
Lead	--	--	800	**3.0**	**4.0**	NA	**3.5**	**3.7**	**9.3**	NA
Magnesium	--	--	--	**2780 JL**	**3350 JL**	NA	**3710 JL**	**2880 JL**	**3810 JL**	NA
Manganese	11200	490000	--	**287 JL**	**319 JL**	NA	**383 JL**	**351 JL**	**393 JL**	NA
Nickel	1600	70000	20000	**7.6**	**13.2**	NA	**11.6**	**8.8**	**15.2**	NA
Potassium	--	--	--	**452**	**594 JL**	NA	411 JQ	**702**	**569 JL**	NA
Thallium	--	--	66	2.1 UJL	1.9 UJL	NA	**2.8 JL**	2.6 UJL	2.8 UJL	NA
Vanadium	--	--	7200	**45.8 JL**	**55.7 JL**	NA	**62.8 JL**	**66.3 JL**	**62.6 JL**	NA
Zinc	24000	1050000	310000	**33.4 JL**	**38.8 JL**	NA	**41.4**	**42.9 JL**	**52.5 JL**	NA
Volatile Organic Compounds (ug/kg)										
Toluene	6400000	280000000	45000000	4.7 U	NA	NA	NA	NA	**6.3**	NA
Semivolatile Organic Compounds (ug/kg)										
1,4-Dioxane	--	--	160	R	NA	R	NA	NA	R	NA
Total Organic Carbon (mg/kg-dry)										
Total Organic Carbon	--	--	--	NA	NA	**1250**	NA	NA	NA	**146**
Percent Grain Size										
Clay	--	--	--	NA	NA	**1.80**	NA	NA	NA	NA
Gravel	--	--	--	NA	NA	**47.6**	NA	NA	NA	NA
Gravel, Fine	--	--	--	NA	NA	**12.0**	NA	NA	NA	NA
Gravel, Medium	--	--	--	NA	NA	**19.7**	NA	NA	NA	NA
Sand, Coarse	--	--	--	NA	NA	**7.71**	NA	NA	NA	NA
Sand, Fine	--	--	--	NA	NA	**6.20**	NA	NA	NA	NA
Sand, Medium	--	--	--	NA	NA	**7.04**	NA	NA	NA	NA
Sand, Very Coarse	--	--	--	NA	NA	**8.78**	NA	NA	NA	NA
Sand, Very Fine	--	--	--	NA	NA	**5.96**	NA	NA	NA	NA
Silt	--	--	--	NA	NA	**5.19**	NA	NA	NA	NA

Note: This table generally only includes those analytes that were detected. Analytes that were not detected and are not included in this table.
BOLD type indicates the sample result is above the Contract-Required Quantitation Limit.
Gray highlight indicates the sample result exceeds one of the screening levels.
(1) The MTCA and RSL values for chromium are for trivalent chromium.

Key:

-- = No screening criteria avaialble for this analyte.
µg/kg = Micrograms per kilogram.
CLP = Contract Laboratory Program.
CUL = Cleanup Level.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
K = Unknown Bias.
L = Low bias.
mg/kg = Milligrams per kilogram.
MTCA = Model Toxics Control Act.
NA = Not Analyzed.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
R = The data is rejected and not useable for any purpose.
RSL = Regional Screening Level.
SQL = Sample quantitation limit.
U = The analyte was not detected at or above the reported result.

Table 8-5 Removal Subsurface Soil 20-Foot Interval Sample Anlaytical Results Summary

EPA Sample ID CLP Sample ID Station Location Description	MTCA Method B CULs Unrestricted Land Use	MTCA Method C CULs Industrial	EPA RSLs for Soil Industrial Worker	9384407 JBQA9 BP04SB20	9384419 QC1 BP05SB20	9384424 JBQC6 BP07SB20	9384448 JBQF0 BP10SB20	9384458 JBQF9 BP13SB20
				Biffle Property				
Hexavalent Chromium (mg/kg)								
Chromium, Hexavalent	240	10500	5.6	0.56 UJL	0.57 UJL	0.56 UJL	0.55 U	0.55 U
Target Analyte List Metals (mg/kg)								
Aluminum	--	--	990000	**8590 JL**	**11900 JL**	**7810 JL**	**8880 JL**	**7140 JL**
Arsenic	0.67	24	1.6	1.2 U	0.72 U	1.2 U	**1.4**	0.95 JQ
Barium	--	--	190000	**85.4 JL**	**123 JL**	**137 JL**	**111 JL**	**113 JL**
Calcium	--	--	--	**4350 JL**	**5050 JL**	**4220 JL**	**3920 JL**	**3960 JL**
Chromium (1)	120000	5250000	1500000	**14.4 JL**	**15.4 JL**	**11.2 JL**	**8.3 JL**	**8.9 JL**
Cobalt	--	--	300	**14.8**	**20.1**	**13.8**	**12.0**	**11.1**
Copper	2960	129500	41000	**20.7 JL**	**26.7 JL**	**18.0 JL**	**19.3**	**19.3**
Iron	--	--	720000	**25800 JL**	**31800 JL**	**23100 JL**	**21200 JL**	**20900 JL**
Lead	--	--	800	**3.7**	**4.1**	**2.9**	**3.7**	**2.7**
Magnesium	--	--	--	**3640 JL**	**4780 JL**	**3390 JL**	**3160 JL**	**3110 JL**
Manganese	11200	490000	--	**335 JL**	**543 JL**	**317 JL**	**313 JL**	**291 JL**
Nickel	1600	70000	20000	**12.5**	**18.6**	**13.0**	**10.4**	**9.4**
Potassium	--	--	--	**516 JL**	**572 JL**	455 JQ	**444**	396 JQ
Vanadium	--	--	7200	**72.8 JL**	**85.6 JL**	**61.6 JL**	**50.8 JL**	**41.9 JL**
Zinc	24000	1050000	310000	**44.0 JL**	**52.7 JL**	**41.1 JL**	**37.0 JL**	**30.8 JL**
Semivolatile Organic Compounds (ug/kg)								
1,4-Dioxane	--	--	160000	R	NA	NA	NA	NA

Note: This table generally only includes those analytes that were detected. Analytes that were not detected and are not included in this table.
BOLD type indicates the sample result is above the Contract-Required Quantitation Limit.
(1) The MTCA and RSL values for chromium are for trivalent chromium.

Key:

-- = No screening criteria avaialble for this analyte.
µg/kg = Micrograms per kilogram.
CLP = Contract Laboratory Program.
CUL = Cleanup level.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
MTCA = Model Toxics Control Act.
NA = Not Analyzed.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
R = The data is rejected and not useable for any purpose.
RSL = Regional Screening Level.
U = The analyte was not detected at or above the reported result.

Table 8-6 Removal Subsurface Soil 24-Foot Interval Sample Analytical Results Summary

EPA Sample ID CLP Sample ID Station Location Description	MTCA Method B CULs Unrestricted Land Use	MTCA Method C CULs Industrial Land Use	EPA RSLs for Soil Industrial Worker	9384422 JBQC4 BP06SB24	9384432 JBQD4 BP08SB24
				Biffle Property	
Hexavalent Chromium (mg/kg)					
Chromium, Hexavalent	240	10500	5.6	0.56 UJL	0.55 UJL
Target Analyte List Metals (mg/kg)					
Aluminum	--	--	990000	**10300 JL**	**7730 JL**
Arsenic	0.67	24	1.6	**4.5**	**3.3**
Barium	--	--	190000	**91.9 JL**	**66.6 JL**
Calcium	--	--	--	**4240 JL**	**3700 JL**
Chromium (1)	120000	5250000	1500000	**12.9 JL**	**1000 JL**
Cobalt	--	--	300	**16.0**	**13.6**
Copper	2960	129500	41000	**22.5 JL**	**71.3**
Iron	--	--	720000	**28000 JL**	**50800 JL**
Lead	--	--	800	**4.9**	**2.8**
Magnesium	--	--	--	**3400 JL**	**2480 JL**
Manganese	11200	490000	--	**377 JL**	**501 JL**
Nickel	1600	70000	20000	**11.1**	**57.0**
Vanadium	--	--	7200	**80.3 JL**	**132 JL**
Zinc	24000	1050000	310000	**47.2 JL**	**33.1 JL**
Semi-Volatile Organic Compounds (ug/kg)					
1,4-Dioxane	--	--	160000	R	NA

Note: This table generally only includes those analytes that were detected.
Analytes that were not detected and are not included in this table.
BOLD type indicates the sample result is above the Contract-Required Quantitation Limit.
Gray highlight indicates the sample result exceeds one of the screening levels.
(1) The MTCA and RSL values for chromium are for trivalent chromium.

Key:

-- = No screening criteria avaialble for this analyte.
µg/kg = Micrograms per kilogram.
CLP = Contract Laboratory Program.
CUL = Cleanup level.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
MTCA = Model Toxics Control Act.
NA = Not Analyzed.
R = The data is rejected and not useable for any purpose.
RSL = Regional Screening Level.

Table 8-7 Removal Subsurface Soil 28-Foot Interval Sample Analytical Results Summary

EPA Sample ID CLP Sample ID Station Location Description	MTCA Method B CULs Unrestricted Land Use	MTCA Method C CULs Industrial Land Use	EPA RSLs for Soil Industrial Worker	9384401 JBQA3 BP01SB28 Biffle Property
Hexavalent Chromium (mg/kg)				
Chromium, Hexavalent	240	10500	5.6	0.57 UJL
Target Analyte List Metals (mg/kg)				
Aluminum	--	--	990000	**11600 JL**
Barium	--	--	190000	**122 JL**
Beryllium	160	7000	2000	**0.44**
Calcium	--	--	--	**4240 JL**
Chromium (1)	120000	5250000	1500000	**11.7 JL**
Cobalt	--	--	300	**15.6**
Copper	2960	129500	41000	**21.7 JL**
Iron	--	--	720000	**28100 JL**
Lead	--	--	800	**3.8**
Magnesium	--	--	--	**3960 JL**
Manganese	11200	490000	--	**372 JL**
Nickel	1600	70000	20000	**17.1**
Potassium	--	--	--	**573 JL**
Vanadium	--	--	7200	**72.6 JL**
Zinc	24000	1050000	310000	**45 JL**

Note: This table generally only includes those analytes that were detected.
Analytes that were not detected and are not included in this table.

BOLD type indicates the sample result is above the Contract-Required Quantitation Limit.

(1) The MTCA and RSL values for chromium are for trivalent chromium.

Key:

-- = No screening criteria avaialble for this analyte.
CLP = Contract Laboratory Program.
CUL = Cleanup level.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
L = Low bias.
mg/kg = Milligrams per kilogram.
MTCA = Model Toxics Control Act.
RSL = Regional Screening Level.
ug/kg = micrograms per kilogram.

Table 8-8 Removal Storm Drain Surface Water Samples Analytical Results Summary

EPA Sample ID CLP Sample ID Station Location Description	MTCA Method B CUL Tap Water	EPA RSL Tap Water	EPA MCL Tap Water	9384434 JBQD6 BP01SW Biffle Property	9384436 JBQD8 BP02SW Biffle Property
Hexavalent Chromium (mg/L)					
Chromium, Hexavalent	0.048	0.000043	--	0.01 UJL	0.01 UJL
Target Analyte List Metals (ug/L)					
Arsenic	0.058	0.045	10	**1.9**	0.90 JQ
Barium	--	7300	2000	**112**	**1,170**
Cadmium	8	18	5	0.86 JQ	**2.7**
Chromium, Total (1)	24000	55000	100	**10**	**4.0**
Cobalt	--	11	--	**5.3**	**4.8**
Copper	592	1500	1300	**62.9 JK**	**48.8 JK**
Lead	--	15	15	**61.4**	**18.4**
Manganese	2240	880	--	**576 JK**	**568 JK**
Nickel	320	730	--	**14.4**	**8.2**
Vanadium	--	2.6	--	**15.9**	2.2 JQ
Zinc	4800	11000	--	**241 JK**	**70.2 JK**
Volatile Organic Compounds (ug/L)					
Acetone	--	22000	--	**52**	**31**
Toluene	1	2300	1000	**68**	**41**
Semivolatile Organic Compounds (ug/L)					
2-Methylnaphthalene	--	150	--	0.1 U	**0.19**
Benzo(a)anthracene	--	0.029	--	**0.13**	0.1 U
Benzo(g,h,i)perylene	480	1100	--	**0.13**	0.1 U
Chrysene	--	2.9	--	**0.32**	0.1 U
Dibenzo(a,h)anthracene	--	0.0029	--	**0.10**	0.1 U
Fluoranthene	640	1500	--	**0.23**	0.1 U
Indeno(1,2,3-cd)pyrene	--	0.029	--	**0.11**	0.1 U
Naphthalene	160	0.14	--	0.1 U	**0.12**
Phenanthrene	960	2200	--	**0.13**	**0.19**
Pyrene	480	1100	--	**0.22**	0.1 U
TPH-Gasoline Range Organics (ug/L)					
Unleaded gasoline composite (2)	1000	--	--	**170**	**150**

Note: This table generally only includes those analytes that were detected. Analytes that were not detected and are not included in this table.

BOLD type indicates the sample result is above the Contract-Required Quantitation Limit.

Gray highlight indicates the sample result exceeds one of the screening levels.

(1) The MTCA and RSL values for chromium are for trivalent chromium.

(2) MTCA values for Total Petroleum Hydrocarbons are Method A.

Key:

-- = No screening criteria avaialble for this analyte.
µg/L = Micrograms per liter.
CLP = Contract Laboratory Program.
CUL = Cleanup level.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
K = Unknown Bias.
L = Low bias.
MCL = Maximum Contaminant Level.
mg/L = Milligrams per liter.
MTCA = Model Toxics Control Act.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
RSL = Regional Screening Level.
U = The analyte was not detected at or above the reported result.

Table 8-9 Removal Storm Drain Sediment Samples Analytical Results Summary

EPA Sample ID CLP Sample ID Station Location Description	MTCA Method B CULs Unrestricted Land Use	MTCA Method C CULs Industrial Land Use	EPA RSLs for Soil Industrial Worker	9384427 JBQC9 BP01SD Biffle Property Storm	9384437 JBQD9 BP02SD Biffle Property Storm
Hexavalent Chromium (mg/kg)					
Chromium, Hexavalent	240	10500	5.6	0.96 UJL	**0.85 JL**
Target Analyte List Metals (mg/kg)					
Aluminum	--	--	990000	**14800 JL**	**15700 JL**
Antimony	--	--	410	2.1 JQ	**10.4 JL**
Arsenic	0.67	24	1.6	**17.7**	**8.3**
Barium	--	--	190000	**124 JL**	**138 JL**
Cadmium	80	3500	800	**1.3**	**3.6**
Calcium	--	--	--	**5170 JL**	**3970 JL**
Chromium, Total (1)	120000	5250000	1500000	**71.6 JL**	**327 JL**
Cobalt	--	--	300	**12.0**	**22.6**
Copper	2960	129500	41000	**121 JL**	**3700**
Iron	--	--	720000	**33600 JL**	**88300 JL**
Lead	--	--	800	**120**	**348**
Magnesium	--	--	--	**2700 JL**	**2550 JL**
Manganese	11200	490000	--	**366 JL**	**780 JL**
Nickel	1600	70000	20000	**27.9**	**191**
Silver	--	--	5100	0.17 JQ	**5.0**
Vanadium	--	--	7200	**88.2 JL**	**66.1 JL**
Zinc	24000	1050000	310000	**490 JL**	**1100 JL**
Volatile Organic Compounds (µg/kg)					
Ethylbenzene	8000000	350000000	27000	65 U	**87**
Methyl acetate	--	--	1000000000	**360**	60 U
m,p-Xylene	160000000	--	2700000	65 U	**310**
o-Xylene	160000000	7000000000	19000000	65 U	**180**
Toluene	6400000	280000000	45000000	**8200**	**17000**
Semivolatile Organics (µg/kg)					
1,4-Dioxane	--	--	160000	R R	
Benzo(a)anthracene	1400	180000	2100	**820**	280 U
Benzo(a)pyrene	140	18000	210	**870**	280 U
Benzo(b)fluoranthene	1400	180000	2100	**1200 JL**	280 UJK
Benzo(g,h,i)perylene	2400000	105000000	17000000	**1200**	280 U
Benzo(k)fluoranthene	1400	180000	21000	**870**	280 U
Bis(2-ethylhexyl)phthalate	71000	9375000	120000	**2100**	**1400**
Chrysene	14000	1800000	210000	**920**	280 U
Dibenzo(a,h)anthracene	1400	180000	210	**440**	280 U
Di-n-butylphthalate	--	--	62000000	220 U	**290**
Di-n-octylphthalate	1600000	70000000	--	91 JQ	**350**
Fluoranthene	3200000	140000000	22000000	**1400**	280 U
Indeno(1,2,3-cd)pyrene	1400	180000	2100	**940**	280 U
Phenanthrene	4800000	210000000	33000000	**500**	280 U
Pyrene	2400000	105000000	17000000	**960**	280 U
TPH-Gasoline Range Organics (mg/kg)					
Unleaded gasoline composite (2)	100	100	--	**56**	**80**
TPH-Diesel Range Organics (mg/kg)					
TPH-GC/Motor Oil Range Organics (2)	2000	2000	--	**8300**	**11000**

Note: This table generally only includes those analytes that were detected. Analytes that were not detected and are not included in this table.

BOLD type indicates the sample result is above the Contract-Required Quantitation Limit.

gray highlight indicates the sample result exceeds one of the screening levels.

(1) The MTCA and RSL values for chromium are for trivalent chromium.

(2) MTCA values for Total Petroleum Hydrocarbons are Method A.

Key:

-- = No screening criteria avaialble for this analyte.
µg/kg = Micrograms per kilogram.
CLP = Contract Laboratory Program.
CUL = Cleanup level.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
K = Unknown Bias.
L = Low bias.
mg/kg = Milligrams per kilogram.
MTCA = Model Toxics Control Act.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
R = The data is rejected and not useable for any purpose.
RSL = Regional Screening Level.
SQL = Sample quantitation limit.
TPH = Total petroleum hydrocarbons.
U = The analyte was not detected at or above the reported result.

Table 8-10 Removal On-site Ground Water Sample Analytical Results Summary

EPA Sample ID CLP Sample ID Station Location Description	MTCA Method B CULs Tap Water	EPA RSL Tap Water	EPA MCLs Tap Water	9384402 JBQA4 BP01GW	9384410 JBQB2 BP04GW	9384435 JBQD7 BP09GW	9384439 JEQE1 BP10GW	9384441 JEQE3 BP12GW	9384452 JEQF3 BP14GW
				Biffle Property					
Hexavalent Chromium (mg/L)									
Chromium, Hexavalent	0.048	0.000043	--	0.010 UJL	0.010 U	0.010 UJL	0.010 UJL	0.010 UJL	0.010 UJL
Target Analyte List Metals (µg/L)									
Arsenic	0.058	0.045	10	**2.8**	**3.3**	**6.15 JL**	**1.9**	**4.4**	**5.5**
Barium	--	7300	2000	**1220**	**1410**	**2860**	**220**	**1980**	**506**
Beryllium	32	73	4	**3.9**	**3.9**	**11.0 JL**	0.85 JQ	**5.7**	**1.5**
Cadmium	8	18	5	**1.4**	**1.4**	**5.0**	0.43 JQ	**2.1**	**2.0**
Chromium, Total (1)	24000	55,000	100	**36.5**	**33.4**	**57.63 JL**	**21.9**	**50.7**	**147**
Cobalt	--	11	--	**88.9**	**102**	**190.9 JL**	**17.2**	**154**	**39.0**
Copper	592	1500	1300	**128 JK**	**132 JK**	**239 JL**	**32.4 JK**	**192 JK**	**205 JK**
Lead	--	15	15	**30.0**	**37.4**	**87.4**	**6.8**	**43.2**	**21.4**
Manganese	2240	880	--	**4140 JK**	**4070 JK**	**9615 JL**	**618 JK**	**6120 JK**	**1480 JK**
Mercury	4.8	11	--	0.13 JQ	**0.32**	**0.55**	0.2 U	**0.29**	0.15 JQ
Nickel	320	730	--	**62.8**	**55.8**	**122.1 JL**	**16.8**	**76.4**	**120**
Thallium	--	2	2	0.98 JQ	0.59 JQ	**4.0**	0.29 U	**1.5**	0.42 U
Vanadium	--	2.6	--	**61.2**	**53.1**	**72.3 JL**	**27.1**	**70.6**	**39.6**
Zinc	4800	11000	--	**197 JK**	**296 JK**	**347.8 JL**	**77.8 JK**	**331 JK**	**2860 JK**
Volatile Organic Compounds (µg/L)									
1,4-Dichlorobenzene	0.075	0.430	75	NA	0.5 U	**5.3**	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.1	91	100	NA	0.5 U	**1.5**	0.5 U	0.5 U	0.5 U
Methylene chloride	0.005	4.8	5	NA	0.5 U	0.49 JQ	0.5 U	0.5 U	0.5 U
Semivolatile Organic Compounds (µg/L)									
1,2-Dichlorobenzene	0.6	370	600	NA	0.50 U	**4.9**	0.50 U	0.50 U	0.50 U
Benzo(g,h,i)perylene	480	1100	--	NA	0.20 U	0.10 U	**0.12**	**0.12**	0.29 JK
Bis(2-ethylhexyl)phthalate	6.25	4.8	6	NA	5.0 U	5.0 U	5.0 UJK	5.0 U	**67**
Dibenzo(a,h)anthracene	--	0.003	--	NA	0.19 U	0.10 U	**0.12**	**0.12**	0.28 JK
Indeno(1,2,3-cd)pyrene	--	0.029	--	NA	0.18 U	0.093 JQ	**0.11**	**0.11**	0.26 JK

Note: This table generally only includes those analytes that were detected. Analytes that were not detected and are not included in this table.
BOLD type indicates the sample result is above the Contract-Required Quantitation Limit.
Gray highlight indicates the sample result exceeds one of the screening levels.
(1) The MTCA and RSL values for chromium are for trivalent chromium.

Key:

-- = No screening criteria avaialble for this analyte.
µg/L = Micrograms per liter.
CLP = Contract Laboratory Program.
CUL = Cleanup level.
EPA = United States Environmental Protection Agency.
J = The analyte was positively identified. The associated numerical result is an estimate.
K = Unknown Bias.
L = Low bias.
MCL = Maximum Contaminant Level.
mg/L = Milligrams per liter.
MTCA = Model Toxics Control Act.
NA = Not analyzed.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
RSL = Regional Screening Level.
SQL = Sample quantitation limit.
U = The analyte was not detected at or above the reported result.

Table 8-11 Removal Off-site Ground Water Well Sample Analytical Results Summary

EPA Sample ID CLP Sample ID Station Location Description	MTCA Method B CULs Tap Water	EPA RSL Tap Water	EPA MCL/MCLG Tap Water	9384414 MJBQB5 DW26GW Background	9384412 MJBAB4 DW01GW	9384409 MJBQB1 DW03GW	9384411 MJBQB3 DW11GW	9384408 MJBQB0 DW12GW	9384415 MJBQB7 DW17GW	9384416 MJBQB8 DW35GW
					Off-site Groundwater Wells					
Hexavalent Chromium (mg/L)										
Chromium, Hexavalent	0.048	0.000043	--	0.010 UJL	0.010 UJL	0.010 U	0.010 U	0.010 U	0.010 UJL	0.010 UJL
Target Analyte List Metals (µg/L)										
Barium	--	7300	2000	**10.2**	**11.6**	**15.0**	**11.4**	**13.5**	**14.2**	4.4 JQ
Copper	592	1500	1300	**4.8 JK**	**9.8 JK**	**10.0 JK**	**14.2 JK**	**2.7 JK**	**362 JK**	**19.1 JK**
Lead	--	15	15	0.51 JQ	**1.9**	**1.3**	**2.4**	0.41 JQ	**15.2**	**19.0**
Manganese	2240	880	--	**10.5 JK**	**1.2 JK**	0.54 JQ	**3.3 JK**	**4.4 JK**	0.89 JQ	**6.0 JK**
Vanadium	--	2.6	--	2.1 JQ	3.3 JQ	2.2 JQ	0.56 JQ	2.6 JQ	3.1 JQ	**7.5**
Zinc	4800	11000	--	**7.5 JK**	**75.8 JK**	**15.5 JK**	**20.2 JK**	**24.8 JK**	**131 JK**	**214 JK**
Volatile Organic Compounds (µg/L)										
1,4-Dichlorobenzene	0.075	0.43	75	0.50 U	0.50 U	0.50 U	**0.64**	0.50 U	0.50 U	**8.1**
Chlorobenzene	0.1	91	100	0.50 U	0.50 U	0.50 U	0.42 JQ	0.50 U	0.50 U	**3.8**
Methylene chloride	0.005	4.8	5	**0.54**	0.50 U	0.73 U	0.50 U	0.50 U	0.50 U	**0.51**
Semivolatile Organic Compounds (µg/L)										
1,2,4-Trichlorobenzene	0.07	2.3	70	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	**0.66**
1,2-Dichlorobenzene	0.6	370	600	0.50 U	0.50 U	0.50 U	**0.56**	0.50 U	0.50 U	**6.7**
Benzo(g,h,i)perylene	480	1100	--	0.14 U	0.18 U	0.13 U	0.13 U	0.16 U	0.32 JK	**0.19**
Dibenzo(a,h)anthracene	--	0.0029	--	0.14 U	0.18 U	0.14 U	0.13 U	0.16 U	0.29 JK	**0.18**
Indeno(1,2,3-cd)pyrene	--	0.029	--	0.12 U	0.16 U	0.12 U	0.12 U	0.14 U	0.27 JK	**0.16**

Note: This table generally only includes those analytes that were detected. Analytes were not detected and are not included in this table.
BOLD type indicates the sample result is above the Contract-Required Quantitation Limit.
Gray highlight indicates the sample result exceeds one of the screening levels.

Key:

-- = No screening criteria avaialble for this analyte.
µg/L = Micrograms per liter.
CLP = Contract Laboratory Program.
CUL = Cleanup level.
EPA = United States Environmental Protection Agency.
ID = Identification.
J = The analyte was positively identified. The associated numerical result is an estimate.
K = Unknown Bias.
L = Low bias.
MCL = Maximum Contaminant Level.
mg/L = Milligrams per liter.
MTCA = Model Toxics Control Act.
Q = The result is estimated because the concentration is below the Contract-Required Quantitation Limit.
RSL = Regional Screening Level.
SQL = Sample quantitation limit.
U = The analyte was not detected at or above the reported result.

9 Summary and Conclusions

In September 2009, START conducted field sampling activities for the Biffle Property Integrated Assessment. The site, which is located in Vancouver, Washington, is an industrial facility that is currently operated by J & S Steel. Previous businesses at the site included Electro Tech, LLC, which was a metal finishing facility. Operations at J & S Steel are ongoing; however, operations at Electro Tech ceased in March 2009. Concurrent with the IA, EPA oversaw an RP-led removal action that included the removal and disposal of the remaining plating liquids, tanks, and debris inside the Electro Tech facility.

The IA involved the collection of samples from potential hazardous substance sources on site and from target areas potentially impacted through contamination migration. A total of 59 samples were collected for the IA, including background and QA samples. Samples were collected from on-site subsurface soil and ground water, as well as sediment and surface water from on-site storm drains. Additionally, ground water samples were collected from nearby water wells.

Subsurface soil samples were collected from 13 borehole locations at the site. An evaluation of the analytical results in accordance with the criteria presented in Section 5 indicate that subsurface soil samples contain significant concentrations of metals, SVOCs, VOCs, and diesel range organics. Although analytical results indicate the presence of hazardous substances at significant concentrations with respect to background concentrations, there does not appear to be any contaminant trends with regards to sample depth or location.

The analytical results of the surface water and sediment samples collected from the storm drains indicate the presence of VOCs, SVOCs, and diesel and gasoline range organics at significant concentrations with respect to background concentrations. Additionally, several of these organic compounds and some metals (including arsenic and lead) were observed at concentrations that exceed the removal screening criteria, as discussed in Section 8.

Based on the information collected during the IA, it appears that on-site ground water contains metals, chlorinated solvents, and SVOCs at concentrations that exceed screening criteria. The liquid phase samples collected from tanks found in the Electro Tech facility contained high concentrations of metals, indicating that they are a possible source for some of the metals observed in the ground water.

It could not be determined if the contamination found in on-site groundwater samples is a result of historic spills or if an ongoing unidentified source area

exists at the site. If the contaminated ground water is a result of historic spills, and no source material remains at the site post the RP-led removal action at the Electro Tech facility, it is expected that with the closure of the Electro Tech facility the concentration of metals in the ground water will naturally attenuate over time. If, however, source material (i.e., metal-bearing liquids from the Electro Tech facility, or soil impacted by such a liquid) is still present in the subsurface at the site, the concentration of metals in the ground water would not be expected to appreciably decrease in the near future.

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A Sample Plan Alteration Forms

SAMPLE PLAN ALTERATION FORM

Project Name and Number: Biffle Property Integrated Assessment, TDD 09-07-0007.

Material to be Sampled: Background groundwater sample: One sample was to be collected from a boring located outside the range of influence of the site and co-located with the background soil samples. The sample was to be analyzed for TAL metals, hexavalent chromium, SVOCs, VOCs, TPH-Dx, and TPH-Gx.

Measurement Parameters: _____

Standard Procedure for Field Collection & Laboratory Analysis (cite references): _____

Reason for Change in Field Procedure or Analytical Variation: Three attempts were made to complete the background boring at the designated location. Drilling was very gravelly with cobble-size rocks. The maximum depth obtained at refusal was 16 feet below the ground surface. Groundwater was not encountered.

Variation from Field or Analytical Procedure: Subsurface soil samples were collected at all four intervals; however, groundwater was not encountered. No groundwater samples were collected from the designated background boring location.

Special Equipment, Materials, or Personnel Required: _____

CONTACT	APPROVED SIGNATURE	DATE
Initiator: Ann Rivers	Ann Rivers	10/5/09
START PL: Linda Costello	Linda E. Costello	10/5/09
EPA TM: Monica Tonel	Monica Tonel	10/9/2009
EPA QA Manager: Ginna Grepo-Grove BPlewe for	BPlewe	10/13/09

SAMPLE PLAN ALTERATION FORM

Project Name and Number: Biffle Property Integrated Assessment, TDD 09-07-0007.

Material to be Sampled: Background boring soil samples - Up to seven soil samples from one boring were to be collected from a location outside the range of influence of the site. Samples were to be collected from each depth from which source samples were collected. All samples were to be analyzed for TAL metals, hexavalent chromium, SVOCs, VOCs, TPH-Dx, TPH-Gx, total organic carbon, and grain size. The location of the boring was to be approved by the OSC/TM and/or Site Assessment Manager.

Measurement Parameters: _____

Standard Procedure for Field Collection & Laboratory Analysis (cite references): _____

Reason for Change in Field Procedure or Analytical Variation: Drilling was very gravelly with cobble-size rocks. Three attempts were made to complete the background boring at the designated location. The maximum depth obtained at refusal was 16 feet below the ground surface.

Variation from Field or Analytical Procedure: Subsurface soil samples were collected at four foot intervals to a depth of 16 feet. Samples from the four-foot and 12-foot interval were analyzed for fewer suites than originally proposed due to poor sample recovery. These samples were submitted only for TAL metals and hexavalent chromium analysis. Samples from the 8-foot and 16-foot intervals were also analyzed for a reduced suite due to poor sample recovery. These samples were analyzed for TAL metals, hexavalent chromium, SVOCs, VOCs, TPH-Dx, TPH-Gx. No soil samples were collected from the 20-, 24-, or 28-foot intervals since these depths could not be reached.

Special Equipment, Materials, or Personnel Required: _____

CONTACT	APPROVED SIGNATURE	DATE
Initiator: Ann Rivers	Ann Rivers	10/5/09
START PL: Linda Costello	Linda E. Costello	10/5/09
EPA TM: Monica Tonel	Monica Tonel	10/9/2009
EPA QA Manager: Ginna Grepo-Grove B Plewe for	B Plewe	10/13/09

SAMPLE PLAN ALTERATION FORM

Project Name and Number: Biffle Property Integrated Assessment, TDD 09-07-0007.

Material to be Sampled: Onsite ground water samples: One ground water sample was to be collected from each boring, if encountered. Up to 14 ground water samples were to be analyzed for TAL metals and hexavalent chromium. Up to four ground water samples were to be analyzed for TAL metals, hexavalent chromium, SVOCs, VOCs, TPH-Dx, and TPH-Gx. The type of analysis to be completed for each of the ground water samples collected was to be determined in the field based on site conditions and approval from the OSC/TM and/or Site Assessment Manager.

Measurement Parameters: _____

_____

Standard Procedure for Field Collection & Laboratory Analysis (cite references): _____

Reason for Change in Field Procedure or Analytical Variation: A total of six of the 14 borings encountered ground water. Due to the difficult drilling, it was decided that five,(instead of four) of the ground water samples would be analyzed for all the contaminants of concern, i.e., TAL metals, hexavalent chromium, SVOCs, VOCs, TPH-Dx, and TPH-Gx.

Variation from Field or Analytical Procedure: Only six of the proposed 14 on-site ground water samples were collected. Five of the six groundwater samples were analyzed for all contaminants of concern, i.e., TAL metals, hexavalent chromium, SVOCs, VOCs, TPH-Dx, and TPH-Gx. (There was no variation in the proposed analytical suite for one of the six groundwater samples which was analyzed for TAL metals and hexavalent chromium as described in the SQAP.)

Special Equipment, Materials, or Personnel Required: _____

CONTACT	APPROVED SIGNATURE	DATE
Initiator: Ann Rivers	Ann Rivers	10/5/09
START PL: Linda Costello	Linda E. Costello	10/5/09
EPA TM: Monica Tonel	Monica Tonel	10/9/2009
EPA QA Manager: Ginna Grepo-Grove B Plewe for	B Plewe	10/13/09

RECEIVED
OCT 15 2009
Environmental
Cleanup Office

SAMPLE PLAN ALTERATION FORM

Project Name and Number: Biffle Property Integrated Assessment, TDD 09-07-0007.

Material to be Sampled: One sample was to be collected from up to three onsite septic tanks. These samples may have contained soil/sludge and/or aqueous material. The type of media collected was to be determined in the field based on site conditions and approval from the OSC/TM and/or Site Assessment Manager. All samples were to be analyzed for TAL metals, hexavalent chromium, SVOCs, VOCs, TPH-Dx, and TPH-Gx.

Measurement Parameters: _____

Standard Procedure for Field Collection & Laboratory Analysis (cite references): _____

_____

Reason for Change in Field Procedure or Analytical Variation: The three septic tanks were found to be completely decommissioned and inaccessible.

Variation from Field or Analytical Procedure: No samples were collected from the three septic tanks as anticipated.

Special Equipment, Materials, or Personnel Required: _____

_____

CONTACT	APPROVED SIGNATURE	DATE
Initiator: Ann Rivers	Ann Rivers	10/5/09
START PL: Linda Costello	Linda E. Costello	10/5/09
EPA TM: Monica Tonel	Monica Tonel	10/9/2009
EPA QA Manager: Ginna Grepo-Grove B Plewe for	B Plewe	10/13/09

B Photographic Documentation

Photo 1 J. Hancock sampling vats in Electro Tech facility.

Direction: *Inside* *Date: 9/22/09* *Time: 14:30* *Taken By: JF*

Photo 2 Schematic of Electro tech processing area.

Direction: *Inside* *Date: 9/22/09* *Time: 14:57* *Taken By: JF*

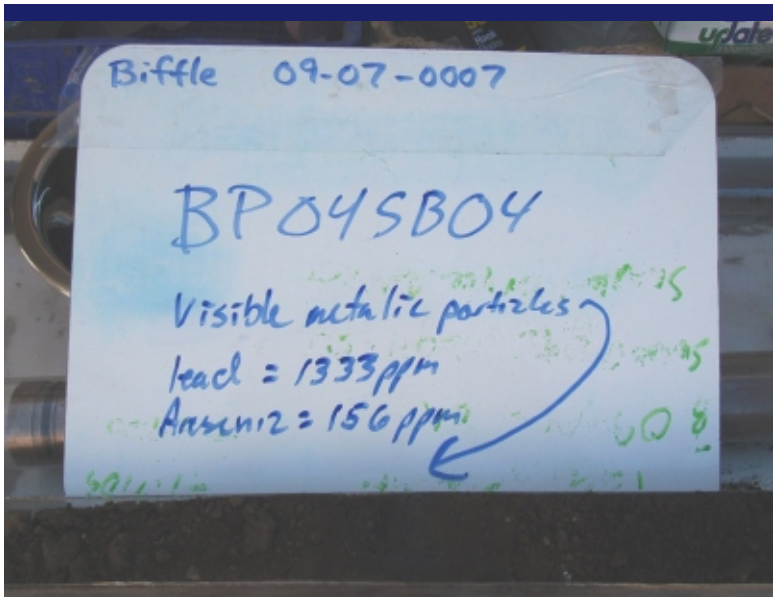

Photo 3 Close up of core for sample BP04SB04 with SRF screening results.

Direction: *Down* *Date: 9/22/09* *Time: 09:47* *Taken By: AU*

Photo 4 Close up of sample BP04SB04 with observed metalic particles and XRF screening results.

Direction: *Down* *Date: 9/22/09* *Time: 09:48* *Taken By: AU*

Photo 5 Core of Sample BP08SB08 located adjacent to unit 5.

Direction: *Down* *Date: 9/24/09* *Time: 08:36* *Taken By: AU*

Photo 6 East storm drain located north of unit 7.

Direction: *South-Southeast* *Date: 9/24/09* *Time: 12:34* *Taken By: AR*

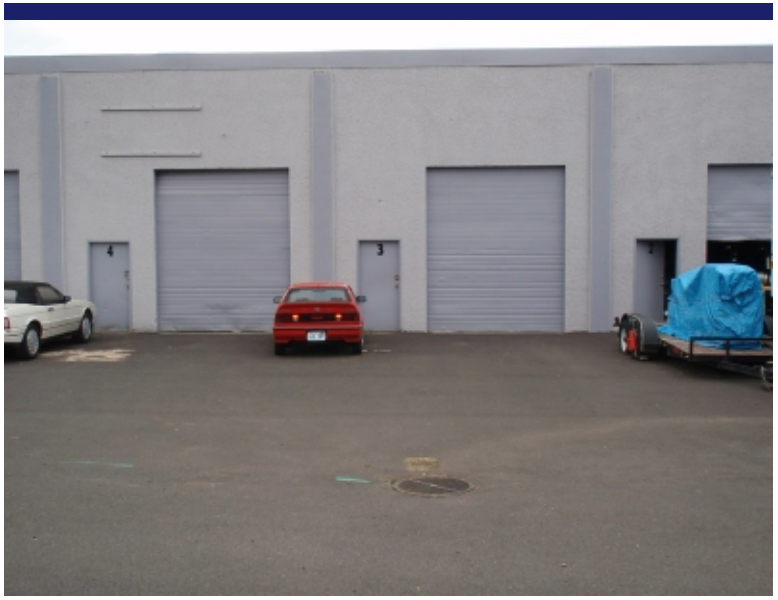

Photo 7 West storm drain (SD02) located north of unit 3. Absorbent (kitty litter) on the pavement outside the door of unit 4.

Direction: *South* *Date: 9/24/09* *Time: 12:34* *Taken By: AR*

Photo 8 Close up of kitty litter on pavement adjacent to unit 4.

Direction: *South* *Date: 9/24/09* *Time: 12:35* *Taken By: AR*

Photo 9 North of unit 5 is the location of boring BP08 as indicated by the dirt on the pavement in the foreground.

Direction: *South* *Date: 9/24/09* *Time: 12:35* *Taken By: AR*

Photo 10 Close up of boring BP12.

Direction: *Down* *Date: 9/25/09* *Time: 16:45* *Taken By: AR*

Photo 11 Using flashlight to see down into boring BP12.

Direction: *Down* *Date: 9/25/09* *Time: 16:45* *Taken By: AR*

Photo 12 On the left of the center is the location of sample BP14, which is south side of unit 1.

Direction: *North* *Date: 9/25/09* *Time: 17:38* *Taken By: AR*

Photo 13 J & S Steel office and work area on the western border of the property.

Direction: *Southwest* *Date: 9/25/09* *Time: 17:38* *Taken By: AR*

Photo 14 J & S Steel covered work area. The boring BP12 is left of the center of the photo.

Direction: *Southeast* *Date: 9/25/09* *Time: 17:38* *Taken By: AR*

Photo 15 Septic tank 1 is adjacent to southeast corner of the building. Borings BP05, BP06, and BP07 are located in this area.

Direction: *Southeast* *Date: 9/25/09* *Time: 17:44* *Taken By: AR*

Photo 16 Septic tank 2 immediately west of the door. The location of borings BP01, BP02, BP03 and BP04 are located in this area.

Direction: *North-Northeast* *Date: 9/25/09* *Time: 17:45* *Taken By: AR*

Photo 17 In the foreground are borings BP01 and BP04. In the background, on higher ground are borings BP05, BP06, and BP07.

Direction: *East* *Date: 9/25/09* *Time: 17:45* *Taken By: RN*

Photo 18 Geoprobe at sample location BP12 south of unit 5 and 6.

Direction: *North-Northeast* *Date: 9/25/09* *Time: 17:48* *Taken By: AR*

Photo 19 Boring location BP14 left of center and adjacent to unit 1.

Direction: *South* *Date: 9/25/09* *Time: 17:48* *Taken By: AR*

Photo 20 Septic tank 3 located south of J & S Steel office. Boring BP10 is behind the boat and BP13 is south of the sidewalk.

Direction: *South* *Date: 9/25/09* *Time: 17:49* *Taken By: AR*

Photo 21 Close up of the background bore hole BG01.

Direction: *Down* *Date: 9/25/09* *Time: 14:34* *Taken By: AR*

Photo 22 In the foreground is the west storm drain. Utility markings extend east to storm drain in background.

Direction: *East* *Date: 9/26/09* *Time: 11:15* *Taken By: AR*

Photo 23 Utility marking north of unit 6 large door indicating location of sump. Boring BP09 is to the left and boring BP08 is to the right.

Direction: *South* *Date: 9/26/09* *Time: 11:16* *Taken By: AR*

Photo 24 Holding tank located between well and spigot, sample DW12GW.

Direction: *North* *Date: 9/22/09* *Time: 10:55* *Taken By: LC*

Photo 25 Wellhead location inside a shed, sample DW12GW.

Direction: *East* *Date: 9/22/09* *Time: 10:55* *Taken By: LC*

Photo 26 Spigot, sample DW12GW.

Direction: *North* *Date: 9/22/09* *Time: 10:57* *Taken By: LC*

Photo 27 Wellhead located inside the fenced area, sample DW03GW.

Direction: *East* *Date: 9/22/09* *Time: 12:56* *Taken By: LC*

Photo 28 Spigot housed in shed, sample DW03GW.

Direction: *North* *Date: 9/22/09* *Time: 13:19* *Taken By: LC*

Photo 29 Holding tank (1,000 gallon), sample DW03GW.

Direction: *Northeast* *Date: 9/22/09* *Time: 13:19* *Taken By: LC*

Photo 30 Sample DW03GW.

Direction: *West* *Date: 9/22/09* *Time: 13:24* *Taken By: LC*

Photo 31 Spigot at wellhead, Sample DW11GW.

Direction: *Down* *Date: 9/22/09* *Time: 14:24* *Taken By: LC*

Photo 32 Wellhead and spigot housing, Sample DW11GW.

Direction: *East* *Date: 9/22/09* *Time: 14:25* *Taken By: LC*

Photo 33 Sample DW11GW.

Direction: *Down* *Date: 9/22/09* *Time: 14:29* *Taken By: LC*

Photo 34 Spigot at wellhead, sample DW01GW.

Direction: *Down* *Date: 9/23/09* *Time: 09:13* *Taken By: LC*

Photo 35 Holding tank, sample DW01GW.

Direction: *Northwest* *Date: 9/23/09* *Time: 09:13* *Taken By: LC*

Photo 37 Sample DW26 and spigot.

Direction: *Down* *Date: 9/23/09* *Time: 11:20* *Taken By: LC*

Photo 36 Wellhead and holding tank, spigot behind wall, sample DW26GW.

Direction: *Date: 9/23/09* *Time: 11:10* *Taken By: LC*

Photo 38 Wellhead DW17GW.

Direction: *Northeast* *Date: 9/23/09* *Time: 12:42* *Taken By: LC*

Photo 39 Spigot, sample DW17GW.

Direction: *Down* *Date: 9/23/09* *Time: 12:42* *Taken By: LC*

Photo 40 Holding tank, sample DW17GW.

Direction: Down *Date: 9/23/09* *Time: 12:43* *Taken By: LC*

Photo 41 Wellhead under plastic, sample DW35GW.

Direction: South *Date: 9/23/09* *Time: 14:46* *Taken By: LC*

Photo 42 Spigot, Sample DW35GW.

Direction: *Down* *Date: 9/23/09* *Time: 14:51* *Taken By: LC*

C Chain-of-Custody Documentation

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/25/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:	8667 8204 1575	1 RNord 9/25/09 11:30	
CERCLIS ID:		Shipped to:	ChemTech Consulting Group (CHEM) 284 Sheffield Street Mountainside NJ 07092	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
MJBQB8	Ground Water/ Bryan Ciecko	G	TM (21)	09384416 (HNO3) (1)	DW35GW	S: 09/23/2009 14:43	--
MJBQB9	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384417 (Ice Only) (1)	BP05SB08	S: 09/23/2009 08:05	--
MJBQC0	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384418 (Ice Only) (1)	BP05SB16	S: 09/23/2009 08:50	--
MJBQC3	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384421 (Ice Only) (1)	BP06SB08	S: 09/23/2009 10:18	--
MJBQC4	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384422 (Ice Only) (1)	BP06SB24	S: 09/23/2009 11:24	--
MJBQC8	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384426 (Ice Only) (1)	BP09SB08	S: 09/24/2009 12:10	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** MJBQC8	**Additional Sampler Signature (s):** RNord for B Ciecko	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

TM = CLP TAL Total Metals

COC Number : 10-4097213-092509-0004

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/25/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8667 8204 1575	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	ChemTech Consulting Group (CHEM) 284 Sheffield Street Mountainside NJ 07092	1	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
MJBQD0	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384428 (Ice Only) (1)	BP07SB12	S: 09/23/2009 13:56	--
MJBQD5	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384433 (Ice Only) (1)	BP09SB16	S: 09/24/2009 13:00	--
MJBQD6	Surface Water/ Ann Rivers	G	TM (21)	09384434 (HNO3) (1)	BP01SW	S: 09/24/2009 14:00	--
MJBQD7	Ground Water/ Andy Uhrig	G	TM (21)	09384435 (HNO3) (1)	BP09GW	S: 09/24/2009 15:20	--
MJBQD8	Surface Water/ Andy Uhrig	G	TM (21)	09384436 (HNO3) (1)	BP02SW	S: 09/24/2009 16:45	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** MJBQC8	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	Concentration : L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

TM = CLP TAL Total Metals

COC Number : 10-4097213-092509-0004

REGION COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

FedEx Express US Airbill

FedEx Tracking Number 8667 8204 1575

SAC21

Form ID No. 0215

1 From *Please print and press hard.*

Date 9/25/09 Sender's FedEx Account Number 2006-6560-0

Sender's Name Renee Nordeen Phone (206) 624-9537

Company ECOLOGY & ENVIRONMENT/GOVT

Address 720 3RD AVE STE 1700 Dept./Floor/Suite/Room

City SEATTLE State WA ZIP 98104-1816

2 Your Internal Billing Reference First 24 characters will appear on invoice 002233.0471.01IA

3 To

Recipient's Name PARVEEN HASAN Phone (908) 789-8900

Company CHEMTECH CONSULTING GROUP

Recipient's Address 284 SHEFFIELD ST Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here

City MOUNTAINSIDE State NJ ZIP 07092

0390458218

Ship and track packages at fedex.com
Simplify your shipping. Manage your account. Access all the tools you need.

4a Express Package Service *Packages up to 150 lbs.*

- [X] FedEx Priority Overnight — Next business morning * Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx Standard Overnight — Next business afternoon * Saturday Delivery NOT available.
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available

FedEx Envelope rate not available. Minimum charge: One-pound rate.

* To most locations.

4b Express Freight Service *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available

* Call for Confirmation.

** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [X] Other

* Declared value limit $500

6 Special Handling

- [X] SATURDAY Delivery — FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] HOLD Weekday at FedEx Location — FedEx First Overnight
- [ ] HOLD Saturday at FedEx Location — FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods?

- [X] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

- [ ] Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery
- [ ] Direct Signature — Someone at recipient's address may sign for delivery
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery

519

PULL AND RETAIN THIS COPY BEFORE AFFIXING TO THE PACKAGE. NO POUCH NEEDED.

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/28/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8667 8204 1152	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	ChemTech Consulting Group (CHEM) 284 Sheffield Street Mountainside NJ 07092	1	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
MJBQB5	Ground Water/ Bryan Ciecko	G	TM (21)	09384414 (HNO3) (1)	DW26GW	S: 09/23/2009 10:55	--
MJBQC1	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384419 (Ice Only) (1)	BP05SB20	S: 09/23/2009 09:30	--
MJBQC2	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384420 (Ice Only) (1)	BP06SB04	S: 09/23/2009 10:08	--
MJBQC5	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384423 (Ice Only) (1)	BP07SB04	S: 09/23/2009 13:40	--
MJBQC6	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384424 (Ice Only) (1)	BP07SB20	S: 09/23/2009 14:27	--
MJBQC9	Sediment/ Ann Rivers	G	TM (21)	09384427 (Ice Only) (1)	BP01SD	S: 09/24/2009 11:50	--

Shipment for Case Complete? Y	**Sample (s) to be used for laboratory QC:** MJBQB5	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

TM = CLP TAL Total Metals

COC Number : 10-4097213-092809-0006

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/28/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8667 8204 1152	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	ChemTech Consulting Group (CHEM) 284 Sheffield Street Mountainside NJ 07092	1	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
MJBQD1	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384429 (Ice Only) (1)	BP08SB04	S: 09/24/2009 08:10	--
MJBQD2	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384430 (Ice Only) (1)	BP08SB08	S: 09/24/2009 08:20	--
MJBQD3	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384431 (Ice Only) (1)	BP08SB16	S: 09/24/2009 08:40	--
MJBQD4	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384432 (Ice Only) (1)	BP08SB24	S: 09/24/2009 09:38	--
MJBQD9	Sediment/ Andy Uhrig	G	TM (21)	09384437 (Ice Only) (1)	BP02SD	S: 09/24/2009 17:00	--
MJBQE1	Ground Water/ Andy Uhrig	G	TM (21)	09384439 (HNO3) (1)	BP10GW	S: 09/25/2009 10:20	--

Shipment for Case Complete? Y	**Sample (s) to be used for laboratory QC:** MJBQB5	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

TM = CLP TAL Total Metals

COC Number : 10-4097213-092809-0006

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/28/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8667 8204 1152	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	ChemTech Consulting Group (CHEM) 284 Sheffield Street Mountainside NJ 07092	1	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
MJBQE3	Ground Water/ Andy Uhrig	G	TM (21)	09384441 (HNO3) (1)	BP12GW	S: 09/25/2009 18:00	--
MJBQE4	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384442 (Ice Only) (1)	BG01SB04	S: 09/25/2009 12:45	--
MJBQE5	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384443 (Ice Only) (1)	BG01SB08	S: 09/25/2009 12:54	--
MJBQE6	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384444 (Ice Only) (1)	BG01SB12	S: 09/25/2009 13:13	--
MJBQE7	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384445 (Ice Only) (1)	BG01SB16	S: 09/25/2009 14:07	--
MJBQE8	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384446 (Ice Only) (1)	BP10SB08	S: 09/25/2009 08:20	--

Shipment for Case Complete? Y	**Sample (s) to be used for laboratory QC:** MJBQB5, MJBQE4	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

TM = CLP TAL Total Metals

COC Number : 10-4097213-092809-0006

FF provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/28/2009	Chain of Custody Record	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8667 8204 1152	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	ChemTech Consulting Group (CHEM) 284 Sheffield Street Mountainside NJ 07092	1	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
MJBQE9	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384447 (Ice Only) (1)	BP10SB12	S: 09/25/2009 08:25	–
MJBQF0	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384448 (Ice Only) (1)	BP10SB20	S: 09/25/2009 08:55	–
MJBQF1	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384450 (Ice Only) (1)	BP12SB04	S: 09/25/2009 16:00	–
MJBQF2	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384451 (Ice Only) (1)	BP12SB12	S: 09/25/2009 16:20	–
MJBQF3	Ground Water/ Andy Uhrig	B	TM (21)	09384452 (HNO3) (1)	BP14GW	S: 09/26/2009 10:30	–
MJBQF4	Water/ Andy Uhrig	G	TM (21)	09384453 (HNO3) (1)	ID01WT	S: 09/26/2009 12:45	–

Shipment for Case Complete? Y	Sample (s) to be used for laboratory QC: MJBQB5, MJBQE4	Additional Sampler Signature (s):	Chain Of Custody Seal Number :
Analysis Key:	Concentration : L = Low, M = Medium, H = High, L/M = Low/Medium	Type/Designate : Composite = C, Grab = G, Both = B	Shipment Iced?

TM = CLP TAL Total Metals

COC Number : 10-4097213-092809-0006

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/28/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:	8667 8204 1152	1	
CERCLIS ID:		Shipped to:	ChemTech Consulting Group (CHEM) 284 Sheffield Street Mountainside NJ 07092	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
MJBQF5	Water/ Andy Uhrig	G	TM (21)	09384454 (HNO3) (1)	RS01WT	S: 09/26/2009	Rinsate
MJBQF7	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384456 (Ice Only) (1)	BP13SB08	S: 09/26/2009 08:36	--
MJBQF8	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384457 (Ice Only) (1)	BP13SB12	S: 09/26/2009 08:43	--
MJBQF9	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384458 (Ice Only) (1)	BP13SB20	S: 09/26/2009 09:15	--

Shipment for Case Complete? Y	**Sample (s) to be used for laboratory QC:** MJBQB5, MJBQE4	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

TM = CLP TAL Total Metals

COC Number : 10-4097213-092809-0006

PR provides preliminary results Requests for preliminary results will increase analytical costs.

FedEx Express — US Airbill

FedEx Tracking Number: 8667 8204 1152

Form ID No.: 0215

SAC21

1 From *Please print and press hard.*

Date: 9/28/09

Sender's FedEx Account Number: 2006-6560-0

Sender's Name: ~~Sam~~ Reception

Phone: (206) 624-9537

Company: ECOLOGY & ENVIRONMENT/GOVT

Address: 720 3RD AVE STE 1700

Dept./Floor/Suite/Room

City: SEATTLE State: WA ZIP: 98104-1816

2 Your Internal Billing Reference First 24 characters will appear on invoice.: 002233.0471.01IA

3 To

Recipient's Name: PARVEEN HASAN

Phone: (908) 789-8900

Company: CHEMTECH CONSULTING GROUP

Recipient's Address: 284 SHEFFIELD ST

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City: MOUNTAINSIDE State: NJ ZIP: 07092

0390458218

Schedule a pickup at fedex.com
Simplify your shipping. Manage your account. Access all the tools you need.

4a Express Package Service — *Packages up to 150 lbs.*

- [X] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available
- [ ] FedEx 2Day — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.** Saturday Delivery NOT available

FedEx Envelope rate not available. Minimum charge: One-pound rate.

* To most locations.

4b Express Freight Service — *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation:

** To most locations

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- [ ] FedEx Box
- [ ] FedEx Tube
- [X] Other

* Declared value limit $500

6 Special Handling

- [ ] SATURDAY Delivery — FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] HOLD Weekday at FedEx Location — FedEx First Overnight
- [ ] HOLD Saturday at FedEx Location — FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods?

- [X] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

- [ ] Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No.

Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery
- [ ] Direct Signature — Someone at recipient's address may sign for delivery
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery

519

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#3

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/24/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8667 8204 1586	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	ChemTech Consulting Group (CHEM) 284 Sheffield Street Mountainside NJ 07092	1 [illegible] 9/24/09 1530	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
MJBQA2	Subsurface Soil/ Renee Nordeen	G	TM (21)	09384400 (Ice Only) (1)	BP01SB16	S: 09/21/2009 12:53	--
MJBQA3	Subsurface Soil/ Renee Nordeen	G	TM (21)	09384401 (Ice Only) (1)	BP01SB28	S: 09/21/2009 12:55	--
MJBQA4	Ground Water/ Alan Jensen	G	TM (21)	09384402 (HNO3) (1)	BP01GW	S: 09/21/2009 13:50	--
MJBQA5	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384403 (Ice Only) (1)	BP02SB04	S: 09/21/2009 15:15	--
MJBQA6	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384404 (Ice Only) (1)	BP03SB04	S: 09/22/2009 07:30	--
MJBQA7	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384405 (Ice Only) (1)	BP03SB12	S: 09/22/2009 08:30	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:**	**Additional Sampler Signature (s):** [illegible]	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

TM = CLP TAL Total Metals

COC Number : 10-4097213-092409-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/24/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:	8667 8204 1586	1 [illegible] 9/24/09 1530	
CERCLIS ID:		Shipped to:	ChemTech Consulting Group (CHEM) 284 Sheffield Street Mountainside NJ 07092	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
MJBQA8	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384406 (Ice Only) (1)	BP04SB04	S: 09/22/2009 09:40	--
MJBQA9	Subsurface Soil/ Andy Uhrig	G	TM (21)	09384407 (Ice Only) (1)	BP04SB20	S: 09/22/2009 10:50	--
MJBQB0	Ground Water/ Bryan Ciecko	G	TM (21)	09384408 (HNO3) (1)	DW12GW	S: 09/22/2009 11:05	--
MJBQB1	Ground Water/ Bryan Ciecko	G	TM (21)	09384409 (Ice Only) (1)	DW03GW	S: 09/22/2009 13:13	--
MJBQB2	Ground Water/ Renee Nordeen	G	TM (21)	09384410 (HNO3) (1)	BP04GW	S: 09/22/2009 13:45	--
MJBQB3	Ground Water/ Bryan Ciecko	G	TM (21)	09384411 (HNO3) (1)	DW11GW	S: 09/22/2009 14:17	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** MJBQB0	**Additional Sampler Signature (s):** [illegible]	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

TM = CLP TAL Total Metals

COC Number : 10-4097213-092409-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/24/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8667 8204 1586	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	ChemTech Consulting Group (CHEM) 284 Sheffield Street Mountainside NJ 07092	1 RMoon 9/24/09 1530	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
MJBQB4	Ground Water/ Bryan Ciecko	G	TM (21)	09384412 (HNO3) (1)	DW01GW	S: 09/23/2009 09:15	--
MJBQB7	Ground Water/ Bryan Ciecko	G	TM (21)	09384415 (HNO3) (1)	DW17GW	S: 09/23/2009 12:32	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** MJBQB0	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

TM = CLP TAL Total Metals

COC Number : 10-4097213-092409-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

FedEx Express **US Airbill**

FedEx Tracking Number 8667 8204 1586

SAC21

Form ID No. 0215

1 From *Please print and press hard*

Date 9/24/09 Sender's FedEx Account Number 2006-6560-0

Sender's Name Phone (206) 624-9537

Company ECOLOGY & ENVIRONMENT/GOVT

Address 720 3RD AVE STE 1700 Dept./Floor/Suite/Room

City SEATTLE State WA ZIP 98104-1816

2 Your Internal Billing Reference First 24 characters will appear on invoice. 002233.0471.01IA

3 To

Recipient's Name PARVEEN HASAN Phone (908) 789-8900

Company CHEMTECH CONSULTING GROUP

Recipient's Address 284 SHEFFIELD ST Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City MOUNTAINSIDE State NJ ZIP 07092

0390458218

Find drop-off locations at fedex.com

Simplify your shipping. Manage your account. Access all the tools you need.

4a Express Package Service *Packages up to 150 lbs.*

- [X] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

FedEx Envelope rate not available. Minimum charge: One-pound rate.

* To most locations.

4b Express Freight Service *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available

* Call for Confirmation:

** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [X] Other

* Declared value limit $500.

6 Special Handling

- [ ] SATURDAY Delivery — FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] HOLD Weekday at FedEx Location — FedEx First Overnight
- [ ] HOLD Saturday at FedEx Location — FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods?

- [X] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery.

519

PULL AND RETAIN THIS COPY BEFORE AFFIXING TO THE PACKAGE. NO POUCH NEEDED.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/25/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	Hand Delivery	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:		1 A. Rivers 1140 9-25-09	Joan James 9/25/09 1140
CERCLIS ID:		Shipped to:	Columbia Analytical Services - Kelso 1317 S 13th Ave Kelso WA 98626	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP01SB16	Subsurface Soil/ Renee Nordeen	G	Cr+6 (21)	09384400 (Ice Only) (1)	BP01SB16	S: 09/21/2009 12:53	--
BP01SB28	Subsurface Soil/ Renee Nordeen	G	Cr+6 (21)	09384401 (Ice Only) (1)	BP01SB28	S: 09/21/2009 12:55	--
BP01SD	Sediment/ Ann Rivers	G	Cr+6 (21)	09384427 (Ice Only) (1)	BP01SD	S: 09/24/2009 11:50	--
BP02SB04	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384403 (Ice Only) (1)	BP02SB04	S: 09/21/2009 15:15	--
BP03SB04	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384404 (Ice Only) (1)	BP03SB04	S: 09/22/2009 07:30	--
BP03SB12	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384405 (Ice Only) (1)	BP03SB12	S: 09/22/2009 08:30	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:**	**Additional Sampler Signature (s):** Brord A. Rivers	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

Cr+6 = Hexavalent Chromium

COC Number : 10-4097213-092509-0003

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/25/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	Hand Delivery		
Account Code:		Airbill:		Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	Columbia Analytical Services - Kelso 1317 S 13th Ave Kelso WA 98626	1 A. Rivers 1140 9-25-09	Tom Jones 9/25/09 1140
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP04SB04	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384406 (Ice Only) (1)	BP04SB04	S: 09/22/2009 09:40	--
BP04SB20	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384407 (Ice Only) (1)	BP04SB20	S: 09/22/2009 10:50	--
BP05SB08	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384417 (Ice Only) (1)	BP05SB08	S: 09/23/2009 08:05	--
BP05SB16	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384418 (Ice Only) (1)	BP05SB16	S: 09/23/2009 08:50	--
BP05SB20	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384419 (Ice Only) (1)	BP05SB20	S: 09/23/2009 09:30	--
BP06SB04	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384420 (Ice Only) (1)	BP06SB04	S: 09/23/2009 10:08	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:**	**Additional Sampler Signature (s):** R Vorder A. Rivers	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

Cr+6 = Hexavalent Chromium

COC Number : 10-4097213-092509-0003

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/25/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	Hand Delivery		
Account Code:		Airbill:		Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	Columbia Analytical Services - Kelso 1317 S 13th Ave Kelso WA 98626	1 A. Rivers 1140 9-25-09	Jim Jones 9/25/09 1140
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP06SB08	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384421 (Ice Only) (1)	BP06SB08	S: 09/23/2009 10:18	--
BP06SB24	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384422 (Ice Only) (1)	BP06SB24	S: 09/23/2009 11:24	--
BP07SB04	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384423 (Ice Only) (1)	BP07SB04	S: 09/23/2009 13:40	--
BP07SB12	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384428 (Ice Only) (1)	BP07SB12	S: 09/23/2009 13:56	--
BP07SB20	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384424 (Ice Only) (1)	BP07SB20	S: 09/23/2009 14:27	--
BP08SB04	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384429 (Ice Only) (1)	BP08SB04	S: 09/24/2009 08:10	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:**	**Additional Sampler Signature (s):** R Vogel, A. Rivers	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

Cr+6 = Hexavalent Chromium

COC Number : 10-4097213-092509-0003

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/25/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	Hand Delivery		
Account Code:		Airbill:		Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	Columbia Analytical Services - Kelso 1317 S 13th Ave Kelso WA 98626	1 A. Rivers 1140 9-25-09	[illegible] 9/25/09 1140
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP08SB08	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384430 (Ice Only) (1)	BP08SB08	S: 09/24/2009 08:20	--
BP08SB16	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384431 (Ice Only) (1)	BP08SB16	S: 09/24/2009 08:40	--
BP08SB24	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384432 (Ice Only) (1)	BP08SB24	S: 09/24/2009 09:38	--
BP09SB08	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	AR ~~ABC-09384432~~ (Ice Only) (1) 09384426	BP09SB08	S: 09/24/2009 12:10	--
BP09SB16	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384433 (Ice Only) (1)	BP09SB16	S: 09/24/2009 13:00	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** BP09SB08	**Additional Sampler Signature (s):** RVrod A. Rivers	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

Cr+6 = Hexavalent Chromium

COC Number : 10-4097213-092509-0003

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/25/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	Hand Delivery		
Account Code:		Airbill:		Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	Columbia Analytical Services - Kelso 1317 S 13th Ave Kelso WA 98626	1 A. Rivers 1140 9-25-0	[illegible] 9/25/09 1140
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP02SD	Sediment/ Andy Uhrig	G	Cr+6 (21)	09384437 (Ice Only) (1)	BP02SD	S: 09/24/2009 17:00	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:**	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

Cr+6 = Hexavalent Chromium

COC Number : 10-4097213-092509-0005

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/22/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-984A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:		1 R Vorder 9/22/09/1530	
CERCLIS ID:		Shipped to:	Columbia Analytical Services - Rochester 1 Mustard Street, Suite 250 Rochester NY 14609	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP01GW	Ground Water/ Alan Jensen	G	Cr+6 (21)	09384402 (Ammonium Buffer) (1)	BP01GW	S: 09/21/2009 13:50	--
BP04GW	Ground Water/ Renee Nordeen	G	Cr+6 (21)	09384410 (Ice Only) (1)	BP04GW	S: 09/22/2009 13:45	--
DW03GW	Ground Water/ Bryan Ciecko	G	Cr+6 (21)	09384409 (Ice Only) (1)	DW03GW	S: 09/22/2009 13:13	--
DW11GW	Ground Water/ Bryan Ciecko	G	Cr+6 (21)	09384411 (Ice Only) (1)	DW11GW	S: 09/22/2009 14:17	--
DW12GW	Ground Water/ Bryan Ciecko	G	Cr+6 (21)	09384408 (Ice Only) (1)	DW12GW	S: 09/22/2009 11:05	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** DW12GW	**Additional Sampler Signature (s):** Conferences for A. Jensen R Vorder	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

Cr+6 = Hexavalent Chromium

COC Number : 10-4097213-092209-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

FedEx Express US Airbill

FedEx Tracking Number 8704 6994 2849

Form ID No. 0200 20X15X11

Sender's Copy

1 From Please print and press hard.

Date 9/22/09

Sender's FedEx Account Number 2006 6560 0

Sender's Name R. Nordeen

Phone (206) 624 9537

Company Ecology & Environment, Inc

Address 720 Third Ave. Suite 1700

Dept./Floor/Suite/Room

City Seattle State WA ZIP 98104

2 Your Internal Billing Reference
First 24 characters will appear on invoice.

3 To

Recipient's Name Janice Jaegers

Phone (585) 288 5380

Company Columbia Analytical

HOLD Weekday — Print FedEx location address below. NOT available for FedEx First Overnight.

HOLD Saturday — Print FedEx location address below. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Address 1 Mustard St. Ste 250

Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address
Print FedEx location address here if a HOLD option is selected.

City Rochester State NY ZIP 14609

4a Express Package Service * To most locations. — *Packages up to 150 lbs.*

- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

4b Express Freight Service ** To most locations. — *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- FedEx 1Day Freight Booking No. CALL 1.800.457.9857
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

6 Special Handling and Delivery Signature Options

- [ ] SATURDAY Delivery — Not available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] No Signature Required — Package may be left without obtaining a signature for delivery
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?
One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No.
Credit Card No.
Exp. Date

Total Packages 1 Total Weight 32 lbs. Total Declared Value† $ ____.00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

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RETAIN THIS COPY FOR YOUR RECORDS.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/28/2009	**Chain of Custody Record**	Sampler Signature: A. Rivers for Andy Uhrig
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:	8704.6994.1533 AR	1 A. Rivers 092809/1400 hrs	
CERCLIS ID:		Shipped to:	Columbia Analytical Services - Kelso 1317 S 13th Ave Kelso WA 98626	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP01SW	Surface Water/ Ann Rivers	G	Cr+6 (21)	09384434 (Ammonium Buffer) (1)	BP01SW	S: 09/24/2009 14:00	--
BP02SW	Surface Water/ Andy Uhrig	G	Cr+6 (21)	09384436 (Ammonium Buffer) (1)	BP02SW	S: 09/24/2009 16:45	--
BP09GW	Ground Water/ Andy Uhrig	G	Cr+6 (21)	09384435 (Ammonium Buffer) (1)	BP09GW	S: 09/24/2009 15:20	--
BP10GW	Ground Water/ Andy Uhrig	G	Cr+6 (21)	09384439 (Ammonium Buffer) (1)	BP10GW	S: 09/25/2009 10:20	--
AR BP12GW	groundwater/Andy Uhrig	G	Cr+6 (21)	09384441 (Ammonium Buffer)(1)	BP12GW	S: 09/25/2009 10:00	-- AR

Shipment for Case Complete? Y	Sample (s) to be used for laboratory QC:	Additional Sampler Signature (s):	Chain Of Custody Seal Number :
Analysis Key:	Concentration : L = Low, M = Medium, H = High, L/M = Low/Medium	Type/Designate : Composite = C, Grab = G, Both = B	Shipment Iced?

Cr+6 = Hexavalent Chromium

COC Number : 10-4097213-092809-0008

REGION COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

FORMS II Lite Help Desk, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602; e-Mail f2lite@fedcsc.com

FedEx Express US Airbill

FedEx Tracking Number 8704 6994 1533

Form ID No. 0200

Sender's Copy

1 From Please print and press hard

Date 9/28/09 Sender's FedEx Account Number 2006-6560-0 ** ONLY

Sender's Name Ann Rivers Phone 206/624-9537

Company Ecology & Environment.

Address 720 Third Ave. Ste. 1700 Dept./Floor/Suite/Room

City Seattle State WA ZIP 98104

2 Your Internal Billing Reference First 24 characters will appear on invoice. 002233.0471.01IA

3 To

Recipient's Name Sample Custodian Phone (360) 377-7222

Company CAS

Address 1317 S. 13th Ave. Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address Print FedEx location address here if a HOLD option is selected.

City Kelso State WA ZIP 98626

☐ HOLD Weekday — Print FedEx location address below. NOT available for FedEx First Overnight

☐ HOLD Saturday — Print FedEx location address below. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

4a Express Package Service * To most locations. — Packages up to 150 lbs.

☒ FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.

☐ FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available.

☐ FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

4b Express Freight Service ** To most locations. — Packages over 150 lbs.

☐ FedEx 1Day Freight — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

CALL 1.800.332.9807

FedEx 1Day Freight Booking No.

☐ FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.

☐ FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

☐ FedEx Envelope*

☐ FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.

☐ FedEx Box ☐ FedEx Tube ☒ Other

6 Special Handling and Delivery Signature Options

☐ SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.

☐ No Signature Required — Package may be left without obtaining a signature for delivery

☐ Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.

☐ Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods? One box must be checked.

☒ No

☐ Yes — As per attached Shipper's Declaration

☐ Yes — Shipper's Declaration not required.

☐ Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

☐ Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

☒ Sender — Acct. No. in Section 1 will be billed

☐ Recipient ☐ Third Party ☐ Credit Card ☐ Cash/Check

FedEx Acct. No. Credit Card No. Exp. Date

Total Packages ____ Total Weight ____ lbs. Total Declared Value† $____.00

554

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

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RETAIN THIS COPY FOR YOUR RECORDS.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/28/2009	Chain of Custody Record	Sampler Signature: A. Rivers for Andy Uhrig
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8704 6994 1522	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	Columbia Analytical Services - Kelso 1317 S 13th Ave Kelso WA 98626	1 A. Rivers 092809 / 1400hrs	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BG01SB04	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384442 (Ice Only) (1)	BG01SB04	S: 09/25/2009 12:45	–
BG01SB08	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384443 (Ice Only) (1)	BG01SB08	S: 09/25/2009 12:54	–
BG01SB12	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384444 (Ice Only) (1)	BG01SB12	S: 09/25/2009 13:13	–
BG01SB16	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384445 (Ice Only) (1)	BG01SB16	S: 09/25/2009 14:07	–
BP04SB16	Subsurface Soil/ Andy Uhrig	G	Grain Size (21), TOC (21)	09384440 (Ice Only) (2)	BP04SB16	S: 09/22/2009 10:20	–
BP10SB08	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384446 (Ice Only) (1)	BP10SB08	S: 09/25/2009 08:20	–

Shipment for Case Complete? Y	**Sample (s) to be used for laboratory QC:** BG01SB04	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

Cr+6 = Hexavalent Chromium, Grain Size = Grain Size, TOC = Total Organic Carbon

COC Number : 10-4097213-092809-0007

REGION COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/28/2009	Chain of Custody Record	Sampler Signature: A. Rivers for Andy Uhrig
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8704 6994 1522	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	Columbia Analytical Services - Kelso 1317 S 13th Ave Kelso WA 98626	1 A. Rivers 092809/1400 hrs.	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP10SB12	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384447 (Ice Only) (1)	BP10SB12	S: 09/25/2009 08:25	--
BP10SB16	Subsurface Soil/ Andy Uhrig	G	Grain Size (21), TOC (21)	09384449 (Ice Only) ~~(3)~~ 3 AR	BP10SB16	S: 09/25/2009 08:40	--
BP10SB20	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384448 (Ice Only) (1)	BP10SB20	S: 09/25/2009 08:55	--
BP12SB04	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384450 (Ice Only) (1)	BP12SB04	S: 09/25/2009 16:00	--
BP12SB12	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21), Grain Size (21)	09384451 (Ice Only) ~~(3)~~ 3	BP12SB12	S: 09/25/2009 16:20	--
BP13SB08	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384456 (Ice Only) (1)	BP13SB08	S: 09/26/2009 08:36	--

Shipment for Case Complete? Y	Sample (s) to be used for laboratory QC: BG01SB04	Additional Sampler Signature (s):	Chain Of Custody Seal Number :
Analysis Key:	Concentration : L = Low, M = Medium, H = High, L/M = Low/Medium	Type/Designate : Composite = C, Grab = G, Both = B	Shipment Iced?

Cr+6 = Hexavalent Chromium, Grain Size = Grain Size, TOC = Total Organic Carbon

COC Number : 10-4097213-092809-0007

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/28/2009	Chain of Custody Record	Sampler Signature: A. Rivers for Andy Uhrig
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8704 6994 1522	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	Columbia Analytical Services - Kelso 1317 S 13th Ave Kelso WA 98626	1 A. Rivers 092809/1400hrs	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP13SB12	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384457 (Ice Only) (1)	BP13SB12	S: 09/26/2009 08:43	--
BP13SB20	Subsurface Soil/ Andy Uhrig	G	Cr+6 (21)	09384458 (Ice Only) (1)	BP13SB20	S: 09/26/2009 09:15	--
BP14GW	Ground Water/ Andy Uhrig	B	Cr+6 (21)	09384452 (Ammonium Buffer) (1)	BP14GW	S: 09/26/2009 10:30	--
DW01GW	Ground Water/ Bryan Ciecko	G	Cr+6 (21)	09384412 (Ammonium Buffer) (1)	DW01GW	S: 09/23/2009 09:15	--
~~DW12GW~~	~~Ground Water/ Bryan Ciecko~~	~~G~~	~~Cr+6 (21)~~	~~09384408 (Ice Only) (1)~~	~~DW12GW~~	~~S: 09/22/2009 11:05~~	-- AR
DW17GW	Ground Water/ Bryan Ciecko	G	Cr+6 (21)	09384415 (Ammonium Buffer) (1)	DW17GW	S: 09/23/2009 12:32	--

Shipment for Case Complete? Y	Sample (s) to be used for laboratory QC: BG01SB04, DW12GW	Additional Sampler Signature (s):	Chain Of Custody Seal Number :
Analysis Key:	Concentration : L = Low, M = Medium, H = High, L/M = Low/Medium	Type/Designate : Composite = C, Grab = G, Both = B	Shipment Iced?

Cr+6 = Hexavalent Chromium, Grain Size = Grain Size, TOC = Total Organic Carbon

COC Number : 10-4097213-092809-0007

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

RIBBON COPY

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/28/2009	**Chain of Custody Record**	Sampler Signature: A. Rivers for Andy Uhrig
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8704 6994 1522	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	Columbia Analytical Services - Kelso 1317 S 13th Ave Kelso WA 98626	1 A. Rivers 092809/1400hrs	
Spill ID:				2	
Site Name / City/State:	Biffis Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
DW26GW	Ground Water/ Bryan Ciecko	G	Cr+6 (21)	09384414 (Ammonium Buffer) ~~(1)~~ 2	DW26GW	S: 09/23/2009 10:55	–
DW35GW	Ground Water/ Bryan Ciecko	G	~~(21)~~, Cr+6 (21)	09384416 (Ammonium Buffer), ~~09384416 (HCL) (2)~~	DW35GW	S: 09/23/2009 14:43	–
RS01WT	Water/ Andy Uhrig	G	Cr+6 (21)	09384454 (Ammonium Buffer) (1)	RS01WT	S: 09/26/2009	Rinsate

Shipment for Case Complete? Y	**Sample (s) to be used for laboratory QC:** BG01SB04, DW12GW, DW26GW	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

= TPH as Gasoline, Cr+6 = Hexavalent Chromium, Grain Size = Grain Size, TOC = Total Organic Carbon

COC Number : 10-4097213-092809-0007

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

REGION COPY

FedEx Express — US Airbill

FedEx Tracking Number 8704 6994 1522

Form ID No. 0200

Sender's Copy

1 From (Please print and press hard)

Date 9/28 Sender's FedEx Account Number 2006 6560 0

Sender's Name Sample Custodian Phone (360) 577 7222

Company Columbia Analytical

Address 1317 S 13th Ave Dept./Floor/Suite/Room

City Kelso State WA ZIP 98626

2 Your Internal Billing Reference (First 24 characters will appear on invoice.) 002233 0471 OLIA

3 To

Recipient's Name Phone (206) 624-9537

Company ~~EAT~~ CAS

HOLD Weekday — Print FedEx location address below. NOT available for FedEx First Overnight

HOLD Saturday — Print FedEx location address below. Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations

Address 1317 S 13th Ave

We cannot deliver to P.O. boxes or P.O. ZIP codes. Dept./Floor/Suite/Room

Address

Print FedEx location address here if a HOLD option is selected

City Kelso State WA ZIP 98626

4a Express Package Service * To most locations. *Packages up to 150 lbs.*

- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available
- [ ] FedEx 2Day — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.** Saturday Delivery NOT available

4b Express Freight Service ** To most locations. *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected. FedEx 1Day Freight Booking No. CALL 1.800.332.0807
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

5 Packaging * Declared value limit $500.

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

6 Special Handling and Delivery Signature Options

- [ ] SATURDAY Delivery — NOT available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. For residential deliveries only. Fee applies.

Does this shipment contain dangerous goods?

One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging or placed in a FedEx Express Drop Box.

7 Payment *Bill to:*

Enter FedEx Acct. No. or Credit Card No. below.

- [ ] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
1	____ lbs.	$ ____ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

554

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USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/28/2009
Project Code:	TEC-964A	Carrier Name:	FedEx
Account Code:		Airbill:	8656 1491 5157
CERCLIS ID:		Shipped to:	KAP Technologies, Inc. 9391 Grogans Mill Road The Woodlands TX 77380 2813670065
Spill ID:			
Site Name / City/State:	Biffle Property Vancouver, WA		
Project Leader:	Ann Rivers		
Action:	Integrated Assessment		
Sampling Co:	Ecology and Environment, Inc.		

Chain of Custody Record

Sampler Signature:

Relinquished By	(Date/Time)	Received By	(Date/Time)
1			
2			
3			
4			

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
JEQC8	Subsurface Soil/ Andy Uhrig	G	BNA (21)	09384426 (Ice Only) (1)	BP09SB08	S: 09/24/2009 12:10	--
JEQD5	Subsurface Soil/ Andy Uhrig	G	BNA (21)	09384433 (Ice Only) (1)	BP09SB16	S: 09/24/2009 13:00	--
JEQE2	Subsurface Soil/ Andy Uhrig	G	BNA (21)	09384440 (Ice Only) (1)	BP04SB16	S: 09/22/2009 10:20	--
JEQE3	Ground Water/ Andy Uhrig	G	BNA (21)	09384441 (Ice Only) (1)	BP12GW	S: 09/25/2009 18:00	--
JEQE5	Subsurface Soil/ Andy Uhrig	G	BNA (21)	09384443 (Ice Only) (1)	BG01SB08	S: 09/25/2009 12:54	--
JEQE7	Subsurface Soil/ Andy Uhrig	G	BNA (21)	09384445 (Ice Only) (1)	BG01SB16	S: 09/25/2009 14:07	--

Shipment for Case Complete?	Sample (s) to be used for laboratory QC:	Additional Sampler Signature (s):	Chain Of Custody Seal Number :
N	JBQC8, JBQE7		

Analysis Key: Concentration : L = Low, M = Medium, H = High, L/M = Low/Medium **Type/Designate :** Composite = C, Grab = G, Both = B **Shipment Iced?**

BNA = CLP TCL Semivolatiles

COC Number : 10-4097213-092809-0005

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/28/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8656 1491 5157	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	KAP Technologies, Inc. 9391 Grogans Mill Road The Woodlands TX 77380 2813670065	1	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
JEQF5	Water/ Andy Uhrig	G	BNA (21)	09384454 (Ice Only) (1)	RS01WT	S: 09/26/2009	Rinsate

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** JBQC8, JBQE7	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

BNA = CLP TCL Semivolatiles

COC Number : 10-4097213-092809-0005

FR provides preliminary results. Requests for preliminary results will increase analytical costs.

SAC22

FedEx Express **US Airbill**

FedEx Tracking Number 8656 1491 5157

Form ID No. 0215

1 From *Please print and press hard.*

Date 9/25/09 Sender's FedEx Account Number 2006-6560-0

Sender's Name RECEPTION Phone (206) 624-9537

Company ECOLOGY & ENVIRONMENT/GOVT

Address 720 3RD AVE STE 1700 Dept./Floor/Suite/Room

City SEATTLE State WA ZIP 98104-1816

2 Your Internal Billing Reference First 24 characters will appear on invoice. 002233.0471 DIA

3 To

Recipient's Name RAO ALSAKANI Phone (281) 367-0065

Company KAP TECHNOLOGIES INC.

Recipient's Address 9391 GROGANS MILL RD, SUITE-A2 Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City THE WOODLANDS State TX ZIP 77380

0381991580

Store your addresses at fedex.com
Simplify your shipping. Manage your account. Access all the tools you need.

4a Express Package Service *Packages up to 150 lbs.*

- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available

FedEx Envelope rate not available. Minimum charge: One-pound rate. * To most locations.

4b Express Freight Service *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available

* Call for Confirmation: ** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

* Declared value limit $500

6 Special Handling — Include FedEx address in Section 3

- [ ] **SATURDAY Delivery** NOT Available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] **HOLD Weekday** at FedEx Location NOT Available for FedEx First Overnight.
- [ ] **HOLD Saturday** at FedEx Location Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery.

519

Rev. Date 10/06•Part #158279•©1994-2006 FedEx•PRINTED IN U.S.A.•SRF

PULL AND RETAIN THIS COPY BEFORE AFFIXING TO THE PACKAGE. NO POUCH NEEDED.

#2

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/23/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:	8656 1491 5180	1 [illegible] 9/23/09/1530	
CERCLIS ID:		Shipped to:	KAP Technologies, Inc. 9391 Grogans Mill Road The Woodlands TX 77380 2813670065	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
JBQA9	Subsurface Soil/ Andy Uhrig	G	VOA (21)	09384407 (Ice Only) (1)	BP04SB20	S: 09/22/2009 10:50	--
JBQB0	Ground Water/ Bryan Ciecko	G	VOA (21)	09384408 (HCL) (1)	DW12GW	S: 09/22/2009 11:05	--
JBQB1	Ground Water/ Bryan Ciecko	G	BNA (21), VOA (21)	09384409 (HCL), 09384409 (Ice Only) (2)	DW03GW	S: 09/22/2009 13:13	--
JBQB2	Ground Water/ Renee Nordeen	G	BNA (21), VOA (21)	09384410 (HCL), 09384410 (Ice Only) (2)	BP04GW	S: 09/22/2009 13:45	--
JBQB3	Ground Water/ Bryan Ciecko	G	BNA (21), VOA (21)	09384411 (HCL), 09384411 (Ice Only) (2)	DW11GW	S: 09/22/2009 14:17	--
JBQB6	Water/ Renee Nordeen	G	VOA (21)	09384413 (HCL) (1)	TB01WT	S: 09/23/2009 10:35	Trip Blank

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** JBQB0	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

BNA = CLP TCL Semivolatiles, VOA = CLP TCL Volatiles

COC Number : 10-4097213-092309-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

FedEx Express US Airbill

FedEx Tracking Number 8656 1491 5180

SAC22

Form ID No. 0215

1 From *Please print and press hard.*

Date 9/23/09

Sender's FedEx Account Number 2006-6560-0

Sender's Name RECEPTION

Phone (206) 624-9537

Company ECOLOGY & ENVIRONMENT/GOVT

Address 720 3RD AVE STE 1700

Dept./Floor/Suite/Room

City SEATTLE State WA ZIP 98104-1816

2 Your Internal Billing Reference First 24 characters will appear on invoice. 002233.0471.01I4

3 To

Recipient's Name RAO ALSAKANI

Phone (281) 367-0065

Company KAP TECHNOLOGIES INC.

Recipient's Address 7391 GROGANS MILL RD. SUITE-A2

Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City THE WOODLANDS State TX ZIP 77380

0381991580

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4a Express Package Service *Packages up to 150 lbs.*

- [X] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

FedEx Envelope rate not available. Minimum charge: One pound rate.

* To most locations.

4b Express Freight Service *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation:

** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [ ] Other

* Declared value limit $500.

6 Special Handling

Include FedEx address in Section 3.

- [ ] **SATURDAY Delivery** — NOT Available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] **HOLD Weekday** at FedEx Location — NOT Available for FedEx First Overnight.
- [ ] **HOLD Saturday** at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods?

One box must be checked.

- [X] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No.

Exp. Date

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. *Fee applies.*
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. *Fee applies.*

519

PULL AND RETAIN THIS COPY BEFORE AFFIXING TO THE PACKAGE. NO POUCH NEEDED.

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/28/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8656 1491 5168	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	KAP Technologies, Inc. 9391 Grogans Mill Road The Woodlands TX 77380 2813670065	1	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
JEQC9	Sediment/ Ann Rivers	G	BNA (21)	09384427 (Ice Only) (1)	BP01SD	S: 09/24/2009 11:50	--
JEQD8	Surface Water/ Andy Uhrig	G	BNA (21), VOA (21)	09384436 (HCL), 09384436 (Ice Only) (2)	BP02SW	S: 09/24/2009 16:45	--
JEQD9	Sediment/ Andy Uhrig	G	BNA (21), VOA (21)	09384437 (Ice Only) (2)	BP02SD	S: 09/24/2009 17:00	--
JEQE1	Ground Water/ Andy Uhrig	G	BNA (21), VOA (21)	09384439 (HCL), 09384439 (Ice Only) (2)	BP10GW	S: 09/25/2009 10:20	--
JEQE3	Ground Water/ Andy Uhrig	G	VOA (21)	09384441 (HCL) (1)	BP12GW	S: 09/25/2009 18:00	--
JEQF3	Ground Water/ Andy Uhrig	B	VOA (21)	09384452 (HCL) (1)	BP14GW	S: 09/26/2009 10:30	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:**	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

BNA = CLP TCL Semivolatiles, VOA = CLP TCL Volatiles

COC Number : 10-4097213-092809-0003

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/28/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:	8656 1491 5168	1	
CERCLIS ID:		Shipped to:	KAP Technologies, Inc. 9391 Grogans Mill Road The Woodlands TX 77380 2813670065	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
JEQF4	Water/ Andy Uhrig	G	VOA (21)	09384453 (HCL) (1)	ID01WT	S: 09/26/2009 12:45	--
JEQF5	Water/ Andy Uhrig	G	VOA (21)	09384454 (HCL) (1)	RS01WT	S: 09/26/2009	Rinsate
JEQF6	Water/ Andy Uhrig	G	VOA (21)	09384455 (HCL) (1)	TB04WT	S: 09/26/2009 13:00	Trip Blank

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:**	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	Concentration : L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

BNA = CLP TCL Semivolatiles, VOA = CLP TCL Volatiles

COC Number : 10-4097213-092809-0003

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/28/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8565 1491 5168	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	KAP Technologies, Inc. 9391 Grogans Mill Road The Woodlands TX 77380 2813670065	1 R Grogan 9/28/09 1400	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
JEQD9	Sediment/ Andy Uhrig	G	VOA (21)	09384437 (Ice Only) (1)	BP02SD	S: 09/24/2009 17:00	--
JEQE5	Subsurface Soil/ Andy Uhrig	G	VOA (21)	09384443 (Ice Only) (1)	BG01SB08	S: 09/25/2009 12:54	--
JEQE7	Subsurface Soil/ Andy Uhrig	G	VOA (21)	09384445 (Ice Only) (1)	BG01SB16	S: 09/25/2009 14:07	--

Shipment for Case Complete?	Sample (s) to be used for laboratory QC:	Additional Sampler Signature (s):	Chain Of Custody Seal Number :
N			
Analysis Key:	Concentration : L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

VOA = CLP TCL Volatiles

COC Number : 10-4097213-092809-0004

PR provides preliminary results Requests for preliminary results will increase analytical costs.

5

FedEx Express — US Airbill

FedEx Tracking Number 8656 1491 5168

SAC22

Form ID No. 0215

1 From *Please print and press hard.*

Date 9/28/09 Sender's FedEx Account Number 2006-6560-0

Sender's Name RECEPTION Phone (206) 624-9537

Company ECOLOGY & ENVIRONMENT/GOVT

Address 720 3RD AVE STE 1700

Dept./Floor/Suite/Room

City SEATTLE State WA ZIP 98104-1816

2 Your Internal Billing Reference First 24 characters will appear on invoice. 002233.0471.01IA

3 To

Recipient's Name RAO ALSAKANI Phone (281) 367-0065

Company KAP TECHNOLOGIES INC.

Recipient's Address 9391 GROGANS MILL RD. SUITE-A2

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

Address

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City THE WOODLANDS State TX ZIP 77380

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4a Express Package Service — *Packages up to 150 lbs.*

- [X] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available

FedEx Envelope rate not available. Minimum charge: One-pound rate

*To most locations.

4b Express Freight Service — *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

*Call for Confirmation:

**To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [X] Other

*Declared value limit $500.

6 Special Handling — Include FedEx address in Section 3

- [ ] **SATURDAY Delivery** — NOT Available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] **HOLD Weekday at FedEx Location** — NOT Available for FedEx First Overnight.
- [ ] **HOLD Saturday at FedEx Location** — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- [X] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. ____ Exp. Date ____

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies.

519

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#17

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/23/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:	8656 1491 5179	1 Bvond 9/23/09 11530	
CERCLIS ID:		Shipped to:	KAP Technologies, Inc. 9391 Grogans Mill Road The Woodlands TX 77380 2813670065	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
JBQB0	Ground Water/ Bryan Ciecko	G	BNA (21)	09384408 (Ice Only) (1)	DW12GW	S: 09/22/2009 11:05	--
JBQB4	Ground Water/ Bryan Ciecko	G	BNA (21)	09384412 (Ice Only) (1)	DW01GW	S: 09/23/2009 09:15	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** JBQB0	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

BNA = CLP TCL Semivolatiles

COC Number : 10-4097213-092309-0004

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

9 W

#17

FedEx Express — US Airbill

FedEx Tracking Number 8656 1491 5179

SAG22

Form ID No. 0215

1 From *Please print and press hard.*

Date 9/23/09 Sender's FedEx Account Number 2006-6560-0

Sender's Name RECEPTION Phone (206) 624-9537

Company ECOLOGY & ENVIRONMENT/GOVT

Address 720 3RD AVE STE 1700 Dept./Floor/Suite/Room

City SEATTLE State WA ZIP 98104-1816

2 Your Internal Billing Reference First 24 characters will appear on invoice. 002233.0471.01IA

3 To

Recipient's Name RAO ALSAKANI Phone (281) 367-0065

Company KAP TECHNOLOGIES INC.

Recipient's Address 9391 GROGANS MILL RD, SUITE-A2 Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City THE WOODLANDS State TX ZIP 77380

0381991580

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4a Express Package Service — *Packages up to 150 lbs.*

- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

FedEx Envelope rate not available. Minimum charge: One-pound rate.

* To most locations.

4b Express Freight Service — *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation.

** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

* Declared value limit $500.

6 Special Handling — Include FedEx address in Section 3.

- [ ] SATURDAY Delivery — NOT Available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] HOLD Weekday at FedEx Location — NOT Available for FedEx First Overnight.
- [ ] HOLD Saturday at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. *See reverse.*
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. *See reverse.*

519

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19

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/25/2009	**Chain of Custody Record**	Sampler Signature
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:	8656 1491 4882	1 RNoon 9/25/09 1530	
CERCLIS ID:		Shipped to:	KAP Technologies, Inc. 9391 Grogans Mill Road The Woodlands TX 77380 2813670065	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
JBQB7	Ground Water/ Bryan Ciecko	G	BNA (21), VOA (21)	09384415 (HCL), 09384415 (Ice Only) (2)	DW17GW	S: 09/23/2009 12:32	--
JBQB8	Ground Water/ Bryan Ciecko	G	BNA (21), VOA (21)	09384416 (HCL), 09384416 (Ice Only) (2)	DW35GW	S: 09/23/2009 14:43	--
JBQD5	Subsurface Soil/ Andy Uhrig	G	VOA (21)	09384433 (Ice Only) (1)	BP09SB16	S: 09/24/2009 13:00	--
JBQD6	Surface Water/ Ann Rivers	G	BNA (21), VOA (21)	09384434 (HCL), 09384434 (Ice Only) (2)	BP01SW	S: 09/24/2009 14:00	--
JBQD7	Ground Water/ Andy Uhrig	G	BNA (21), VOA (21)	09384435 (HCL), 09384435 (Ice Only) (2)	BP09GW	S: 09/24/2009 15:20	--
JBQE0	Water/ Andy Uhrig	G	VOA (21)	09384438 (HCL) (1)	TB03WT	S: 09/25/2009 07:50	Trip Blank

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:**	**Additional Sampler Signature (s):** A Rivers	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

BNA = CLP TCL Semivolatiles, VOA = CLP TCL Volatiles

COC Number : 10-4097213-092509-0002

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

19

FedEx Express US Airbill

FedEx Tracking Number 8656 1491 4882

SAC22

Form ID No. 0215

1 From *Please print and press hard*

Date 9/25/09 Sender's FedEx Account Number 2006-6560-0

Sender's Name RECEPTION Phone (206) 624-9537

Company ECOLOGY & ENVIRONMENT/GOVT

Address 720 3RD AVE STE 1700 Dept./Floor/Suite/Room

City SEATTLE State WA ZIP 98104-1816

2 Your Internal Billing Reference First 24 characters will appear on invoice. 002233.0471.01IA

3 To

Recipient's Name RAO ALSAKANI Phone (281) 367-0065

Company KAP TECHNOLOGIES INC.

Recipient's Address 9391 GROGANS MILL RD. SUITE-A2 Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City THE WOODLANDS State TX ZIP 77380

0381991580

4a Express Package Service *Packages up to 150 lbs.*

- [ ] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

FedEx Envelope rate not available. Minimum charge: One-pound rate.

* To most locations.

4b Express Freight Service *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available

* Call for Confirmation:

** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

* Declared value limit $500.

6 Special Handling Include FedEx address in Section 3

- [x] **SATURDAY Delivery** NOT Available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] **HOLD Weekday** at FedEx Location NOT Available for FedEx First Overnight.
- [ ] **HOLD Saturday** at FedEx Location Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. Fee applies.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies.

519

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#13

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/24/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:	8656 1491 4871	1 [illegible] 9/24/09/1530	
CERCLIS ID:		Shipped to:	KAP Technologies, Inc. 9391 Grogans Mill Road The Woodlands TX 77380 2813670065	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
JBQB4	Ground Water/ Bryan Ciecko	G	VOA (21)	09384412 (Ice Only) (1)	DW01GW	S: 09/23/2009 09:15	--
JBQB5	Ground Water/ Bryan Ciecko	G	BNA (21), VOA (21)	09384414 (HCL), 09384414 (Ice Only) (2)	DW26GW	S: 09/23/2009 10:55	--
JBQC4	Subsurface Soil/ Andy Uhrig	G	VOA (21)	09384422 (Ice Only) (1)	BP06SB24	S: 09/23/2009 11:24	--
JBQC7	Water/ Andy Uhrig	G	VOA (21)	09384425 (HCL) (1)	TB02WT	S: 09/24/2009 11:15	Trip Blank
JBQC8	Subsurface Soil/ Andy Uhrig	G	VOA (21)	09384426 (Ice Only) (1)	BP09SB08	S: 09/24/2009 12:10	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** JBQB5, JBQC8	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

BNA = CLP TCL Semivolatiles, VOA = CLP TCL Volatiles

COC Number : 10-4097213-092409-0002

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

#13

FedEx Express — *US Airbill*

FedEx Tracking Number: 8656 1491 4871

SAC22

Form ID No.: 0215

1 From *Please print and press hard.*

Date: 9/24/09 — Sender's FedEx Account Number: 2006-6560-0

Sender's Name: RECEPTION — Phone: (206) 624-9537

Company: ECOLOGY & ENVIRONMENT/GOVT

Address: 720 3RD AVE STE 1700 — Dept./Floor/Suite/Room

City: SEATTLE — State: WA — ZIP: 98104-1816

2 Your Internal Billing Reference First 24 characters will appear on invoice. 002233.0471.01TA

3 To

Recipient's Name: RAO ALSAKANI — Phone: (281) 367-0065

Company: KAP TECHNOLOGIES INC.

Recipient's Address: 9391 GROGANS MILL RD, SUITE-A2 — Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City: THE WOODLANDS — State: TX — ZIP: 77380

0381991580

Store your addresses at fedex.com
Simplify your shipping. Manage your account. Access all the tools you need.

4a Express Package Service — *Packages up to 150 lbs.*

- [x] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available

FedEx Envelope rate not available. Minimum charge: One-pound rate.

* To most locations.

4b Express Freight Service — *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation:

** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- [ ] FedEx Box
- [ ] FedEx Tube
- [x] Other

* Declared value limit $500.

6 Special Handling — Include FedEx address in Section 3

- [ ] **SATURDAY Delivery** — NOT Available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] **HOLD Weekday at FedEx Location** — NOT Available for FedEx First Overnight.
- [ ] **HOLD Saturday at FedEx Location** — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods? One box must be checked.

- [x] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 _____ x _____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

- [ ] Cargo Aircraft Only

7 Payment *Bill to:* — Enter FedEx Acct. No. or Credit Card No. below.

- [x] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. — Exp. Date

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

- [ ] No Signature Required — Package may be left without obtaining a signature for delivery.
- [ ] Direct Signature — Someone at recipient's address may sign for delivery. Not available for FedEx Express Saver.
- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Not available for FedEx Express Saver.

519

PULL AND RETAIN THIS COPY BEFORE AFFIXING TO THE PACKAGE. NO POUCH NEEDED.

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/24/2009	**Chain of Custody Record**	Sampler Signature: A. Rivers
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:		1 RVrod 9/24/09 1530	
CERCLIS ID:		Shipped to:	KAP Technologies, Inc. 9391 Grogans Mill Road The Woodlands TX 77380 2813670065	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
JBQC9	Sediment/ Ann Rivers	G	VOA (21)	09384427 (Ice Only) (1)	BP01SD	S: 09/24/2009 11:50	–

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:**	**Additional Sampler Signature (s):** A. Rivers	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

VOA = CLP TCL Volatiles

COC Number : 10-4097213-092409-0006

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/23/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:	8622 9488 1510	1 R Vogel 9/23/09 1530	
CERCLIS ID:		Shipped to:	Manchester Environmental Laboratory 7411 Beach Drive East Port Orchard WA 98366	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP04GW	Ground Water/ Renee Nordeen	G	(21)	09384410 (HCL), 09384410 (Ice Only) (2)	BP04GW	S: 09/22/2009 13:45	--
BP04SB20	Subsurface Soil/ Andy Uhrig	G	(21)	09384407 (Ice Only) (1)	BP04SB20	S: 09/22/2009 10:50	--
DW03GW	Ground Water/ Bryan Ciecko	G	(21)	09384409 (HCL), 09384409 (Ice Only) (2)	DW03GW	S: 09/22/2009 13:13	--
DW11GW	Ground Water/ Bryan Ciecko	G	(21)	09384411 (HCL), 09384411 (Ice Only) (2)	DW11GW	S: 09/22/2009 14:17	--
DW12GW	Ground Water/ Bryan Ciecko	G	(21)	09384408 (HCL) (1)	DW12GW	S: 09/22/2009 11:05	--
TB01WT	Water/ Renee Nordeen	G	(21)	09384413 (HCL) (1)	TB01WT	S: 09/23/2009 10:35	Trip Blank

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** DW12GW	**Additional Sampler Signature (s):** R Vogel	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

= TPH as Diesel, = TPH as Gasoline

COC Number : 10-4097213-092309-0002

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/24/2009	**Chain of Custody Record**	Sampler Signature: A. Rivers
Project Code:	TEC-964A	Carrier Name:	FedEx	Relinquished By (Date/Time)	Received By (Date/Time)
Account Code:		Airbill:		1 RVogel 9/24/09 1530	
CERCLIS ID:		Shipped to:	Manchester Environmental Laboratory 7411 Beach Drive East Port Orchard WA 98366	2	
Spill ID:				3	
Site Name / City/State:	Biffle Property Vancouver, WA			4	
Project Leader:	Ann Rivers				
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP01SD	Sediment/ Ann Rivers	G	(21) TPH-Gx	09384427 (Ice Only) (1) N1 - N3	BP01SD	S: 09/24/2009 11:50	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:**	**Additional Sampler Signature (s):** A. Rivers	**Chain Of Custody Seal Number :**
Analysis Key: = TPH as Gasoline	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

COC Number : 10-4097213-092409-0005

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:
R

Region:	10	Date Shipped:	9/24/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8622 9488 1748	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	Manchester Environmental Laboratory 7411 Beach Drive East Port Orchard WA 98366	1 [illegible] 9/24/09 1530	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
BP06SB24	Subsurface Soil/ Andy Uhrig	G	(21) TPH-Gx	09384422 (Ice Only) (1) N1 - N3	BP06SB24	S: 09/23/2009 11:24	--
BP09SB08	Subsurface Soil/ Andy Uhrig	G	(21) TPH - Gx	09384426 (Ice Only) (1) N1 - N9	BP09SB08	S: 09/24/2009 12:10	--
DW01GW	Ground Water/ Bryan Ciecko	G	(21) TPH-Gx	09384412 (HCL) (1) A4 - A6	DW01GW	S: 09/23/2009 09:15	--
DW26GW	Ground Water/ Bryan Ciecko	G	(21) TPH - Dx TPH - Gx	09384414 (HCL), 09384414 (Ice Only) (2) N1 - N6 A7 - A15	DW26GW	S: 09/23/2009 10:55	--
TB02WT	Water/ Andy Uhrig	G	(21) TPH - Gx	09384425 (HCL) (1) A1 - A3	TB02WT	S: 09/24/2009 11:15	Trip Blank

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** BP09SB08, DW26GW	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

= TPH as Diesel, = TPH as Gasoline

COC Number : 10-4097213-092409-0004

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

5

FedEx Express US Airbill

FedEx Tracking Number 8622 9488 1748

1 From *Please print and press hard.*

Date 9/24/09 Sender's FedEx Account Number 2006-6560-0

Sender's Name RECEPTION Phone (206) 624-9537

Company ECOLOGY & ENVIRONMENT/GOVT

Address 720 3RD AVE STE 1700 Dept./Floor/Suite/Room

City SEATTLE State WA ZIP 98104-1816

2 Your Internal Billing Reference First 24 characters will appear on invoice. 002233.0471.01IA

3 To

Recipient's Name SAMPLE CUSTODIAN Phone (360) 871-0748

Company MANCHESTER LABORATORY

Recipient's Address 7411 BEACH DRIVE EAST Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City PORT ORCHARD State WA ZIP 98366

0367546612

Store your addresses at fedex.com
Simplify your shipping. Manage your account. Access all the tools you need.

SAC11

Form ID No. 0215 **Sender's Copy**

4a Express Package Service *Packages up to 150 lbs.*

- [X] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected
- [ ] FedEx Standard Overnight — Next business afternoon.* Saturday Delivery NOT available.
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations.* Saturday Delivery NOT available.
- [ ] FedEx 2Day — Second business day.* Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available.

FedEx Envelope rate not available. Minimum charge: One pound rate.

* To most locations.

4b Express Freight Service *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation:

** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [X] Other

* Declared value limit $500.

6 Special Handling Include FedEx address in Section 3.

- [ ] **SATURDAY Delivery** — NOT Available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] **HOLD Weekday** at FedEx Location — NOT Available for FedEx First Overnight.
- [ ] **HOLD Saturday** at FedEx Location — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods? One box must be checked.

- [X] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required.
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg
- [ ] Cargo Aircraft Only

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

8 Residential Delivery Signature Options If you require a signature, check Direct or Indirect.

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#8

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case: 39007
Client No:

R

Region:	10	Date Shipped:	9/23/2009	**Chain of Custody Record**	Sampler Signature:
Project Code:	TEC-964A	Carrier Name:	FedEx		
Account Code:		Airbill:	8622 9488 1520	Relinquished By (Date/Time)	Received By (Date/Time)
CERCLIS ID:		Shipped to:	Manchester Environmental Laboratory 7411 Beach Drive East Port Orchard WA 98366	1 R Norden 9/23/09 1530	
Spill ID:				2	
Site Name / City/State:	Biffle Property Vancouver, WA			3	
Project Leader:	Ann Rivers			4	
Action:	Integrated Assessment				
Sampling Co:	Ecology and Environment, Inc.				

SAMPLE No.	MATRIX/ SAMPLER	TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/Bottles	SAMPLING LOCATION	SAMPLE COLLECT DATE/TIME	QC Type
DW01GW	Ground Water/ Bryan Ciecko	G	(21)	09384412 (Ice Only) (1)	DW01GW	S: 09/23/2009 09:15	--
DW12GW	Ground Water/ Bryan Ciecko	G	(21)	09384408 (Ice Only) (1)	DW12GW	S: 09/22/2009 11:05	--

Shipment for Case Complete? N	**Sample (s) to be used for laboratory QC:** DW12GW	**Additional Sampler Signature (s):**	**Chain Of Custody Seal Number :**
Analysis Key:	**Concentration :** L = Low, M = Medium, H = High, L/M = Low/Medium	**Type/Designate :** Composite = C, Grab = G, Both = B	**Shipment Iced?**

= TPH as Diesel

COC Number : 10-4097213-092309-0003

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

2W

#8

FedEx Express *US Airbill*

FedEx Tracking Number 8622 9488 1520

SAC11

Form ID No. 0215

Sender's Copy

1 From *Please print and press hard*

Date 4/23/08 Sender's FedEx Account Number 2006-6560-0

Sender's Name RECEPTION Phone (206) 624-9537

Company ECOLOGY & ENVIRONMENT/GOVT

Address 720 3RD AVE STE 1700 Dept./Floor/Suite/Room

City SEATTLE State WA ZIP 98104-1816

2 Your Internal Billing Reference First 24 characters will appear on invoice. 002233. 0471.01IA

3 To

Recipient's Name SAMPLE CUSTODIAN Phone (360) 871-0748

Company MANCHESTER LABORATORY

Recipient's Address 7411 BEACH DRIVE EAST Dept./Floor/Suite/Room

We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address

To request a package be held at a specific FedEx location, print FedEx address here.

City PORT ORCHARD State WA ZIP 98366

0367546612

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4a Express Package Service *Packages up to 150 lbs.*

- [X] FedEx Priority Overnight — Next business morning.* Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected
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- [ ] FedEx Express Saver — Third business day.* Saturday Delivery NOT available

FedEx Envelope rate not available. Minimum charge: One-pound rate.

* To most locations.

4b Express Freight Service *Packages over 150 lbs.*

- [ ] FedEx 1Day Freight* — Next business day.** Friday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 2Day Freight — Second business day.** Thursday shipments will be delivered on Monday unless SATURDAY Delivery is selected.
- [ ] FedEx 3Day Freight — Third business day.** Saturday Delivery NOT available.

* Call for Confirmation;

** To most locations.

5 Packaging

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak.
- [ ] FedEx Box
- [ ] FedEx Tube
- [X] Other

* Declared value limit $500.

6 Special Handling Include FedEx address in Section 3.

- [ ] **SATURDAY Delivery** — NOT Available for FedEx Standard Overnight, FedEx First Overnight, FedEx Express Saver, or FedEx 3Day Freight.
- [ ] **HOLD Weekday at FedEx Location** — NOT Available for FedEx First Overnight.
- [ ] **HOLD Saturday at FedEx Location** — Available ONLY for FedEx Priority Overnight and FedEx 2Day to select locations.

Does this shipment contain dangerous goods? One box must be checked.

- [X] No
- [ ] Yes — As per attached Shipper's Declaration.
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous goods (including dry ice) cannot be shipped in FedEx packaging.

- [ ] Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

FedEx Acct. No. / Credit Card No. Exp. Date

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details. By using this Airbill you agree to the service conditions on the back of this Airbill and in the current FedEx Service Guide, including terms that limit our liability.

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- [ ] Indirect Signature — If no one is available at recipient's address, someone at a neighboring address may sign for delivery. Fee applies.

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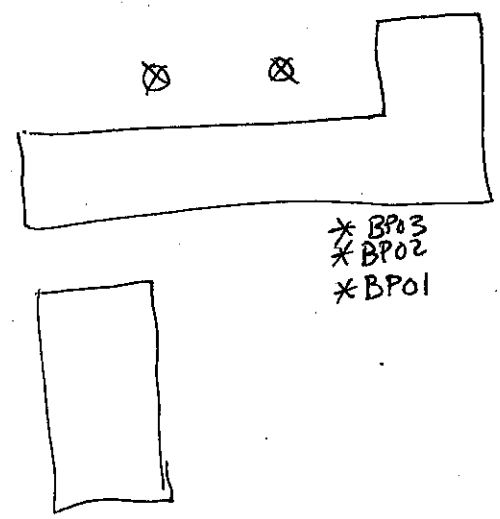
D Borehole Logs

ecology and environment, inc.
International Specialists in the Environment

Drilling Log for BP01

Project Name: Biffle Property
Site Location: Vancouver WA.
Date Started/Finished: 9-21-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): Geoprobe
Depth to Water: ~~N/A~~ 27.7
Total Depth of Borehole: 32.2 ft

Borehole Location Sketch



GPS Coordinates:

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
1000 1 2 3		1000		GM	Silty gravel, well graded, moist, dark brown to gray, no odor Lead = 25 ppm Chromium = <278 ppm Lead = <16 ppm Chromium = <265 ppm
4 5 6 7				GM	SAA Lead = <12 ppm, <14 ppm Chromium = <245 ppm, <268 ppm
8 9				GM	SAA Lead = <12 ppm Chromium = <231 ppm
10 11 12					Clayey Gravel, well graded angular, gravel with red brown clay & silt, moist, Red-brown to Black Lead = <13 ppm Chromium = <232 ppm

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
12	BP01SB16	1253		GC	Clayey gravel, with silty/clay (SAA) pocket of white precipitate at bottom of core, no odor, moist, red-brown
13					
14					
15					Lead = <8ppm Chromium = 207 ppm
16					
17				GC	
18					Light gray angular rock
19				GM	Silty gravel, well graded, angular, gray-brown some fines, moist, beige at top of bed. Lead = <12ppm Chromium = <233 ppm
20		1130			Silty gravel, well graded, angular, with sand and silt, wet at bottom of core, white salt present, brown-gray.
21					
22				GM	
23					Lead = <12 ppm Chromium = <182 ppm
24					SAA
25	BP01SB28	1255		GM	
26					
27					Lead = <11 ppm Chromium = <181 ppm
GW		~~1242~~			
28					TD = ~~28~~' Backfilled with granular bentonite + hydrated.
29	BP01GW	1350			GW Sample BP01GW at 1350 — 32' bgs TAL metals/Hexchrom preserved w/ pH 10 Buffer.
30					
31					DTW 27.7
32					

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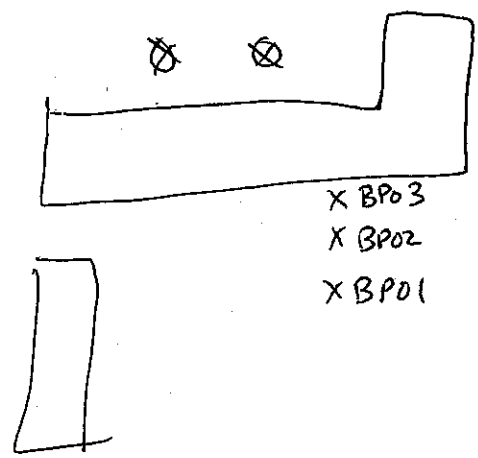
Drilling Log for BP02

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-21-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): Geoprobe
Depth to Water: N/A
Total Depth of Borehole: refusat at ~14ft

Borehole Location Sketch



GPS Coordinates:

Depth (feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
1509	BP02 SB04	15:15		SM	Sandy silt with gravel + organics, no odor, dry, Brown Lead = <1 ppm Chromium = <197 ppm
1–4					
4–8					Sandy silt with gravel, no odor, dry, red-brown Lead = <12 ppm Chromium = <198 ppm
8–12				GC	Clayey Gravel, well graded, angular black gravel with red-brown clay/silt, moist, red-brown to black. Lead = <13 ppm, <12 ppm Cr = <225 ppm <204 ppm
1530					

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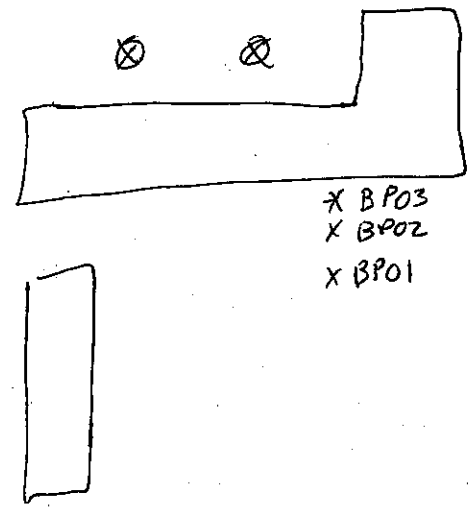
Drilling Log for BP03

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-22-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): Geoprobe
Depth to Water: N/A
Total Depth of Borehole: 12 ft, refusal

Borehole Location Sketch



GPS Coordinates:

Depth (feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
0720	BP03SB04	0730		GM	Silty gravel with sand, some organics, dry, no odor, gray brown. Pb = 31 ppm As = <12 ppm Cr = <184 ppm Cd = <72 ppm
4				GM / GC	SAA. Clayey gravel, with silt, iron oxide stains, some fine yellow/beige powder, rock fragments, moist, Red-brown, no odor. Cr = <208 ppm Pb = <11 ppm As = <10 ppm Cd = <79 ppm
0812	BP03SB12	0830		GC	Clayey gravel with silt, iron oxide staining, no odor, gray brown. Cr = <193 ppm As = <12 ppm Pb = 27 ppm Cd = <76 ppm

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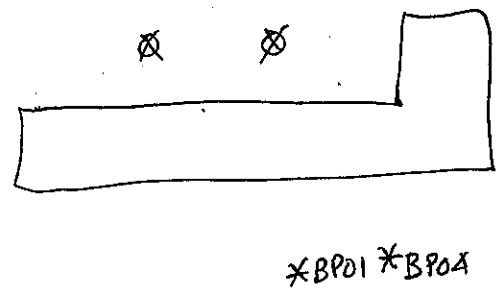
Drilling Log for BP04

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-22-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): Geoprobe
Depth to Water: 27.7 ft bgs
Total Depth of Borehole: 32 ft bgs

Borehole Location Sketch



GPS Coordinates:

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
0938					Silty gravel, with some sand, with organics, metallic horizon*, dry, dark brown-black, no odor.
1	BP04SB01	0940		GM	
2					* XRF at bottom of metallic horizon
3					Pb = 1333 ppm, As = 156 ppm, Cr = <177 ppm, Cd = <69 ppm. ND for these analytes in rest of core.
4					
5					Clayey gravel, moist, brown, no odor, some gray-white powder
6				GC	
7					Cr = <197, Cd = <79, As = <10, Pb = <11
0950 8					Clayey gravel, moist, red brown, no odor, iron oxide staining.
9				GC	
10					
11					Cr = <179 ppm, Pb = <10 ppm, As = <10 ppm, Cd = <74 ppm
12					

Depth (feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
12 13 14 15 1023	BP04SB16	1020	↓	GM	Silty gravel, angular gravel, graybrown, iron oxide staining, many light gray rock fragments Cr = <210 ppm Cd = <80 ppm As = <11 ppm Pb = <12 ppm.
16 17 18 19 1052	BP04SB20	1050	↓	GM	Silty gravel, subrounded, iron oxide staining moist, red-brown, few large rock fragments. Cr = <195 ppm Pb = <11 ppm As = <10 ppm Cd = <78 ppm
20 21 22 23 1150			↓	GM	Mostly rock fragments Silty gravel with sand, iron oxide staining, moist, wet at bottom ~2 inches, red-brown
24 25 26 27 1230			↓	GM	Clayey gravel, very moist, gray-brown, iron oxide staining, small angular rock fragments.
28 29 30 31 32	BP04GW	1345			DTW 27.7 ft. TD = 32 ft

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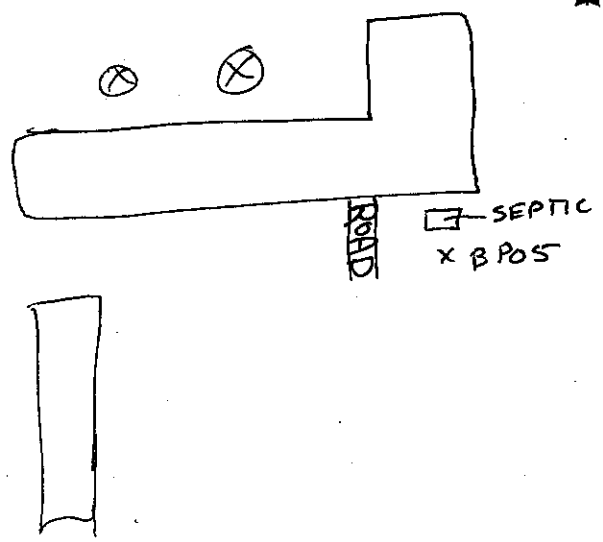
Drilling Log for BP05

Project Name: Biffle Property
Site Location: Vancouver WA
Date Started/Finished: 9-23
Driller's Name: Alan Jensen
Geologist's Name: Andy Ulbrig
Geologist's Signature:
Rig Type(s): Geoprobe
Depth to Water: N/A
Total Depth of Borehole: 20 ft

Borehole Location Sketch



GPS Coordinates:

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
0755 1 2 3					Silty gravel, rounded, some iron oxide staining, dry, gray-brown, no odor As = <11 Cr = <249 Pb = 21 Cd = <55
4 5 6 7 0805	BP05SB08	0805			Silty gravel, rounded, iron staining, some gray powdery staining, moist, red-brown, no odor.
8 9 10 11 0817 12					Silty gravel, iron oxide staing, some orange clays, brown to gray Caving in borehole may contain material from above. As = <15 Cr = <318 Pb = <10 Cd = <82

Depth (feet)	Sample Number	Sample Times	Core Recovery %	Soil Type	Comments
12 13 14 15 0850	BP05SB16	0850	↓		Clayey gravel, angular to subrounded, gray-brown, iron oxide staining, small black angular gravel (1/4-), cobble fragments, moist, – may be in leach field. As = <7 Cr = <161 ppm Pb = 16 Cd = <40 ppm.
16 17 18 19	BP05SB20	0930	↓		Clayey gravel, subrounded to angular gravel (1/4"–) and cobble fragments, gray brown, some beige staining, iron oxide staining moist, – may be in leach field. As = <10 Cr = <221 Pb = <14 Cd = <59 ☆ stopped due to difficulty removing drill rod and caving in of hole.
20 21 22 23					
24 25 26 27					
28 29 30 31 32					

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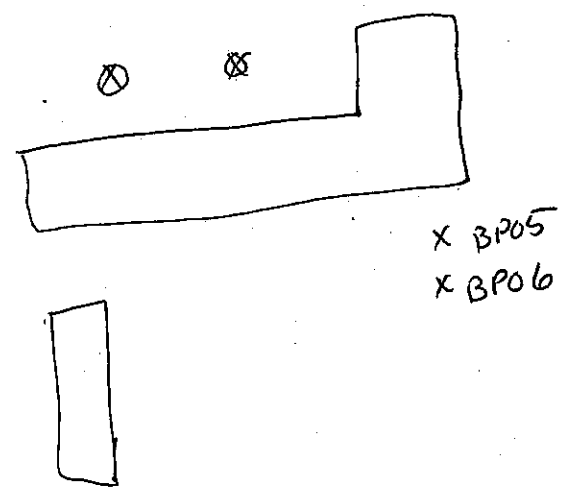
Drilling Log for BP06

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-23-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Ulwig
Geologist's Signature:
Rig Type(s): Geoprobe
Depth to Water:
Total Depth of Borehole: 24 feet

Borehole Location Sketch



GPS Coordinates:

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
1000					As = 14 Cr = <179 Pb = 32 Cd = <50
1	BP06SB04	1008		GP	Sandy gravel with iron oxide staining, lots of fine grained gray sand, Dark brown to gray, moist, rounded gravel.
2					
3					
4					~~Clayey-silty gravel, black clay-silt cementing gravel, subrounded, iron oxide staining, moist, no odor~~
5	BP06SB08	1018			SAA As = <15 Cr = <301 Pb = 23 Cd = <75
6				GM	Silty gravel with sand, red-brown, subrounded to angular, iron oxide staining, silt, cobble fragments, moist, no odor
7					
8					
1018					SAA
9					
10					As = <15 Cr = <291 Pb = <19 Cd = <81
11					
12					

Depth (feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
12					
13					SAA
14					Rocky-cobble fragments
					Yellow weathering, silty clay, moist
15				GM	Silty gravel, brown to black, iron oxide staining black angular gravel, some rounded-subrounded pebbles, moist, no odor.
1043 16					
17					SAA with cobble fragments, some yellow weathering
18					
19					As = <13 Cr = <376
1104 20					Pb = <19 Cd = <78
21					SAA
22	BP06SB24	1124			As <15 Cr <346 Cu <35
23					Pb <22 Cd <90
1124 24					
25					Drill Rod broke.
26					
27					
28					
29					
30					
31					
32					

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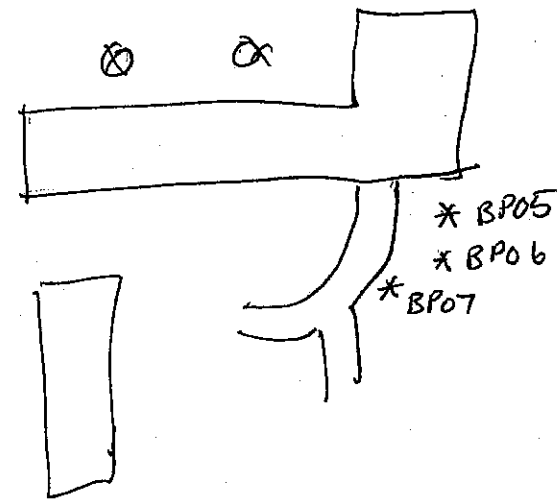
Drilling Log for BP07

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-23-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): geoprobe
Depth to Water: N/A
Total Depth of Borehole: 20 feet

Borehole Location Sketch



GPS Coordinates:

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
1335					Silty gravel with sand, rounded to subrounded moist, no odor
1	BP07SB04	1340		GM	
2					Pb= 10 ppm AS= <6 ppm
3					Cr= <14 ppm Cd= <33 ppm
4					SAA Pb=<14 ppm Cr= <219
5					As= <11 ppm Cd= <60
6				GP	Sandy Gravel with sandy, subrounded to angular, red-brown, iron oxide stains, cobble fragments, moist, no odor
7 1347					
8					
9	BP07SB12	1356			SAA
10					Pb= 17ppm Cr= 216.2
11					As= <8 Cd= <40
12					

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
12					SAA As = <7 Cr <163 Pb = 10 Pd <40
13					
14					Clayey gravel, brown silt with black angular gravels, some rounded cobble fragments, wet at bottom of core
15					
16					SAA, wet, more/larger cobble fragments Pb = 10 Cr = <159 As = <7 Cd = <40
17	BP075B20	1427			
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

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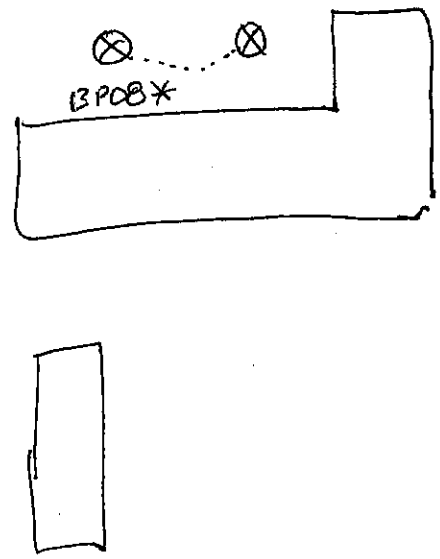
Drilling Log for BP08

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-24-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): Geoprobe
Depth to Water:
Total Depth of Borehole: 24 feet

Borehole Location Sketch



GPS Coordinates:

Depth (feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
0800					
1					Asphalt
2	BP08SB07			GC	Clayey gravel, very stiff, angular-subangular pebbles, rounded cobbles, moist, black-brown Pb <8, As <6, Cr <124, Cd 35
3				GM	Silty gravel, iron oxide staining, subrounded to angular gravel, red-brown Pb=14, As=<7, Cr=<170, Cd=<40
4					
5	BP08SB08	0820			SAA Pb= 14ppm As= <8 Cr= <167 Cd= <41 BA= 842
6					
7					photo Silty gravel, very weathered, some sand, orange, dry As=<6, Pb=<9, Cr=<172, Cd<39
8					
9					SAA
10				GM	Silty gravel, black angular gravel, lenses of orange weathered sandy silty gravel, same iron oxide stains + rounded cobbles, moist, gray-brown Pb=<9, <9 Cr=<157, <161 As=<7 <6 Cd=<40, <39
11					
0830 12					

Depth (feet)	Sample Numbers	Sample Times	Core Recovery	Soil Type	Comments
12					
13	BP08SB16	0905			SAA, but more moist Pb= <9, 12 ppm As= <7, <7 Cr= <145, <152 Cd= <39, <41
14					
15					
16					
17					SAA, wet with less interstitial material Pb= 9 ppm, 13 ppm As= <7, <7 Cr= <134, <148 Cd= <39, <41
18					
19					
20					
21	BP08SB24	0935			SAA Pb= <10, <9, <10 As= <7, <7, <7 Cr= <154, <160, <173 Cd= <41, <40, <40
22					
23					
24					Refusal at 24 ft.
25					
26					
27					
28					
29					
30					
31					
32					

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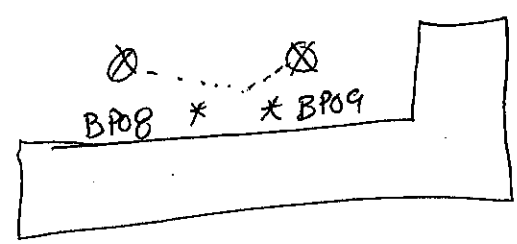
Drilling Log for BP09

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-24-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): Geoprobe
Depth to Water: 32.6 feet bgs
Total Depth of Borehole: core to 28 feet

Borehole Location Sketch



GPS Coordinates:

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
1				GC	Asphalt at surface Clayey gravel, angular to subrounded gravels, moist no odor, black to brown Pb = 12 ppm Cr = <136 As = <6 Cd = <35
2					~2" cobbles with some sand
3 1200				GM	Silty gravel, iron oxide staining, orange weathering, angular to subrounded gravels, some cobbles, red to brown Pb = <10 Cr = <186 As = <7 Cd = <40
4 5 6 7	BP09SB08	1210			SAA, including a lense of yellow weathering many cobbles MS/MSD soil Pb = <10 Cr = <181 As = <2 Cd = <43
8 9 10 11 1220 12					Silty gravel with some sand, iron oxide staining, black angular gravel, wet, red-brown no odor, few cobbles Pb = 33 ppm Cr = <152 As = <8 Cd = <38

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
12					SAA, wet
13	BP09SB16	1300			
14					Pb = 28 ppm Cr = <140 As = 11 ppm Cd = <36
15					
16					SAA, wet
17					
18					Pb = 14 ppm, <9 Cr = <168, <139 As = <7, 14 ppm Cd = <41, <39
19					
1330					
20					
21					SAA, wet, more cobbles within interstitial clay-silt between cobbles
22					Pb = <8, 10 ppm Cr = <133, 154 ppm As = <6, <6 Cd = <37, <35
23					
1341					
24					
25					SAA, wet
26					Pb = <9 Cr = <144 As = <6 Cd = <34
27					
1400					Sandy Gravel, wet Pb = <9 Cr = <138 As = <6 Cd = <38
28					
29					BP096W at 1520 from 34 feet bgs DTW 32.6 feet Boring to 36
30					
31					
32					

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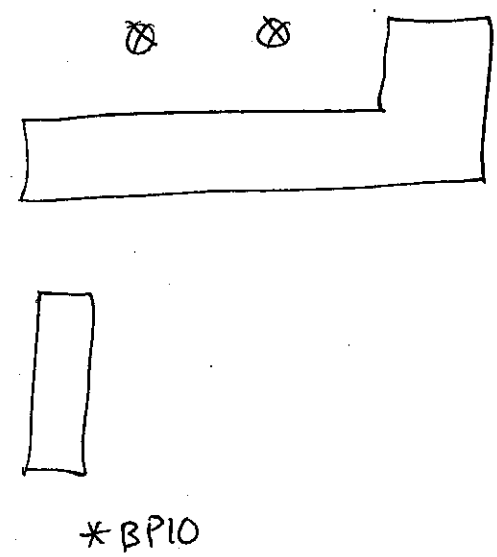
Drilling Log for BP10

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-25-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): geoprobe
Depth to Water: 24.75 ft bgs
Total Depth of Borehole: 24 feet of core
32 feet to bottom of core

Borehole Location Sketch



GPS Coordinates:

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
1					
2				SM	Silty Sand, dry to moist, brown, pebbles, organics, no odor, Pb= 29 ppm Cr= <133 As= <7 ppm Cd= <35
3				GC	Clayey Gravel, rounded to subangular gravel, moist, no odor, dark brown. Pb= <9 As= <7 Cr= <158 Cd= <39
0815 4					
5	BP10SB08	0820			SAA
6					
7				GP	Sandy Gravel, subrounded to sub angular, iron oxide staining, cobble fragments, Red-brown. Pb= 12 ppm As= <7 Cr= <166 Cd= <40
8					
9	BP10SB12	0825			SAA, with more fragments of cobbles Pb= 14 ppm As= <7 Cr= <155 Cd= <35
10					
11					
12					

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
12					
13	BP10SB16				SAA
14		0840		GM	Silty gravel, black angular gravels, iron oxide staining, cobble fragments, moist, Red-brown to black Pb= <10, 12 ppm Cr= <178, <161 As= <7, <7 Cd= <44, <40
15					
16					
17	BP10SB20	0855			SAA
18					Pb= <10 As= <7 Cr= <157 Cd= <41
19					
20					
21					Pb= <9 As= <6 Cr= <149 Cd= <39
22					
23					cobble fragments
0930					silty Gravels with sand, Brown, wet rounded to subrounded,
24					
25					BP 10GW at 10:20
26					
27					
28					
29					
30					
31					
32					

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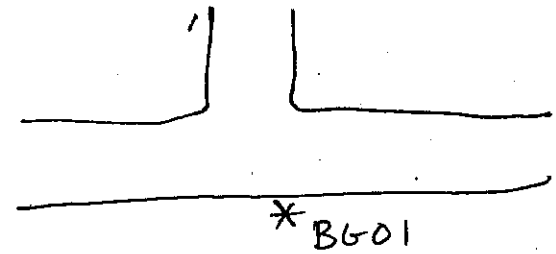
Drilling Log for BP11 (BG01)

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-25-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): Geo probe
Depth to Water: N/A
Total Depth of Borehole: 16 feet

Borehole Location Sketch

off site
Background location



GPS Coordinates:

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
1–4	BG01SB04	1245	↓	GM	Silty gravel, rounded to subrounded, iron oxide staining, dry, no odor, Brown-gray, some sand Pb= 12 ppm Cr= <158 As= <7 Cd= <38
5–8	BG01SB08	1254	↓		SAA Pb= 14 ppm Cr= <177 As= <8 Cd= <42
9–12	BG01SB12	1313	↓		SAA Pb= 15 ppm Cr= <174 As= <7 Cd= <40
				GM	Silty gravel, Black angular to sub angular, fractured cobbles, dry, black to gray, iron oxide staining, Pb= <10 Cr= <164 As= <7 Cd= <41
	1330	Refusal at 12 ft move 2 ft. 1340 refusal at 4 ft.			

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
12					SAA
13	B6015B16	1407			Pb= 12 ppm Cr= < 16 ppm
14					As= < 7 ppm Cd= < 39
15					
16		1430 Refusal			Third attempt. drilled straight to 16 ft. hit refusal.
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

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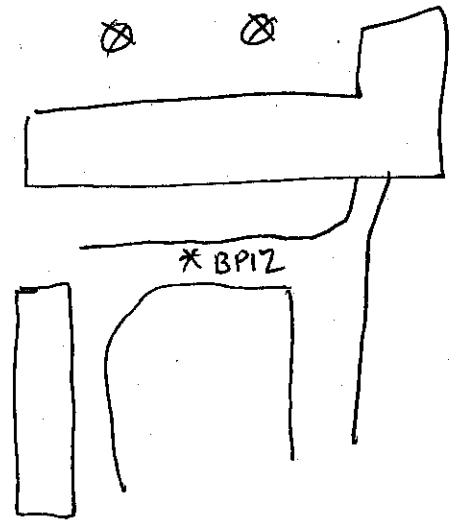
Drilling Log for BP 12

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-25-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): Geoprobe
Depth to Water:
Total Depth of Borehole: core to 12 ft
32 feet to TD of boring + screen

Borehole Location Sketch



GPS Coordinates:

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
1555					
1	BP12SB04	1600		GM	Silty gravel, some sand, fractured cobbles, iron oxide stains, rounded to subrounded, dry, red-brown.
2					Pb = 10 ppm
3					As = < 7 Cr = < 163 Cd = < 40
4					
5					SAA, moist Pb = < 9 Cr = < 147 As = < 7 Cd = < 38
6					
7				GM	Silty gravel
1660 8					
9	BP12SB12	1420			SAA, moist
10					Pb = 16 ppm Cr = < 150 As = < 7 Cd = < 29
11					
12	BP12GW	1800			Ground water Sample

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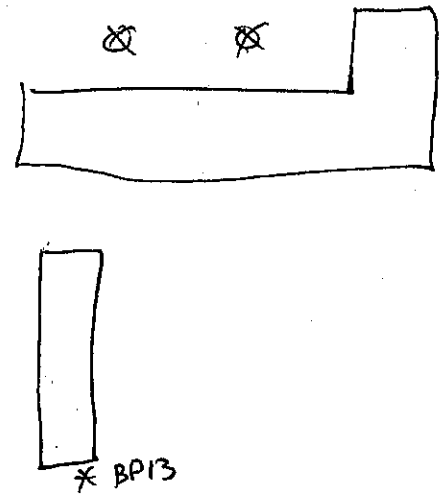
Drilling Log for BP13

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-26-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): Geo probe
Depth to Water: N/A
Total Depth of Borehole: 20 feet bgs

Borehole Location Sketch



GPS Coordinates:

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
0825 1 2 3 0830				GM	Silty gravel, with sand, round to sub ~~rounded~~ angular, iron oxide staining, organics, moist, red-brown. Pb= 9 ppm As= 7 ppm Cr= <146 Cd= <36
4 5 6 7	BP13 SB08	0836			SAA Pb= 13 ppm As= <7 Cr= <171 Cd= <40
8 9 10 11 12	BP13 SB12	0843		GM	SAA. Silty Gravel, rounded to subrounded gravel, + small angular black gravel, fragments of cobbles, some sand, moist, gray-brown. Pb= 10 ppm As= <7 Cr= <172 Cd= <61

Depth (Feet)	Sample Number	Sample Time	Core Recovery	Soil Type	Comments
12					
13					SAA, moist Pb= 10 ppm Cr= <158 As= <7 Cd= <41
14					
15					lense of orange weathered soil, SAA, moist
16	0854				SAA, moist, Pb= 12 ppm Cr= <156 As= <7 ppm. Cd= <38
17	BPB5B20	0915			SAA, iron oxide staining, moist
18					Pb= <9 ppm Cr= <169 As= <7 Cd= <40
19					
20					Refusal at 20 feet
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					

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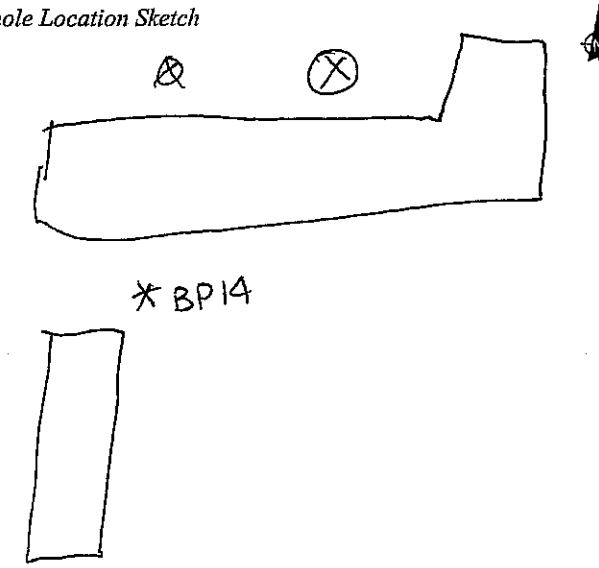
Drilling Log for BP14

Project Name: Biffle Property
Site Location: Vancouver, WA
Date Started/Finished: 9-26-09
Driller's Name: Alan Jensen
Geologist's Name: Andy Uhrig
Geologist's Signature:
Rig Type(s): Geoprobe
Depth to Water: 28.4 feet
Total Depth of Borehole: 32 feet bottom, screen

Borehole Location Sketch



GPS Coordinates:

Depth (Feet)	Sample Number	Sample Times	Core Recovery	Soil Type	Comments
		0928			No Soil Sample drill to groundwater 1000- Rod Bent screen broke. 1028- 2nd Attempt drilled to 32 feet bgs. Sample BP14GW @ 10:30
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

E

Global Positioning System Coordinates

MEMORANDUM

DATE: March, 2010

TO: Matt Gubitosa, GIS Analyst, EPA, Region 10, Seattle, WA, OEA-095

FROM: Josh Hancock, START-3 Project Manager, E & E, Seattle, WA

SUBJ: Global Positioning System (GPS) Data
Biffle Property Site
Vancouver, Washington

REF: Contract No. EP-S7-06-02
Technical Direction Document No. 09-07-0007

cc: Linda Costello, START-3 Project Leader, E & E, Seattle

Enclosed is a data disk containing the GPS data for samples collected during the Biffle Property Integrated Assessment, as well as a copy of the GPS data table. Two files are included: an ARC Info export file containing all sample locations and GPS attributes and an EXCEL format table containing all sample locations and GPS attributes.

If you have any questions regarding this deliverable. Please contact me at (206) 624-9537.

Table D-1 Global Positioning System Information - Biffle Property Integrated Assessment

Sample Location	Location Description	Sample Date	Latitude	Longitude
BG01SB	Background: intersection at NE 72nd Street and NE 135th Ave	9/25/2009	45.675182	-122.533411
BP01SB	Onsite, SW of garage door on south side of storage units, in road.	9/21/2009	45.672919	-122.533004
BP02SB	Onsite, SW of garage door on south side of storage units.	9/21/2009	45.672976	-122.532984
BP03SB	Onsite, SW of garage door on south side of storage units.	9/22/2009	45.673029	-122.532966
BP04SB	Onsite, south of garage door on south side of storage units, in road near BP01.	9/22/2009	45.672939	-122.532931
BP05SB	Onsite, SE of garage door on south side of storage units.	9/23/2009	45.672988	-122.532755
BP06SB	Onsite, SE of garage door on south side of storage units, south of BP05.	9/23/2009	45.672930	-122.532756
BP07SB	Onsite, SE of garage door on south side of storage units, edge of road and bottom of slope.	9/23/2009	45.672932	-122.532839
BP08SB	Onsite, north of storage units and west of sump.	9/24/2009	45.673286	-122.533143
BP09SB	Onsite, north of storage units, east of sump.	9/24/2009	45.673295	-122.533069
BP10SB	Onsite, SW corner of site and east of former septic tank.	9/26/2009	45.672301	-122.533457
BP12SB	Onsite, south of storage units, center of road.	9/25/2009	45.672929	-122.533193
BP13SB	Onsite, SW corner of site and immediately south of office.	9/26/2009	45.672395	-122.533508
BP14SB	Onsite, south of storage units, west end of road.	9/26/2009	45.672947	-122.533451
DW01GW	6816 NE 131 Ave	9/23/2009	45.673255	-122.542866
DW03GW	13411 NE Fourth Plain Blvd	9/22/2009	45.671254	-122.534247
DW11GW	7305 NE 131 Ave	9/22/2009	45.675962	-122.537714
DW12GW	6109 NE 127th ave	9/12/2009	45.667226	-122.541274
DW17GW	6100 NE 131 ave	9/23/2009	45.66695	-122.538992
DW26GW	Background: 9020 NE Ward road	9/23/2009	45.688986	-122.500156
DW35GW	13807 NE 45th	9/23/2009	45.653856	-122.530347
SD01	East storm drain, north of storage units.	9/24/2009	45.673324	-122.532989
SD02	West storm drain, north of storage units.	9/24/2009	45.673322	-122.533306

F Data Validation Memoranda

ecology and environment, inc.
International Specialists in the Environment
Pacific Building, 720 Third Avenue, Suite 1700, Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: November 19, 2009

TO: Josh Hancock, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Summary Check,**
Biffle Property Site, Vancouver, Washington

REF: TDD: 09-07-0007 PAN: 002233.0471.01IA

The data summary check of 28 samples collected from the Biffle Property site in Vancouver, Washington, has been completed. Total petroleum hydrocarbon-diesel range (TPH-Dx) analyses were performed at the Manchester Environmental Laboratory, Port Orchard, Washington.

The samples were numbered:

09384408	09384409	09384410	09384411	09384412	09384414	09384415
09384416	09384426	09384427	09384433	09384434	09384435	09384436
09384437	09384439	09384440	09384441	09384443	09384445	09384452
09384453	09384454					

No discrepancies were noted.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

MEMORANDUM

SUBJECT:	Data Release for Total Petroleum Hydrocarbon - Diesel Range Extended Analysis Results from the USEPA Region 10 Laboratory
PROJECT NAME:	Biffle Property, Vancouver, WA
PROJECT CODE:	TEC-964A
FROM:	Gerald Dodo, Chemistry Supervisor Office of Environmental Assessment, USEPA Region 10 Laboratory
TO:	Monica Tonel, SAM Office of Environmental Cleanup, USEPA Region 10 Jeff Fowlow, OSC Office of Environmental Cleanup, USEPA Region 10
CC:	Linda Costello, E&E Ann Rivers, E&E

I have authorized release of this data package. Attached you will find the Total Petroleum Hydrocarbon-Diesel Range Extended (TPH-Dx) results for the Biffle Property project for the soil and water samples collected 09/22/09 to 09/26/09. For further information regarding the attached data, contact Chris Pace at 360-871-8703.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

QUALITY ASSURANCE MEMORANDUM FOR ORGANIC CHEMICAL ANALYSES

Date: October 30, 2009

To: Monica Tonel, SAM
Office of Environmental Cleanup, USEPA Region 10

Jeff Fowlow, OSC
Office of Environmental Cleanup, USEPA Region 10

From: Chris Pace, Chemist
Office of Environmental Assessment, USEPA Region 10 Laboratory

Subject: Quality Assurance Review for the Total Petroleum Hydrocarbon - Diesel Range Extended Analysis of Samples from the Biffle Property Project

Project Code: TEC-964A
Account Code: 10T10P302DD2C10ZZLA00

CC: Linda Costello, E&E
Ann Rivers, E&E

The following is a quality assurance review of the data for total petroleum hydrocarbon - diesel range extended (TPH-Dx) analysis samples from the above referenced site. The preparation and analyses were performed by the EPA Region 10 Laboratory ESAT contractor using modified EPA SW846 methods 3535, 3541 and Washington State Department of Ecology Method NWTPH-Dx.

This review was conducted for the following samples:

Soil

09384426	09384427	09384433	09384437	09384440	09384443
09384445					

Water

09384408	09384409	09384410	09384411	09384412	09384414
09384415	09384416	09384434	09384435	09384436	09384439
09384441	09384452	09384453	09384454		

1. Data Qualifications

Comments below refer to the quality control specifications outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). No excursions were required from the method Standard Operating Procedure.

All measures of quality control met Laboratory/QAPP criteria.

For those tests for which the EPA Region 10 Laboratory has been accredited by the National Environmental Laboratory Accreditation Conference (NELAC), all requirements of the current NELAC Standard have been met.

2. Sample Transport and Receipt

Upon sample receipt, no conditions were noted that would impact data quality.

3. Sample Holding Times

The concentration of an analyte in a sample or extract of a sample may increase or decrease over time depending on the nature of the analyte. The holding time maximum criteria applied for the extraction of soil samples is 14 days from the time of collection. The holding time maximum criteria applied for the extraction of acidified water samples is 14 days from the time of collection. Extracts have a holding time maximum of 40 days from the time of preparation. All samples were extracted and analyzed within these criteria.

4. Sample Preparation

Samples were prepared according to the method.

5. Initial Calibration/Continuing Calibration Verification (CCV)

Initial calibration was performed on 07/30/09 for #2 diesel and motor oil. Percent relative standard deviations (RSDs) of the calibration factors met the criteria of $\leq$20% or the correlation coefficients met the criteria of $\geq$0.99.

The CCV met the criteria for frequency of analysis and relative retention time (RRT) windows. The percent accuracies met the criteria of 85-115%.

6. LCS/LCSD

Data for laboratory control sample/laboratory control sample duplicates (LCS/LCSD) are generated to provide information on the accuracy and precision of the analytical method and the laboratory performance. The LCS/LCSD recoveries were within the criteria of 50-150% with a relative percent difference (RPD) of $\leq$50.

7. Blank Analysis

Method blanks were prepared and analyzed with each sample extraction batch to evaluate the potential for laboratory contamination and effects on the sample results. Target analytes were not detected in the blanks.

8. Surrogate Spikes

Surrogate recoveries are used to help in the evaluation of laboratory performance on individual samples. The surrogate recoveries met the criteria of 50-150%.

9. Duplicate Sample Analysis

Duplicate sample analyses are performed to provide information on the precision, in the matrix of interest, of the analytical method. Duplicate analyses were performed using samples 09384426, 09384408 and 09384414. All results which were above 5 times the reporting limit met the relative percent difference (RPD) criteria of $\leq$20.

10. Compound Identification/Quantitation

The initial calibration functions were used for calculations. Reported quantitation limits were based on the initial calibration standards and sample size used for the analysis.

Samples 09384427 and 09384437 had to be diluted prior to analysis. Surrogate recoveries could not be determined due to the dilution. The reporting limits for the non-detected diesel range organics was elevated due to the dilution. None of the data required qualification on this basis.

Diesel range organics is a collective term for petroleum products that generally elute before motor oil but after gasoline from the gas chromatograph.

Sample 09384434 had detected diesel range organics with chromatograms that represented unknown organic compounds.

Motor oil range organics is a collective term for any petroleum product that chromatographically consists primarily of an unresolved envelope of compounds generally eluting after #2 diesel. Included in the definition are hydraulic fluids, motor oils, lubricating oils, cutting oils, mineral oils, transmission fluids, etc.

Samples 09384426, 09384427 and 09384437 had detected motor oil range organics with chromatograms similar to the motor oil standards used for calibration.

11. Data Qualifiers

All requirements for data qualifiers from the preceding sections were accumulated. Each sample data summary sheet and each compound was checked for positive or negative results. From this, the overall need for data qualifiers for each analysis was determined. In cases where more than one of the preceding sections required data qualifiers, the most restrictive qualifier has been added to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier in light of the project's data quality objectives. Should questions arise regarding the data, contact Chris Pace at the Region 10 Laboratory, phone number (360) 871 - 8703.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable. No value is reported with this qualification.
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. No value is reported with this qualification.

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/22/09	**11:05:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384408	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW12GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Wet Weight — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.094	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.47	mg/L	U
Surrogate(s :	629992	Pentacosane	99	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	09384408
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Duplicate
Station Description:			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N2
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.094	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.19	mg/L	U
Surrogate(s :	629992	Pentacosane	101	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/22/09	**13:13:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384409	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW03GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Wet Weight — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.098	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	100	%Rec	

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/22/09	**13:45:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384410	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP04GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Wet Weight — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.098	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	89	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/22/09	**14:17:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384411	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW11GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Wet Weight — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.098	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	107	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/23/09	**9:15:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384412	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW01GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Wet Weight — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.093	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.19	mg/L	U
Surrogate(s :	629992	Pentacosane	102	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/23/09	**10:55:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384414	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW26GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Wet Weight — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.093	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.19	mg/L	U
Surrogate(s :	629992	Pentacosane	102	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	09384414
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Duplicate
Station Description:			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N2
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.094	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.19	mg/L	U
Surrogate(s :	629992	Pentacosane	104	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/23/09	**12:32:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384415	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW17GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.10	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	101	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/23/09	**14:43:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384416	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW35GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.093	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.19	mg/L	U
Surrogate(s :	629992	Pentacosane	97	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**12:10:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384426	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP09SB08			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N10
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/9/2009
Prep Method : 3541 Automated soxhlet extraction — Prep Date : 10/5/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	4.2	mg/kg	U
	***400010**	**TPH-GC/Motor Oil Range Organic s**	**53**	**mg/kg**	
Surrogate(s :	629992	Pentacosane	117	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	09384426
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Duplicate
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Tot Petroleum Hyd, Diesel extended				Container ID : N10
Method	: NWTPH-DX	Diesel range organics			Analysis Date : 10/9/2009
Prep Method	: 3541	Automated soxhlet extraction			Prep Date : 10/5/2009
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	4.2	mg/kg	U
	***400010**	**TPH-GC/Motor Oil Range Organic s**	**63**	**mg/kg**	
Surrogate(s :	629992	Pentacosane	115	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**11:50:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384427	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP01SD			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/9/2009
Prep Method : 3541 Automated soxhlet extraction — Prep Date : 10/5/2009

			Result	Units	Qlfr
Analytes(s):	629992	Pentacosane			NA
	*400009	TPH-GC/Diesel Range Organics	150	mg/kg	U
	***400010**	**TPH-GC/Motor Oil Range Organic s**	**8300**	**mg/kg**	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**13:00:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384433	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP09SB16			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N4
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/9/2009
Prep Method : 3541 Automated soxhlet extraction — Prep Date : 10/5/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	4.0	mg/kg	U
	*400010	TPH-GC/Motor Oil Range Organic s	7.9	mg/kg	U
Surrogate(s :	629992	Pentacosane	103	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**14:00:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384434	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP01SW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	***400009**	**TPH-GC/Diesel Range Organics**	**1.2**	**mg/L**	
	*400010	TPH-GC/Motor Oil Range Organic s	0.19	mg/L	U
Surrogate(s :	629992	Pentacosane	86	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**15:20:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384435	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP09SW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.10	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	87	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**16:45:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384436	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP02SW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.096	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.19	mg/L	U
Surrogate(s :	629992	Pentacosane	90	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**17:00:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384437	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP02SD			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/9/2009
Prep Method : 3541 Automated soxhlet extraction — Prep Date : 10/5/2009

			Result	Units	Qlfr
Analytes(s):	629992	Pentacosane			NA
	*400009	TPH-GC/Diesel Range Organics	500	mg/kg	U
	***400010**	**TPH-GC/Motor Oil Range Organic s**	**11000**	**mg/kg**	

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/25/09	**10:20:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384439	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP10SW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/6/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.096	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.19	mg/L	U
Surrogate(s :	629992	Pentacosane	93	%Rec	

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/22/09	**10:20:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384440	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP04SB16			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N4
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/9/2009
Prep Method : 3541 Automated soxhlet extraction — Prep Date : 10/5/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	4.3	mg/kg	U
	*400010	TPH-GC/Motor Oil Range Organic s	8.5	mg/kg	U
Surrogate(s :	629992	Pentacosane	116	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/25/09	**18:00:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384441	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP12GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/6/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date :

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.10	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	86	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/25/09	**12:54:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384443	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BG01SB08			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/9/2009
Prep Method : 3541 Automated soxhlet extraction — Prep Date : 10/5/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	3.9	mg/kg	U
	*400010	TPH-GC/Motor Oil Range Organic s	7.9	mg/kg	U
Surrogate(s :	629992	Pentacosane	111	%Rec	

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/25/09	**14:07:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384445	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BG01SB16			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/9/2009
Prep Method : 3541 Automated soxhlet extraction — Prep Date : 10/5/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	4.0	mg/kg	U
	*400010	TPH-GC/Motor Oil Range Organic s	8.0	mg/kg	U
Surrogate(s :	629992	Pentacosane	107	%Rec	

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/26/09	**10:30:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384452	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP14GW			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/6/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date :

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.096	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.19	mg/L	U
Surrogate(s :	629992	Pentacosane	87	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/26/09	**12:45:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384453	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	ID01WT			

			Result	**Units**	**Qlfr**

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/6/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date :

Analytes(s):	***400009**	**TPH-GC/Diesel Range Organics**	**1.5**	**mg/L**
	***400010**	**TPH-GC/Motor Oil Range Organic s**	**2.9**	**mg/L**
Surrogate(s :	629992	Pentacosane	88	%Rec

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/26/09	**0:00:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384454	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	RS01WT			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID : N1
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/6/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date :

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.093	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.19	mg/L	U
Surrogate(s :	629992	Pentacosane	112	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	LCS9272C
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCS
Station Description:			

	Result	Units	Qlfr

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

Surrogate(s :	629992	Pentacosane	108	%Rec
	*400009	TPH-GC/Diesel Range Organics	65	%Rec

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	LCS9272D
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCSD
Station Description:			

			Result	Units	Qlfr

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

Surrogate(s :	629992	Pentacosane	92	%Rec
	*400009	TPH-GC/Diesel Range Organics	64	%Rec

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	LCS9275A
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCS
Station Description:			

	Result	Units	Qlfr

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/6/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date :

Surrogate(s :	629992	Pentacosane	108	%Rec
	*400009	TPH-GC/Diesel Range Organics	91	%Rec

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	LCS9275B
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCSD
Station Description:			

	Result	Units	Qlfr

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/6/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date :

Surrogate(s :	629992	Pentacosane	107	%Rec
	*400009	TPH-GC/Diesel Range Organics	96	%Rec

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	LCS9278A
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCS
Station Description:			

	Result	Units	Qlfr

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/9/2009
Prep Method : 3541 Automated soxhlet extraction — Prep Date : 10/5/2009

Surrogate(s :	629992	Pentacosane	110	%Rec
	*400009	TPH-GC/Diesel Range Organics	102	%Rec

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	LCS9278B
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCSD
Station Description:			

	Result	Units	Qlfr

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/9/2009
Prep Method : 3541 Automated soxhlet extraction — Prep Date : 10/5/2009

Surrogate(s :	629992	Pentacosane	106	%Rec
	*400009	TPH-GC/Diesel Range Organics	90	%Rec

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	OBS9278A1
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/9/2009
Prep Method : 3541 Automated soxhlet extraction — Prep Date : 10/5/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	4.0	mg/kg	U
	*400010	TPH-GC/Motor Oil Range Organic s	8.0	mg/kg	U
Surrogate(s :	629992	Pentacosane	106	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	OBW9272A1
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.10	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	97	%Rec	

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	OBW9272A2
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/5/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date : 10/2/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.10	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	102	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	OBW9275A1
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/6/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date :

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.10	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	100	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	OBW9275A2
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/6/2009
Prep Method : 3535A Solid Phase Extraction — Prep Date :

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	0.10	mg/L	U
	*400010	TPH-GC/Motor Oil Range Organic s	0.20	mg/L	U
Surrogate(s :	629992	Pentacosane	102	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	OBW9278A2
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

ORG

Parameter : Tot Petroleum Hyd, Diesel extended — Container ID :
Method : NWTPH-DX Diesel range organics — Analysis Date : 10/9/2009
Prep Method : 3541 Automated soxhlet extraction — Prep Date : 10/5/2009

			Result	Units	Qlfr
Analytes(s):	*400009	TPH-GC/Diesel Range Organics	4.0	mg/kg	U
	*400010	TPH-GC/Motor Oil Range Organic s	8.0	mg/kg	U
Surrogate(s :	629992	Pentacosane	91	%Rec	

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: November 10, 2009

TO: Josh Hancock, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Summary Check,**
Biffle Property Site, Vancouver, Washington

REF: TDD: 09-07-0007 PAN: 002233.0471.01IA

The data summary check of 28 samples collected from the Biffle Property site in Vancouver, Washington, has been completed. Total petroleum hydrocarbon-gasoline range (TPH-Gx) analyses were performed at the Manchester Environmental Laboratory, Port Orchard, Washington.

The samples were numbered:

09384407	09384408	09384409	09384410	09384411	09384412	09384413
09384414	09384415	09384416	09384422	09384425	09384426	09384427
09384433	09384434	09384435	09384436	09384437	09384438	09384439
09384441	09384443	09384445	09384452	09384453	09384454	09384455

No discrepancies were noted.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

MEMORANDUM

SUBJECT:	Data Release for Total Petroleum Hydrocarbon - Gasoline Range Analysis Results from the USEPA Region 10 Laboratory
PROJECT NAME:	Biffle Property, Vancouver, WA
PROJECT CODE:	TEC-964A
FROM:	Gerald Dodo, Chemistry Supervisor Office of Environmental Assessment, USEPA Region 10 Laboratory
TO:	Monica Tonel, SAM Office of Environmental Cleanup, USEPA Region 10 Jeff Fowlow, OSC Office of Environmental Cleanup, USEPA Region 10
CC:	Linda Costello, E&E Ann Rivers, E&E

I have authorized release of this data package. Attached you will find the Total Petroleum Hydrocarbon-Gasoline Range (TPH-Gx) results for the Biffle Property project for the soil and water samples collected 09/22/09 to 09/26/09. This is the last of the data associated with this project. For further information regarding the attached data, contact Chris Pace at 360-871-8703.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

QUALITY ASSURANCE MEMORANDUM FOR ORGANIC CHEMICAL ANALYSES

Date: October 28, 2009

To: Monica Tonel, SAM
Office of Environmental Cleanup, USEPA Region 10

Jeff Fowlow, OSC
Office of Environmental Cleanup, USEPA Region 10

From: Chris Pace, Chemist
Office of Environmental Assessment, USEPA Region 10 Laboratory

Subject: Quality Assurance Review for the Total Petroleum Hydrocarbon-Gasoline Range Extended Analysis of Samples from the Biffle Property Project

Project Code: TEC-964A
Account Code: 10T10P302DD2C10ZZLA00

CC: Linda Costello, E&E
Ann Rivers, E&E

The following is a quality assurance review of the data for total petroleum hydrocarbon - gasoline range extended (TPH-Gx) analysis of soil and water samples from the above referenced site. The analyses were performed by the EPA Region 10 Laboratory ESAT contractor using Washington State Department of Ecology Method NWTPH-Gx (GC/MS).

This review was conducted for the following samples:

Soil

09384407	09384422	09384426	09384427	09384433	09384437
09384443	09384445				

Water

09384408	09384409	09384410	09384411	09384412	09384413
09384414	09384415	09384416	09384425	09384434	09384435
09384436	09384438	09384439	09384441	09384452	09384453
09384454	09384455				

1. Data Qualifications

Comments below refer to the quality control specifications outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). No excursions were required from the method Standard Operating Procedure.

All measures of quality control met Laboratory/QAPP criteria.

The Region 10 Laboratory's Quality System has been accredited to the standards of the National Environmental Laboratory Accreditation Conference (NELAC).

2. Sample Transport and Receipt

Upon sample receipt, no conditions were noted that would impact data quality.

3. Sample Holding Times

The concentration of an analyte in a sample or extract of a sample may increase or decrease over time depending on the nature of the analyte. The holding time maximum criteria applied for the analysis of soils and preserved water samples is 14 days from the time of collection. All samples were analyzed within these criteria.

4. Sample Preparation

Samples were prepared according to the method.

5. Initial Calibration/Continuing Calibration Verification (CCV)

Initial calibration was performed on 09/04/09 for TPH-Gx (unleaded gasoline composite) and the surrogate, 1,4-difluorobenzene. Percent relative standard deviations (%RSDs) of the RRFs met the criteria of ≤20%.

The CCVs met the criteria for frequency of analysis and the percent accuracies of 80-120% of the true value for TPH-Gx.

6. Blank Analysis

Method blanks were analyzed with each analytical sequence to evaluate the potential for laboratory contamination and effects on the sample results. TPH-Gx was not detected in the blanks.

7. Surrogate Spikes

Surrogate recoveries are used to help in the evaluation of laboratory performance on individual samples. All surrogate recoveries for the samples were within the criteria of 50-150%.

8. LCS/LCSD

Data for laboratory control sample/laboratory control sample duplicates (LCS/LCSD) are generated to provide information on the accuracy and precision of the analytical method and the laboratory performance. The LCS/LCSD recoveries were within the criteria of 50-150% with a relative percent difference (RPD) of ≤50.

9. Matrix Spike/Matrix Spike Duplicate Analysis (MS/MSD)

MS/MSD analyses are performed to provide information on the effects of sample matrices toward the analytical method. MS/MSD analyses was performed using samples 09384408(S1/S2), 09384414(S1/S2) and 09384426(S1/S2). The recoveries of TPH-Gx met the criteria of 50-150% with a RPD of ≤50.

10. Compound Quantitation

The initial calibration functions were used for calculations. Reported quantitation limits were based on the initial calibration standards and sample size used for the analysis.

All manual integrations have been reviewed and found to comply with acceptable integration practices.

11. Identification

TPH-Gx range organics were detected above the reporting limit in the samples discussed below. None of the chromatograms resembled the TPH-Gx (unleaded gasoline composite) standards used for quantitation.

Samples 09384427, 09384434, 09384436 and 09384437 all contained the tentatively identified compound, toluene as a major component. Sample 09384437 contained a second unknown organic compound as a major component. If VOA results are available for these samples, identification and quantitation can be obtained.

12. Data Qualifiers

All requirements for data qualifiers from the preceding sections were accumulated. Each sample data summary sheet and each compound was checked for positive or negative results. From this, the overall need for data qualifiers for each analysis was determined. In cases where more than one of the preceding sections required data qualifiers, the most restrictive qualifier has been added to the data.

The usefulness of qualified data should be treated according to the severity of the qualifier in light of the project's data quality objectives. Should questions arise regarding the data, contact Chris Pace at the Region 10 Laboratory, phone number (360) 871 - 8703.

Qualifier	Definition
U	The analyte was not detected at or above the reported value.
J	The identification of the analyte is acceptable; the reported value is an estimate.
UJ	The analyte was not detected at or above the reported value. The reported value is an estimate.
R	The presence or absence of the analyte can not be determined from the data due to severe quality control problems. The data are rejected and considered unusable. No value is reported with this qualification.
NA	Not Applicable, the parameter was not analyzed for, or there is no analytical result for this parameter. No value is reported with this qualification.

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/22/09	**10:50:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384407	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP04SB20			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : N1
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/5/2009
Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	5.2	mg/kg	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	104	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/22/09	**11:05:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384408	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW12GW			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A7
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/1/2009
Prep Method : 5030 Purge and Trap — Prep Date :

		Result	Units	Qlfr
Analytes(s): 8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	99	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	09384408
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Matrix Spike
Station Description:			

			Result	Units	Qlfr

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A8
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/2/2009
Prep Method : 5030 Purge and Trap — Prep Date :

Surrogate(s :	540363	Benzene, 1,4-difluoro-	93	%Rec
	8006619	Unleaded gasoline composite	91	%Rec

09384408 Matrix Spike .

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	09384408
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Matrix Spike Dupl
Station Description:			

			Result	Units	Qlfr

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A9
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/2/2009
Prep Method : 5030 Purge and Trap — Prep Date :

Surrogate(s :	540363	Benzene, 1,4-difluoro-	99	%Rec	
	8006619	Unleaded gasoline composite	96	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/22/09	**13:13:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384409	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW03GW			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A3
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/1/2009
Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	100	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/22/09	**13:45:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384410	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP04GW			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A3
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/1/2009
Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	99	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/22/09	**14:17:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384411	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW11GW			

		Result	Units	Qlfr
ORG				
Parameter : Total Petroleum Hyd, Gasoline				Container ID : A3
Method : NWTPH-G	Gasoline range organics			Analysis Date : 10/1/2009
Prep Method : 5030	Purge and Trap			Prep Date :
Analytes(s): 8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	94	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/23/09	**9:15:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384412	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW01GW			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A3
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/1/2009
Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	93	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/23/09	**10:35:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384413	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	TB01WT			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A1
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/1/2009
Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	92	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/23/09	**10:55:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384414	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW26GW			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A7
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/1/2009
Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	90	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	09384414
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Matrix Spike
Station Description:			

	Result	Units	Qlfr

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A8
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/2/2009
Prep Method : 5030 Purge and Trap — Prep Date :

Surrogate(s :	540363	Benzene, 1,4-difluoro-	100	%Rec
	8006619	Unleaded gasoline composite	96	%Rec

09384414 Matrix Spike

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	09384414
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Matrix Spike Dupl
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Total Petroleum Hyd, Gasoline				Container ID : A9
Method	: NWTPH-G	Gasoline range organics			Analysis Date : 10/2/2009
Prep Method	: 5030	Purge and Trap			Prep Date :
Surrogate(s :	540363	Benzene, 1,4-difluoro-	103	%Rec	
	8006619	Unleaded gasoline composite	99	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/23/09	**12:32:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384415	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW17GW			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A3
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/1/2009
Prep Method : 5030 Purge and Trap — Prep Date :

		Result	Units	Qlfr
Analytes(s): 8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	92	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/23/09	**14:43:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384416	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	DW35GW			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A3
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/1/2009
Prep Method : 5030 Purge and Trap — Prep Date :

		Result	Units	Qlfr
Analytes(s): 8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	88	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/23/09	**11:24:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384422	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP06SB24			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : N1
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/5/2009
Prep Method : 5030 Purge and Trap — Prep Date :

		Result	Units	Qlfr
Analytes(s): 8006619	Unleaded gasoline composite	5.3	mg/kg	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	102	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**11:15:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384425	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	TB02WT			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A1
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/1/2009
Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	90	%Rec	

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**12:10:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384426	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP09SB08			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : N1
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/5/2009
Prep Method : 5030 Purge and Trap — Prep Date :

		Result	Units	Qlfr
Analytes(s): 8006619	Unleaded gasoline composite	5.7	mg/kg	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	104	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	09384426
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Matrix Spike
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Total Petroleum Hyd, Gasoline				Container ID : N2
Method	: NWTPH-G	Gasoline range organics			Analysis Date : 10/5/2009
Prep Method	: 5030	Purge and Trap			Prep Date :
Surrogate(s :	540363	Benzene, 1,4-difluoro-	115	%Rec	
	8006619	Unleaded gasoline composite	117	%Rec	

09384426 Matrix Spike

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	09384426
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Matrix Spike Dupl
Station Description:			

		Result	Units	Qlfr
ORG				
Parameter : Total Petroleum Hyd, Gasoline				Container ID : N3
Method : NWTPH-G	Gasoline range organics			Analysis Date : 10/5/2009
Prep Method : 5030	Purge and Trap			Prep Date :
Surrogate(s : 540363	Benzene, 1,4-difluoro-	116	%Rec	
8006619	Unleaded gasoline composite	119	%Rec	

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**11:50:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384427	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP01SD			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : N1
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/5/2009
Prep Method : 5030 Purge and Trap — Prep Date :

		Result	Units	Qlfr
Analytes(s): **8006619**	**Unleaded gasoline composite**	**56**	**mg/kg**	
Surrogate(s : 540363	Benzene, 1,4-difluoro-	97	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**13:00:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384433	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP09SB16			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : N1
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/5/2009
Prep Method : 5030 Purge and Trap — Prep Date :

		Result	Units	Qlfr
Analytes(s): 8006619	Unleaded gasoline composite	5.3	mg/kg	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	107	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**14:00:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384434	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP01SW			

		Result	Units	Qlfr
ORG				
Parameter : Total Petroleum Hyd, Gasoline				Container ID : A3
Method : NWTPH-G	Gasoline range organics			Analysis Date : 10/1/2009
Prep Method : 5030	Purge and Trap			Prep Date :
Analytes(s): **8006619**	**Unleaded gasoline composite**	**170**	**ug/L**	
Surrogate(s : 540363	Benzene, 1,4-difluoro-	86	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**15:20:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384435	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP09SW			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A3
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/1/2009
Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	89	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**16:45:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384436	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP02SW			

		Result	Units	Qlfr
ORG				
Parameter	: Total Petroleum Hyd, Gasoline			Container ID : A3
Method	: NWTPH-G Gasoline range organics			Analysis Date : 10/1/2009
Prep Method	: 5030 Purge and Trap			Prep Date :
Analytes(s):	**8006619** **Unleaded gasoline composite**	**150**	**ug/L**	
Surrogate(s :	540363 Benzene, 1,4-difluoro-	87	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/24/09	**17:00:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384437	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP02SD			

		Result	Units	Qlfr
ORG				
Parameter : Total Petroleum Hyd, Gasoline				Container ID : N1
Method : NWTPH-G	Gasoline range organics			Analysis Date : 10/5/2009
Prep Method : 5030	Purge and Trap			Prep Date :
Analytes(s): **8006619**	**Unleaded gasoline composite**	**80**	**mg/kg**	
Surrogate(s : 540363	Benzene, 1,4-difluoro-	**88**	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/25/09	**7:50:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384438	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	TB03WT			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A1
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/2/2009
Prep Method : 5030 Purge and Trap — Prep Date :

		Result	Units	Qlfr
Analytes(s): 8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	91	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/25/09	**10:20:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384439	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP10SW			

		Result	Units	Qlfr
ORG				
Parameter : Total Petroleum Hyd, Gasoline				Container ID : A3
Method : NWTPH-G	Gasoline range organics			Analysis Date : 10/2/2009
Prep Method : 5030	Purge and Trap			Prep Date :
Analytes(s): 8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	88	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/25/09	**18:00:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384441	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP12GW			

		Result	Units	Qlfr
ORG				
Parameter : Total Petroleum Hyd, Gasoline				Container ID : A3
Method : NWTPH-G	Gasoline range organics			Analysis Date : 10/2/2009
Prep Method : 5030	Purge and Trap			Prep Date :
Analytes(s): 8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	82	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/25/09	**12:54:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384443	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BG01SB08			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : N2
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/5/2009
Prep Method : 5030 Purge and Trap — Prep Date :

		Result	Units	Qlfr
Analytes(s): 8006619	Unleaded gasoline composite	5.4	mg/kg	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	103	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/25/09	**14:07:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384445	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BG01SB16			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : N2
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/5/2009
Prep Method : 5030 Purge and Trap — Prep Date :

		Result	Units	Qlfr
Analytes(s): 8006619	Unleaded gasoline composite	5.1	mg/kg	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	107	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/26/09	**10:30:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384452	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP14GW			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A3
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/2/2009
Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	82	%Rec	

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/26/09	**12:45:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384453	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	ID01WT			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A3
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/2/2009
Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	81	%Rec	

Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/26/09	**0:00:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384454	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	RS01WT			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A3

Method : NWTPH-G Gasoline range organics — Analysis Date : 10/2/2009

Prep Method : 5030 Purge and Trap — Prep Date :

			Result	Units	Qlfr
Analytes(s):	8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	83	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/26/09	**13:00:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384455	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	TB04WT			

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID : A1
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/2/2009
Prep Method : 5030 Purge and Trap — Prep Date :

		Result	Units	Qlfr
Analytes(s): 8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	81	%Rec	

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	JBS9278
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

			Result	Units	Qlfr
ORG					
Parameter	: Total Petroleum Hyd, Gasoline				Container ID :
Method	: NWTPH-G	Gasoline range organics			Analysis Date : 10/5/2009
Prep Method	: 5030	Purge and Trap			Prep Date :
Analytes(s):	8006619	Unleaded gasoline composite	5.0	mg/kg	U
Surrogate(s :	540363	Benzene, 1,4-difluoro-	95	%Rec	

JBS9278 Blank

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	JBS9278A
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

		Result	Units	Qlfr
ORG				
Parameter : Total Petroleum Hyd, Gasoline				Container ID :
Method : NWTPH-G	Gasoline range organics			Analysis Date : 10/5/2009
Prep Method : 5030	Purge and Trap			Prep Date :
Analytes(s): 8006619	Unleaded gasoline composite	5.0	mg/kg	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	103	%Rec	

JBS9278A Blank

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	JBW9274
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

		Result	Units	Qlfr
ORG				
Parameter : Total Petroleum Hyd, Gasoline				Container ID :
Method : NWTPH-G	Gasoline range organics			Analysis Date : 10/1/2009
Prep Method : 5030	Purge and Trap			Prep Date :
Analytes(s): 8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	103	%Rec	

JBW9274 Blank

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	JBW9274A
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Blank
Station Description:			

		Result	Units	Qlfr
ORG				
Parameter : Total Petroleum Hyd, Gasoline				Container ID :
Method : NWTPH-G	Gasoline range organics			Analysis Date : 10/2/2009
Prep Method : 5030	Purge and Trap			Prep Date :
Analytes(s): 8006619	Unleaded gasoline composite	50	ug/L	U
Surrogate(s : 540363	Benzene, 1,4-difluoro-	90	%Rec	

JBW9274A Blank

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	TPH9274A
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCS
Station Description:			

	Result	Units	Qlfr

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID :
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/2/2009
Prep Method : 5030 Purge and Trap — Prep Date :

Surrogate(s :	540363	Benzene, 1,4-difluoro-	104	%Rec
	8006619	Unleaded gasoline composite	99	%Rec

TPH9274A LCS

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Liquid
Project Officer:	MONICA TONEL	**Sample Number:**	TPH9274B
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCSD
Station Description:			

			Result	Units	Qlfr

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID :
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/2/2009
Prep Method : 5030 Purge and Trap — Prep Date :

Surrogate(s :	540363	Benzene, 1,4-difluoro-	105	%Rec
	8006619	Unleaded gasoline composite	99	%Rec

TPH9274B LCSD

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	TPH9278
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCS
Station Description:			

	Result	Units	Qlfr

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID :
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/5/2009
Prep Method : 5030 Purge and Trap — Prep Date :

Surrogate(s :	540363	Benzene, 1,4-difluoro-	104	%Rec
	8006619	Unleaded gasoline composite	100	%Rec

TPH9278 LCS

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	TPH9278A
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCSD
Station Description:			

	Result	Units	Qlfr

ORG

Parameter : Total Petroleum Hyd, Gasoline — Container ID :
Method : NWTPH-G Gasoline range organics — Analysis Date : 10/5/2009
Prep Method : 5030 Purge and Trap — Prep Date :

Surrogate(s :	540363	Benzene, 1,4-difluoro-	124	%Rec
	8006619	Unleaded gasoline composite	114	%Rec

TPH9278A LCSD

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International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: October 26, 2009

TO: Josh Hancock, START-3 Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Data Quality Assurance Review, Biffle Property Site, Vancouver, Washington**

REF: TDD: 09-07-0007 PAN: 002233.0471.01IA

The data quality assurance review of 5 water samples collected from the Biffle Property site located in Vancouver, Washington has been completed. Hexavalent chromium (EPA Method 218.6) analyses were performed by Columbia Analytical Services, Inc., Rochester, New York.

The samples were numbered:

BP01GW BP04GW DW03GW DW11GW DW12GW

Data Qualifications:

The samples were maintained at < 6°C. All samples were preserved with ammonium sulfate within 24 hours of collection except BP01GW; the sample quantitation limit was qualified as an estimated result (UJ). The samples were collected between September 21 and 22, 2009, and were analyzed on September 23, 2009, therefore meeting QC criteria of less than 24 hours between collection and analysis for preserved water hexavalent chromium samples. The initial calibration correlation coefficient was > 0.999. There were no detections in any blank. All initial and continuing calibrations and blank spike results were within QC limits.

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical method, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample detection limits but greater than the instrument detection limits or because quality control criteria limits were not met.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	Service Request:	R0905427
Project:	Water Samples Case #39007	Date Collected:	9/21/09 1350
Sample Matrix:	Water	Date Received:	9/23/09
Sample Name:	BP01GW		
Lab Code:	R0905427-001	Basis:	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U J	mg/L	0.010	1	NA	9/23/09 12:09

MW 10/26/09

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	R0905427
Project:	Water Samples Case #39007	**Date Collected:**	9/22/09 1345
Sample Matrix:	Water	**Date Received:**	9/23/09
Sample Name:	BP04GW		
Lab Code:	R0905427-002	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U	mg/L	0.010	1	NA	9/23/09 11:58

MW
10/26/09

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	R0905427
Project:	Water Samples Case #39007	**Date Collected:**	9/22/09 1313
Sample Matrix:	Water	**Date Received:**	9/23/09
Sample Name:	DW03GW		
Lab Code:	R0905427-003	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U	mg/L	0.010	1	NA	9/23/09 12:19

MW
10/26/09

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	Service Request:	R0905427
Project:	Water Samples Case #39007	Date Collected:	9/22/09 1417
Sample Matrix:	Water	Date Received:	9/23/09
Sample Name:	DW11GW		
Lab Code:	R0905427-004	Basis:	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U	mg/L	0.010	1	NA	9/23/09 11:17

MW
10/26/09

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	R0905427
Project:	Water Samples Case #39007	**Date Collected:**	9/22/09 1105
Sample Matrix:	Water	**Date Received:**	9/23/09
Sample Name:	DW12GW		
Lab Code:	R0905427-005	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U	mg/L	0.010	1	NA	9/23/09 11:27

MW
10-26-09

Comments:

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720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: October 27, 2009

TO: Josh Hancock, START-3 Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Data Quality Assurance Review, Biffle Property Site, Vancouver, Washington**

REF: TDD: 09-07-0007 PAN: 002233.0471.01IA

The data quality assurance review of 11 water samples collected from the Biffle Property site located in Vancouver, Washington has been completed. Hexavalent chromium (EPA Method 218.6) analyses were performed by Columbia Analytical Services, Inc., Rochester, New York.

The samples were numbered:

BP14GW	DW01GW	DW17GW	DW26GW	DW35GW	RS01WT
BP01SW	BP02SW	BP09GW	BP10GW	BP12GW	

Data Qualifications:

The samples were collected between September 22 and 26, 2009, and were analyzed on October 6, 2009. The samples were maintained at < 6°C and were preserved in the field with ammonium sulfate as soon as possible after sample collection. The lab checked the pH upon receipt on September 29, 2009, and the pH results were listed as outside QC limits. A project chemist at the laboratory indicated that his experience indicates that the pH often changes between collection and laboratory receipt. Based on this information, associated sample results were qualified as estimated (J or UJ) since QC criteria of less than 24 hours between collection and analysis for unpreserved water hexavalent chromium samples was exceeded. The initial calibration correlation coefficient was > 0.999. There were no detections in any blank. All duplicate, initial and continuing calibration verifications and blank spike results were within QC limits. All blank and matrix spike results were within QC limits except a slightly low recovery associated with sample DW26GWMS; associated sample results were qualified as estimated quantities (J or UJ).

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical methods, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample detection limits but greater than the instrument detection limits or because quality control criteria limits were not met.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909173
Project:	09-07-0007	**Date Collected:**	9/26/09 1030
Sample Matrix:	Water	**Date Received:**	9/29/09
Sample Name:	BP14GW		
Lab Code:	K0909173-001	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U J	mg/L	0.010	1	NA	10/6/09 14:30

Comments: MW 10/27/09

Printed 10/20/09 12:50

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SuperSet Reference: 09-0000124254 rev 00

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909173
Project:	09-07-0007	**Date Collected:**	9/23/09 0915
Sample Matrix:	Water	**Date Received:**	9/29/09
Sample Name:	DW01GW		
Lab Code:	K0909173-002	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U J	mg/L	0.010	1	NA	10/6/09 14:40

Comments: MW 10/27/09

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909173
Project:	09-07-0007	**Date Collected:**	9/22/09 1232
Sample Matrix:	Water	**Date Received:**	9/29/09
Sample Name:	DW17GW		
Lab Code:	K0909173-003	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U	mg/L	0.010	1	NA	10/6/09 14:51

Comments: MW 10-27-09

Printed 10/20/09 12:50 Form IA

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	Service Request:	K0909173
Project:	09-07-0007	Date Collected:	9/23/09 1055
Sample Matrix:	Water	Date Received:	9/29/09
Sample Name:	DW26GW		
Lab Code:	K0909173-004	Basis:	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U J L	mg/L	0.010	1	NA	10/6/09 15:01

MW 10-27-09

Comments:

Printed 10/20/09 12:50

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Form 1A

SupersSet Reference: 09-0000124254 rev 00

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909173
Project:	09-07-0007	**Date Collected:**	9/23/09 1443
Sample Matrix:	Water	**Date Received:**	9/29/09
Sample Name:	DW35GW		
Lab Code:	K0909173-005	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U J	mg/L	0.010	1	NA	10/6/09 15:53

Comments: MW 10-27-09

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909173
Project:	09-07-0007	**Date Collected:**	9/23/09 0000
Sample Matrix:	Water	**Date Received:**	9/29/09
Sample Name:	RS01WT		
Lab Code:	K0909173-006	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U J	mg/L	0.010	1	NA	10/6/09 16:04

Comments: MW 10-27-09

Printed 10/20/09 12:50

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SuperSel Reference: 09-0000124254 rev 00

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909173
Project:	09-07-0007	**Date Collected:**	9/24/09 0000
Sample Matrix:	Water	**Date Received:**	9/29/09
Sample Name:	BP01SW		
Lab Code:	K0909173-007	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U J	mg/L	0.010	1	NA	10/6/09 14:09

Comments: MW 10-27-09

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909173
Project:	09-07-0007	**Date Collected:**	9/24/09 1400
Sample Matrix:	Water	**Date Received:**	9/29/09
Sample Name:	BP02SW		
Lab Code:	K0909173-008	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U J	mg/L	0.010	1	NA	10/6/09 14:20

Comments: MW 10-27-09

Printed 10/20/09 12:50
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Form 1A

SuperSet Reference: 09-0000124254 rev 00

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909173
Project:	09-07-0007	**Date Collected:**	9/24/09 1645
Sample Matrix:	Water	**Date Received:**	9/29/09
Sample Name:	BP09GW		
Lab Code:	K0909173-009	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U J	mg/L	0.010	1	NA	10/6/09 16:14

MW 10-27-09

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909173
Project:	09-07-0007	**Date Collected:**	9/24/09 1520
Sample Matrix:	Water	**Date Received:**	9/29/09
Sample Name:	BP10GW		
Lab Code:	K0909173-010	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U 5	mg/L	0.010	1	NA	10/6/09 16:24

JMW 10-27-09

Comments:

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909173
Project:	09-07-0007	**Date Collected:**	9/25/09 1020
Sample Matrix:	Water	**Date Received:**	9/29/09
Sample Name:	BP12GW		
Lab Code:	K0909173-011	**Basis:**	NA

Hexavalent Chromium, Dissolved, In DW, Groundwater And Industrial Wastewater Effluents By IC

Analyte Name	Method	Result	Q	Units	MRL	Dilution Factor	Date Extracted	Date Analyzed
Chromium, Hexavalent, Dissolved	218.6	0.010	U J	mg/L	0.010	1	NA	10/6/09 16:35

MW 102709

Comments:

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International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: October 27, 2009

TO: Josh Hancock, START-3 Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Data Quality Assurance Review, Biffle Property Site, Vancouver, Washington**

REF: TDD: 09-07-0007 PAN: 002233.0471.01IA

The data quality assurance review of 14 soil samples collected from the Biffle Property site located in Vancouver, Washington has been completed. Hexavalent chromium (EPA Method 7196) and grain size (ASTM methods D421/D422) analyses were performed by Columbia Analytical Services, Inc., Kelso, Washington.

The samples were numbered:

BG01SB04	BG01SB08	BG01SB12	BG01SB16	BG04SB16	BP10SB08	BP10SB12
BP10SB16	BP10SB20	BP12SB04	BP12SB12	BP13SB08	BP13SB12	BP13SB20

Data Qualifications:

The samples were maintained at < 6°C. The samples were collected between September 25 and 26, 2009, and were analyzed between October 8 and 14, 2009, therefore meeting QC holding time criteria of less than 30 days between collection and analysis for hexavalent chromium in soil.

Hexavalent Chromium

The initial calibration correlation coefficient was > 0.990. There were no detections in any blank. All duplicate, initial and continuing calibration verifications and blank spike results were within QC limits. Matrix spike/matrix spike duplicate recoveries were below QC limits. The pH and Redox Potential analyses performed indicated that these samples were in a reducing matrix, leading to poor matrix spike recovery. Associated positive results and sample quantitation limits were qualified as estimated quantities (J or UJ) based on the spike outliers.

Grain Size

All duplicate results were within QC limits.

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical methods, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample detection limits but greater than the instrument detection limits or because quality control criteria limits were not met.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Ecology And Environment, Incorporated
Project Name : 09-07-0007
Project Number : Case No 39007
Sample Matrix : SOIL

Service Request : K0909185
Date Collected : 09/25,26/09
Date Received : 09/29/09

Chromium, Hexavalent

Prep Method : EPA 3060A
Analysis Method 7196A
Test Notes :

Units : mg/Kg
Basis : Dry

Sample Name	Lab Code	MRL	Dilution Factor	Date Prepared	Date Analyzed	Result	Result Notes
BG01SB04	K0909185-001	0.54	1	10/3/2009	10/08/09	ND	
BG01SB08	K0909185-002	0.53	1	10/3/2009	10/08/09	ND	
BG01SB12	K0909185-003	0.53	1	10/3/2009	10/08/09	ND	
BG01SB16	K0909185-004	0.54	1	10/3/2009	10/08/09	ND	
BP04SB16	K0909185-005	0.53	1	10/3/2009	10/08/09	ND	
BP10SB08	K0909185-006	0.56	1	10/3/2009	10/08/09	ND	
BP10SB12	K0909185-007	0.56	1	10/3/2009	10/08/09	ND	
BP10SB16	K0909185-008	0.56	1	10/3/2009	10/08/09	ND	
BP10SB20	K0909185-009	0.55	1	10/3/2009	10/08/09	ND	
BP12SB04	K0909185-010	0.55	1	10/3/2009	10/08/09	ND	
BP12SB12	K0909185-011	0.55	1	10/3/2009	10/08/09	ND	
BP13SB08	K0909185-012	0.55	1	10/14/2009	10/14/09	ND	
BP13SB12	K0909185-013	0.54	1	10/14/2009	10/14/09	ND	
BP13SB20	K0909185-014	0.55	1	10/14/2009	10/14/09	ND	
~~Method Blank~~	~~K0909185-MB~~	~~0.53~~	~~1~~	~~10/3/2009~~	~~10/08/09~~	~~ND~~	
~~Method Blank~~	~~K0909185-MB~~	~~0.54~~	~~1~~	~~10/14/2009~~	~~10/14/09~~	~~ND~~	

MW
11-2-09

Report By: MKANALY

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909185
Project:	09-07-0007/Case No 39007	**Date Collected:**	9/25/2009
Sample Matrix:	Soil	**Date Received:**	9/29/2009
		Date Analyzed:	10/2/2009

Particle Size Determination
ASTM Method D 422

Sample Name: BP04SB16
Lab Code: K0909185-005

Gravel and Sand
(Sieve Analysis)

Description	Sieve Size	Weight (g)	Percent Passing
Gravel	No.3/4"(19.0 mm)	69.0967	47.6
Gravel	No.3/8"(9.50 mm)	31.2548	23.9
Gravel, Medium	No.4 (4.75 mm)	5.5710	19.7
Gravel, Fine	No.10 (2.00 mm)	10.1728	12.0
Sand, Very Coarse	No.20 (0.850 mm)	4.1960	8.78
Sand, Coarse	No.40 (0.425 mm)	1.4112	7.71
Sand, Medium	No.60 (0.250 mm)	0.8886	7.04
Sand, Fine	No.140 (0.106 mm)	1.1070	6.20
Sand, Very Fine	No.200 (0.0750 mm)	0.3170	5.96

Silt and Clay
(Hydrometer Analysis)

Particle Diameter	Percent Passing
0.074 mm	5.19
0.005 mm	1.80
0.001 mm	0.00

MW
11-2-09

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909185
Project:	09-07-0007/Case No 39007	**Date Collected:**	9/25/2009
Sample Matrix:	Soil	**Date Received:**	9/29/2009
		Date Analyzed:	10/2/2009

Particle Size Determination
ASTM Method D 422

Sample Name: BP12SB12
Lab Code: K0909185-011

Gravel and Sand
(Sieve Analysis)

Description	Sieve Size	Weight (g)	Percent Passing
Gravel	No.3/4"(19.0 mm)	0.0000	100
Gravel	No.3/8"(9.50 mm)	0.0000	100
Gravel, Medium	No.4 (4.75 mm)	18.8527	81.2
Gravel, Fine	No.10 (2.00 mm)	28.3482	52.8
Sand, Very Coarse	No.20 (0.850 mm)	17.7397	34.9
Sand, Coarse	No.40 (0.425 mm)	7.5872	27.2
Sand, Medium	No.60 (0.250 mm)	3.1047	24.0
Sand, Fine	No.140 (0.106 mm)	1.2393	22.8
Sand, Very Fine	No.200 (0.0750 mm)	0.8997	21.9

Silt and Clay
(Hydrometer Analysis)

Particle Diameter	Percent Passing
0.074 mm	17.6
0.005 mm	1.72
0.001 mm	0.00

MW
11-2-09

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Ecology And Environment, Incorporated	**Service Request:**	K0909185
Project:	09-07-0007/Case No 39007	**Date Collected:**	9/25/2009
Sample Matrix:	Soil	**Date Received:**	9/29/2009
		Date Analyzed:	10/2/2009

Particle Size Determination
ASTM Method D 422

Sample Name: BP12SB12
Lab Code: K0909185-011DUP

Gravel and Sand
(Sieve Analysis)

Description	Sieve Size	Weight (g)	Percent Passing
Gravel	No.3/4"(19.0 mm)	0.0000	100
Gravel	No.3/8"(9.50 mm)	1.0402	99.1
Gravel, Medium	No.4 (4.75 mm)	12.8769	86.3
Gravel, Fine	No.10 (2.00 mm)	29.2309	57.2
Sand, Very Coarse	No.20 (0.850 mm)	19.1138	37.9
Sand, Coarse	No.40 (0.425 mm)	8.1185	29.8
Sand, Medium	No.60 (0.250 mm)	4.0305	25.7
Sand, Fine	No.140 (0.106 mm)	3.9687	21.7
Sand, Very Fine	No.200 (0.0750 mm)	1.0219	20.7

Silt and Clay
(Hydrometer Analysis)

Particle Diameter	Percent Passing
0.074 mm	18.5
0.005 mm	1.49
0.001 mm	0.00

MW
11-2-09

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: October 27, 2009

TO: Josh Hancock, START-3 Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Data Quality Assurance Review, Biffle Property Site, Vancouver, Washington**

REF: TDD: 09-07-0007 PAN: 002233.0471.01IA

The data quality assurance review of 24 soil samples collected from the Biffle Property site located in Vancouver, Washington has been completed. Hexavalent chromium (EPA Method 7196) analyses were performed by Columbia Analytical Services, Inc., Kelso, Washington.

The samples were numbered:

BP01SB16	BP01SB28	BP01SD	BP02SB04	BP03SB04	BP03SB12
BP04SB04	BP09SB08	BP09SB16	BP07SB04	BP07SB12	BP07SB20
BP08SB04	BP08SB08	BP08SB16	BP08SB24	BP04SB20	BP05SB08
BP05SB16	BP05SB20	BP06SB04	BP06SB08	BP06SB24	BP02SD

Data Qualifications:

The samples were maintained at 4°C (± 2°C). The samples were collected between September 21 and 24, 2009, and were analyzed between October 2 and 8, 2009, therefore meeting QC criteria of less than 14 days between collection and analysis for soil hexavalent chromium samples. There were no detections in any blank. All initial and continuing calibrations and blank spike results were within QC limits. One or more matrix spike/matrix spike duplicate results for batch spike samples were below QC limits in both batches and one spike duplicate result exceeded QC limits. The pH and Redox Potential analyses performed indicated that these samples were in a reducing matrix, leading to poor recovery. Associated positive results and sample quantitation limits were qualified as estimated quantities (J or UJ) based on the spike outliers.

The overall usefulness of the data is based on the criteria outlined in the OSWER Guidance Document "Quality Assurance/Quality Control Guidance for Removal Activities, Sampling QA/QC Plan, and Data Validation Procedures" (EPA/540/G-90/004), the analytical methods, and, when applicable, the Office of Emergency and Remedial Response Publication "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review". Based upon the information provided, the data are acceptable for use with the above stated data qualifications.

Data Qualifiers and Definitions

J - The associated numerical value is an estimated quantity because the reported concentrations were less than the sample detection limits but greater than the instrument detection limits or because quality control criteria limits were not met.

UJ - The material was analyzed for, but not detected. The reported detection limit is estimated because quality control criteria were not met.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client : Ecology And Environment, Incorporated
Project Name : 09-07-0007
Project Number : 39007
Sample Matrix : SOIL

Service Request : K0909077
Date Collected : 09/21-24/09
Date Received : 09/25/09

Chromium, Hexavalent

Prep Method : EPA 3060A
Analysis Method 7196A
Test Notes :

Units : mg/Kg
Basis : Dry

Sample Name	Lab Code	MRL	Dilution Factor	Date Prepared	Date Analyzed	Result	Result Notes
BP01SB16	K0909077-001	0.55 UJ	1	10/1/2009	10/02/09	ND	
BP01SB28	K0909077-002	0.57	1	10/1/2009	10/02/09	ND	
BP01SD	K0909077-003	0.96	1	10/1/2009	10/02/09	ND	
BP02SB04	K0909077-004	0.56	1	10/1/2009	10/02/09	ND	
BP03SB04	K0909077-005	0.56	1	10/1/2009	10/02/09	ND	
BP03SB12	K0909077-006	0.55	1	10/1/2009	10/02/09	ND	
BP04SB04	K0909077-007	0.61	1	10/1/2009	10/02/09	ND	
BP09SB08	K0909077-008	0.57	1	10/1/2009	10/02/09	ND	
BP09SB16	K0909077-009	0.57	1	10/1/2009	10/02/09	ND	
BP07SB04	K0909077-010	0.62	1	10/1/2009	10/02/09	ND	
BP07SB12	K0909077-011	0.56	1	10/1/2009	10/02/09	ND	
BP07SB20	K0909077-012	0.56	1	10/1/2009	10/02/09	ND	
BP08SB04	K0909077-013	0.65	1	10/1/2009	10/02/09	ND	
BP08SB08	K0909077-014	0.57	1	10/1/2009	10/02/09	ND	
BP08SB16	K0909077-015	0.56	1	10/1/2009	10/02/09	ND	
BP08SB24	K0909077-016	0.55	1	10/3/2009	10/08/09	ND	
BP04SB20	K0909077-017	0.56	1	10/3/2009	10/08/09	ND	
BP05SB08	K0909077-018	0.56	1	10/3/2009	10/08/09	ND	
BP05SB16	K0909077-019	0.56	1	10/3/2009	10/08/09	ND	
BP05SB20	K0909077-020	0.57	1	10/3/2009	10/08/09	ND	
BP06SB04	K0909077-021	0.59	1	10/3/2009	10/08/09	ND	
BP06SB08	K0909077-022	0.58	1	10/3/2009	10/08/09	ND	
BP06SB24	K0909077-023	0.56	1	10/3/2009	10/08/09	ND MW	
BP02SD	K0909077-024	~~0.84~~ MW	1	10/3/2009	10/08/09	0.85 J	
~~Method Blank~~	~~K0909077-MB~~	~~0.55~~	~~1~~	~~10/3/2009~~	~~10/08/09~~	~~ND~~ MW	
~~Method Blank~~	~~K0909077-MB~~	~~0.55~~	~~1~~	~~10/1/2009~~	~~10/02/09~~	~~ND~~ MW	

MW
10-27-09

Report By: MKANALY

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: October 30, 2009

TO: Josh Hancock, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Inorganic Data Summary Check,**
Biffle Property Site, Vancouver, Washington

REF: TDD: 09-07-0007 PAN: 002233.0471.01IA

The data summary check of 17 water samples collected from the Biffle Property site in Vancouver, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA CLP SOW ILM05.4) were performed by Chemtech, Mountainside, New Jersey.

The samples were numbered:

MJBQA4	MJBQB0	MJBQB1	MJBQB2	MJBQB3	MJBQB4
MJBQB5	MJBQB7	MJBQB8	MJBQD6	MJBQD7	MJBQD8
MJBQE1	MJBQE3	MJBQF3	MJBQF4	MJBQF5	

The following discrepancies were noted: some qualifiers listed in the validation memorandum and some "Q" bias qualifiers were inadvertently not applied; the secondary reviewer added these qualifiers.

Sample results less than the CRQL but greater than the IDL were qualified as "JQ" to indicate that the result was an estimated quantity less than the CRQL but greater than the IDL. The "Q" bias qualifier supersedes other bias qualifiers.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101

October 27, 2009

Reply To
Attn. Of: OEA-095

MEMORANDUM

SUBJECT: Data Validation for Biffle Property Integrated Assessment, Case# 39007, SDG: MJBQA4, Inorganic Analysis

FROM: Donald Matheny, Chemist DM
Environmental Services Unit, OEA

TO: Monica Tonel, Site Assessment Manager
Office of Environmental Cleanup (ECL-112)

CC: Renee Nordeen, Ecology & Environment, Inc.

The data validation of inorganic analyses for the above sample set is complete. Seventeen (17) water samples were analyzed for total elements by Chemtech, Mountainside, NJ. The sample numbers for this delivery group are:

MJBQA4	MJBQB0	MJBQB1	MJBQB2	MJBQB3	MJBQB4	MJBQB5
MJBQB7	MJBQB8	MJBQD6	MJBQD7	MJBQD8	MJBQE1	MJBQE3
MJBQF3	MJBQF4	MJBQF5				

DATA QUALIFICATIONS

The following comments refer to the lab's performance in meeting the specifications outlined in the "CLP Statement of Work (CLP-SOW) for Inorganic Analysis, rev. ILM05.4", the "USEPA CLP National Functional Guidelines for Inorganic Data Review" and the judgment of the reviewer. The comments presented herein are based on the information provided for the review.

TIMELINESS - Acceptable

The holding time from the date of collection to the date of digestion and analyses were met for all elements (180 days, Hg 28 days). Samples were collected on 9/21/09 through 9/26/09. ICP-MS analysis was conducted on 10/6/09 through 10/8/09 and mercury analysis on 10/7/09.

INSTRUMENT CALIBRATION/VERIFICTION

For the ICP-MS analysis, instrument tuning and calibration were performed in accordance with method requirements. Verification standards (96-108%) met the frequency (10%) and recovery (90-110%) criteria. Internal standards met the recovery criterion (60-125%) with the exception of scandium in sample MJBQD7 (233%). Data for affected elements were qualified (JL or UJL) and may be biased low.

For mercury, a blank and five standards were digested for instrument calibration. The correlation coefficient (0.999) met the criterion ($\geq$ 0.995) for linearity. Verification standard recoveries (95-100%) met the frequency (10%) and recovery (80-120%) criteria.

Quantitation verification standards met both the frequency and recovery criteria for all elements.

ICP INTERFERENCE CHECK SAMPLE (ICS) - Acceptable

The Interference Check Standard met both the frequency and recovery criteria (80-120%; $\pm$ 3xCRQL) for all applicable elements.

LABORATORY CONTROL SAMPLES (LCS) - Acceptable

Element recoveries (98-105%) for the LCS were within the established control limits (80-120%) for aqueous samples.

BLANKS

Preparation and instrument control blanks were prepared and analyzed in accordance with method requirements. Detected blank results were below a factor (5X) that could impact sample results with the exception of antimony, silver and thallium. Affected samples were qualified (U) for these elements.

MATRIX SPIKE ANALYSIS

A matrix spike was analyzed for sample MJBQB0. Recoveries (88-110%) met the criterion (75-125%) with the exception of and silver (127%). Silver data were qualified (JH) and may be biased high.

DUPLICATE SAMPLE ANALYSIS

A duplicate was analyzed for sample MJBQB0. Differences ($\pm$ CRQL) met the criteria ($\pm$ 20% or $\pm$ CRQL) for aqueous samples with the exception of copper (> CRQL), manganese (> CRQL) and zinc (106%). Data for affected samples were qualified (JK) with no indication of bias.

ICP SERIAL DILUTION

A five-fold serial dilution was analyzed for sample MJBQB0. Percent differences ($\leq$ 10%) met the acceptance criteria ($\leq$ 10%) with the exception of manganese (68%). Manganese data were already qualified (JK) due to duplicate results.

ASSESSMENT SUMMARY

The following is a summary of qualified data: The (D) qualifier indicates that a dilution of the sample digest was conducted.

Arsenic, beryllium, chromium, cobalt, copper, manganese, nickel, selenium and vanadium and zinc data were qualified (JL or UJL) for sample MJBQD7 due to a high internal standard recovery (scandium). As affected values were adjusted lower for the high recovery, reported values may be biased low.

Antimony, silver and thallium data were qualified (U) due to a detection of these elements in preparation and/or calibration blanks.

Silver data were qualified (JH) due to a high matrix spike recovery. Values for silver may be biased high.

Copper and zinc data were qualified (JK) due to variability in the duplicate results. Bias for qualified data could not be estimated.

Manganese data were qualified (JK) due to variability in the sample duplicate and a high percent difference in the serial dilution result. Bias for qualified data could not be estimated.

DATA QUALIFIERS

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

J - The associated value is an estimated quantity.

R - The data are unusable. The analyte may or may not be present in the sample.

UJ - The analyte was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

PROJECT SPECIFIC DATA QUALIFIERS:

L - Low bias.

H - High bias.

K - Unknown Bias.

Q - Detected concentration is below the method reporting limit / Contract Required Quantitation Limit, but is above the method detection limit.

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQA4

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-01

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	1.3	~~J~~	U	MS
7440-38-2	Arsenic	2.8		D	MS
7440-39-3	Barium	1220			MS
7440-41-7	Beryllium	3.9		D	MS
7440-43-9	Cadmium	1.4			MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	36.5		D MW	MS
7440-48-4	Cobalt	88.9		D	MS
7440-50-8	Copper	128		~~D~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	30.0			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	4140		~~ED~~ MW JK	MS
7439-97-6	Mercury	0.13	~~J~~	JQ	CV
7440-02-0	Nickel	62.8		D	MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	10.0	U	D MW	MS
7440-22-4	Silver	0.28	~~J~~	~~J~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.98	~~J~~	JQ	MS
7440-62-2	Vanadium	61.2		D	MS
7440-66-6	Zinc	197		~~D~~ JK	MS
57-12-5	Cyanide			MW	NR

DH 10-27-09

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQB0

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-02

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	0.38	~~J~~	U	MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	13.5			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	0.11	~~J~~	JQ	MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	1.1	~~J~~	JQ	MS
7440-48-4	Cobalt	0.14	~~J~~	JQ	MS
7440-50-8	Copper	2.7		~~J~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	0.41	~~J~~	JQ	MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	4.4		~~J~~ JK	MS
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	0.56	~~J~~	JQ	MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.067	~~J~~	~~J~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.10	~~J~~	U	MS
7440-62-2	Vanadium	2.6	~~J~~	JQ	MS
7440-66-6	Zinc	24.8		~~J~~ JK	MS
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQB1

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-05

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	0.35	~~J~~	U	MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	15.0			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	0.16	~~J~~	JQ	MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	1.1	~~J~~	JQ	MS
7440-48-4	Cobalt	0.17	~~J~~	JQ	MS
7440-50-8	Copper	10.0		~~J~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	1.3			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	0.54	~~J~~	JQ ~~J~~ ~~JKMW~~	MS
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	0.52	~~J~~	JQ	MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.10	~~J~~	~~J~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.10	~~J~~	U	MS
7440-62-2	Vanadium	2.2	~~J~~	JQ	MS
7440-66-6	Zinc	15.5		~~J~~ JK	MS
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQB2

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-06

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	3.3		D	MS
7440-39-3	Barium	1410			MS
7440-41-7	Beryllium	3.9		D	MS
7440-43-9	Cadmium	1.4			MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	33.4		D	MS
7440-48-4	Cobalt	102		D	MS
7440-50-8	Copper	132		~~D~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	37.4			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	4070		~~D~~ JK	MS
7439-97-6	Mercury	0.32			CV
7440-02-0	Nickel	55.8		~~D~~	MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	10.0	U	~~D~~	MS
7440-22-4	Silver	0.47	~~J~~	JQ ~~N~~ ~~J~~	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.59	~~J~~	JQ	MS
7440-62-2	Vanadium	53.1		D	MS
7440-66-6	Zinc	296		~~D~~ JK	MS
57-12-5	Cyanide				NR

DH 10-27-09

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQB3

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-07

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	11.4			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	1.4	~~J~~	JQ	MS
7440-48-4	Cobalt	1.0	U		MS
7440-50-8	Copper	14.2		~~J~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	2.4			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	3.3		~~J~~ JK	MS
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	0.62	~~J~~	JQ	MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.043	~~J~~	~~J~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	0.56	~~J~~	JQ	MS
7440-66-6	Zinc	20.2		~~J~~ JK	MS
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

USEPA - CLP

IA-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQB4

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-08

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	11.6			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	1.2	~~J~~	JQ	MS
7440-48-4	Cobalt	1.0	U		MS
7440-50-8	Copper	9.8		~~*~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	1.9			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	1.2		~~*~~ JK	MS
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	0.49	~~J~~	JQ	MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	1.0	U	~~*~~	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	3.3	~~J~~	JQ	MS
7440-66-6	Zinc	75.8		~~*~~ JK	MS
57-12-5	Cyanide				NR

DM
10-27-09

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQB5

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-14

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 0.0

Concentration Units (**ug/L** or **mg/kg** dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	10.2			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	0.093	~~J~~	JQ	MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	1.1	~~J~~	JQ	MS
7440-48-4	Cobalt	0.22	~~J~~	JQ	MS
7440-50-8	Copper	4.8		~~J~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	0.51	~~J~~	JQ	MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	10.5		~~J~~ JK	MS
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	0.46	~~J~~	JQ	MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.057	~~J~~	~~J~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	2.1	~~J~~	JQ	MS
7440-66-6	Zinc	7.5		~~J~~ JK	MS
57-12-5	Cyanide				NR

10-27-09

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQB7

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-09

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	14.2			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	1.0	U		MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	0.98	~~J~~	JQ	MS
7440-48-4	Cobalt	1.0	U		MS
7440-50-8	Copper	362		~~J~~ Jk	MS
7439-89-6	Iron				NR
7439-92-1	Lead	15.2			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	0.89	~~J~~	JQ ~~*E~~ ~~JK~~	MS
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	0.99	~~J~~	JQ	MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.050	~~J~~	~~*~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	3.1	~~J~~	JQ	MS
7440-66-6	Zinc	131		~~J~~ Jk	MS
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQB8

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-10

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	4.4	~~J~~	JQ	MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	0.10	~~J~~	JQ	MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	1.1	~~J~~	JQ	MS
7440-48-4	Cobalt	1.0	U		MS
7440-50-8	Copper	19.1		~~*~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	19.0			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	6.0		~~*~~ JK	MS
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	0.44	~~J~~	JQ	MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.043	~~J~~	~~*~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	7.5			MS
7440-66-6	Zinc	214		~~*~~ JK	MS
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQD6

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 . NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-11

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	0.49	~~J~~	U	MS
7440-38-2	Arsenic	1.9			MS
7440-39-3	Barium	112			MS
7440-41-7	Beryllium	0.23	~~J~~	JQ	MS
7440-43-9	Cadmium	0.86	~~J~~	JQ	MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	10			MS
7440-48-4	Cobalt	5.3			MS
7440-50-8	Copper	62.9		~~*~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	61.4			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	576		~~*~~ JK	MS
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	14.4			MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.11	~~J~~	~~*~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	15.9			MS
7440-66-6	Zinc	241		~~*~~ JK	MS
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

IA-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQD7

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-12

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	6.15		JL	MS
7440-39-3	Barium	2860			MS
7440-41-7	Beryllium	11.0		JL	MS
7440-43-9	Cadmium	5.0			MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	57.63		JL	MS
7440-48-4	Cobalt	190.9		JL	MS
7440-50-8	Copper	239		JL	MS
7439-89-6	Iron				NR
7439-92-1	Lead	87.4			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	9615.0		JL	MS
7439-97-6	Mercury	0.55			CV
7440-02-0	Nickel	122.1		JL	MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	~~U~~	UJL	NR
7440-22-4	Silver	0.72	~~J~~	JQ ~~J~~ ~~JHMU~~	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	4.0			MS
7440-62-2	Vanadium	72.3		JL	MS
7440-66-6	Zinc	347.8		JL	MS
57-12-5	Cyanide				NR

DM
10-27-09

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQD8

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-13

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	0.44	~~J~~	U	MS
7440-38-2	Arsenic	0.90	~~J~~	JQ	MS
7440-39-3	Barium	1170			MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	2.7			MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	4.0			MS
7440-48-4	Cobalt	4.8			MS
7440-50-8	Copper	48.8		~~J~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	18.4			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	568		~~E~~ JK	MS
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	8.2			MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.22	~~J~~	~~J~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	2.2	~~J~~	JQ	MS
7440-66-6	Zinc	70.2		~~J~~ JK	MS
57-12-5	Cyanide				NR

DY 10-27-09

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQE1

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-15

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	0.43	~~J~~	U	MS
7440-38-2	Arsenic	1.9			MS
7440-39-3	Barium	220			MS
7440-41-7	Beryllium	0.85	~~J~~	~~J~~ Q	MS
7440-43-9	Cadmium	0.43	~~J~~	~~J~~ Q	MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	21.9			MS
7440-48-4	Cobalt	17.2			MS
7440-50-8	Copper	32.4		~~J~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	6.8			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	618		~~E~~ JK	MS
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	16.8			MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.14	~~J~~	~~J~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.29	~~J~~	U	MS
7440-62-2	Vanadium	27.1			MS
7440-66-6	Zinc	77.8		~~J~~ JK	MS
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQE3

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-16

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	4.4		D	MS
7440-39-3	Barium	1980			MS
7440-41-7	Beryllium	5.7		D DM	MS
7440-43-9	Cadmium	2.1			MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	50.7		D DM	MS
7440-48-4	Cobalt	154		D	MS
7440-50-8	Copper	192		~~D~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	43.2			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	6120		~~ED~~ JK	MS
7439-97-6	Mercury	0.29			CV
7440-02-0	Nickel	76.4		~~D~~ DM	MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	10.0	U	~~D~~ DM	MS
7440-22-4	Silver	0.34	~~J~~	JQ ~~N~~ ~~JHTM~~	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	1.5			MS
7440-62-2	Vanadium	70.6		D	MS
7440-66-6	Zinc	331		~~D~~ JK	MS
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQF3

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-17

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	0.77	~~J~~	U	MS
7440-38-2	Arsenic	5.5			MS
7440-39-3	Barium	506			MS
7440-41-7	Beryllium	1.5			MS
7440-43-9	Cadmium	2.0			MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	147			MS
7440-48-4	Cobalt	39.0			MS
7440-50-8	Copper	205		~~J~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	21.4			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	1480		~~J~~ JK	MS
7439-97-6	Mercury	0.15	~~J~~	JQ	CV
7440-02-0	Nickel	120			MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.26	~~J~~	~~J~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.42	~~J~~	U	MS
7440-62-2	Vanadium	39.6			MS
7440-66-6	Zinc	2860		~~J~~ JK	MS
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQF4

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-18

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	0.47	~~J~~	u	MS
7440-38-2	Arsenic	7.3			MS
7440-39-3	Barium	500			MS
7440-41-7	Beryllium	5.8			MS
7440-43-9	Cadmium	2.0			MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	151			MS
7440-48-4	Cobalt	15.9			MS
7440-50-8	Copper	138		~~J~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	128			MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	1820		~~E~~ JK	MS
7439-97-6	Mercury	0.27			CV
7440-02-0	Nickel	61.9			MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.75	~~J~~	JQ ~~N-SHPM~~	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	0.26	~~J~~	u	MS
7440-62-2	Vanadium	33.4			MS
7440-66-6	Zinc	633		~~J~~ JK	MS
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: BROWN Clarity Before: CLOUDY Texture: _____

Color After: YELLOW Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQF5

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Matrix: (soil/water) WATER Lab Sample ID: A4469-19

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum				NR
7440-36-0	Antimony	2.0	U		MS
7440-38-2	Arsenic	1.0	U		MS
7440-39-3	Barium	1.4	J Q		MS
7440-41-7	Beryllium	1.0	U		MS
7440-43-9	Cadmium	0.11	J		MS
7440-70-2	Calcium				NR
7440-47-3	Chromium	1.4	J Q		MS
7440-48-4	Cobalt	1.0	U		MS
7440-50-8	Copper	1.1	~~J~~	JQ ~~+~~ JK	MS
7439-89-6	Iron				NR
7439-92-1	Lead	0.45	J Q		MS
7439-95-4	Magnesium				NR
7439-96-5	Manganese	4.4		~~*E~~ JK	MS
7439-97-6	Mercury	0.20	U		CV
7440-02-0	Nickel	0.32	J Q		MS
7440-09-7	Potassium				NR
7782-49-2	Selenium	5.0	U		MS
7440-22-4	Silver	0.040	~~J~~	~~*~~ U	MS
7440-23-5	Sodium				NR
7440-28-0	Thallium	1.0	U		MS
7440-62-2	Vanadium	5.0	U		MS
7440-66-6	Zinc	4.9		~~*~~ JK	MS
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

USEPA - CLP

9-IN
METHOD DETECTION LIMITS (ANNUALLY)

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Instrument Type: CV Instrument ID: CV1 Date: 01/07/2009

Preparation Method: CW1

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	CRQL	MDL
Aluminum		200	
Antimony		60	
Arsenic		10	
Barium		200	
Beryllium		5	
Cadmium		5	
Calcium		5000	
Chromium		10	
Cobalt		50	
Copper		25	
Iron		100	
Lead		10	
Magnesium		5000	
Manganese		15	
Mercury	253.70	0.2	0.099
Nickel		40	
Potassium		5000	
Selenium		35	
Silver		10	
Sodium		5000	
Thallium		25	
Vanadium		50	
Zinc		60	
Cyanide		10	

Comments:

USEPA - CLP

9-IN
METHOD DETECTION LIMITS (ANNUALLY)

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Instrument Type: MS Instrument ID: P6 Date: 01/06/2009

Preparation Method: HW3

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	CRQL	MDL
Aluminum			
Antimony	121.00	2	0.30
Arsenic	75.00	1	0.47
Barium	137.00	10	0.066
Beryllium	9.00	1	0.16
Cadmium	111.00	1	0.080
Calcium			
Chromium	52.00	2	0.074
Cobalt	59.00	1	0.086
Copper	63.00	2	0.090
Iron			
Lead	208.00	1	0.052
Magnesium			
Manganese	55.00	1	0.080
Mercury			
Nickel	60.00	1	0.088
Potassium			
Selenium	82.00	5	1.2
Silver	107.00	1	0.040
Sodium			
Thallium	205.00	1	0.067
Vanadium	51.00	5	0.20
Zinc	66.00	2	0.30
Cyanide			

Comments:

USEPA - CLP

9-IN
METHOD DETECTION LIMITS (ANNUALLY)

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Instrument Type: MS Instrument ID: P6 Date: 01/06/2009

Preparation Method: NP1

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	CRQL	MDL
Aluminum			
Antimony	121.00	2	0.27
Arsenic	75.00	1	0.38
Barium	137.00	10	0.21
Beryllium	9.00	1	0.15
Cadmium	111.00	1	0.12
Calcium			
Chromium	52.00	2	0.079
Cobalt	59.00	1	0.091
Copper	63.00	2	0.11
Iron			
Lead	208.00	1	0.061
Magnesium			
Manganese	55.00	1	0.16
Mercury			
Nickel	60.00	1	0.28
Potassium			
Selenium	82.00	5	1.8
Silver	107.00	1	0.064
Sodium			
Thallium	205.00	1	0.059
Vanadium	51.00	5	0.28
Zinc	66.00	2	0.26
Cyanide			

Comments:

USEPA - CLP

12-IN
PREPARATION LOG

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Preparation Method: CW1

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
CCB	10/01/2009		100
CCV	10/01/2009		100
CRI	10/01/2009		100
ICB	10/01/2009		100
ICV	10/01/2009		100
MJBQA4	10/01/2009		100
MJBQB0	10/01/2009		100
MJBQB0D	10/01/2009		100
MJBQB0S	10/01/2009		100
MJBQB1	10/01/2009		100
MJBQB2	10/01/2009		100
MJBQB3	10/01/2009		100
MJBQB4	10/01/2009		100
MJBQB5	10/01/2009		100
MJBQB7	10/01/2009		100
MJBQB8	10/01/2009		100
MJBQD6	10/01/2009		100
MJBQD7	10/01/2009		100
MJBQD8	10/01/2009		100
MJBQE1	10/01/2009		100
MJBQE3	10/01/2009		100
MJBQF3	10/01/2009		100
MJBQF4	10/01/2009		100
MJBQF5	10/01/2009		100
PBW	10/01/2009		100
S0	10/01/2009		100
S0.2	10/01/2009		100
S2.5	10/01/2009		100
S5.0	10/01/2009		100
S7.5	10/01/2009		100
S10.0	10/01/2009		100

USEPA - CLP

12-IN
PREPARATION LOG

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA4

Preparation Method: HW3

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSW	10/01/2009		50
MJBQA4	10/01/2009		50
MJBQB0	10/01/2009		50
MJBQB0D	10/01/2009		50
MJBQB0S	10/01/2009		50
MJBQB1	10/01/2009		50
MJBQB2	10/01/2009		50
MJBQB3	10/01/2009		50
MJBQB4	10/01/2009		50
MJBQB5	10/01/2009		50
MJBQB7	10/01/2009		50
MJBQB8	10/01/2009		50
MJBQD6	10/01/2009		50
MJBQD7	10/01/2009		50
MJBQD8	10/01/2009		50
MJBQE1	10/01/2009		50
MJBQE3	10/01/2009		50
MJBQF3	10/01/2009		50
MJBQF4	10/01/2009		50
MJBQF5	10/01/2009		50
PBW	10/01/2009		50

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: October 30, 2009

TO: Josh Hancock, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Inorganic Data Summary Check,**
Biffle Property Site, Vancouver, Washington

REF: TDD: 09-07-0007 PAN: 002233.0471.01IA

The data summary check of 17 soil samples collected from the Biffle Property site in Vancouver, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA CLP SOW ILM05.4) were performed by Chemtech, Mountainside, New Jersey.

The samples were numbered:

MJBQD1	MJBQD2	MJBQD3	MJBQD4	MJBQD9	MJBQE4
MJBQE5	MJBQE6	MJBQE7	MJBQE8	MJBQE9	MJBQF0
MJBQF1	MJBQF2	MJBQF7	MJBQF8	MJBQF9	

The following discrepancies were noted: some qualifiers listed in the validation memorandum were inadvertently not applied; the secondary reviewer added these qualifiers.

Sample results less than the CRQL but greater than the IDL were qualified as "JQ" to indicate that the result was an estimated quantity less than the CRQL but greater than the IDL. The "Q" bias qualifier supersedes other bias qualifiers.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101

October 26, 2009

Reply To
Attn. Of: OEA-095

MEMORANDUM

SUBJECT: Data Validation for Biffle Property Integrated Assessment, Case# 39007, SDG: MJBQD1, Inorganic Analysis

FROM: Donald Matheny, Chemist
Environmental Services Unit, OEA

TO: Monica Tonel, Site Assessment Manager
Office of Environmental Cleanup (ECL-112)

CC: Renee Nordeen, Ecology & Environment, Inc.,

The data validation of inorganic analyses for the above sample set is complete. Seventeen (17) soil samples were analyzed for total elements by Chemtech, Mountainside, NJ. The sample numbers for this delivery group are:

MJBQD1	MJBQD2	MJBQD3	MJBQD4	MJBQD9	MJBQE4	MJBQE5
MJBQE6	MJBQE7	MJBQE8	MJBQE9	MJBQF0	MJBQF1	MJBQF2
MJBQF7	MJBQF8	MJBQF9				

DATA QUALIFICATIONS

The following comments refer to the lab's performance in meeting the specifications outlined in the "CLP Statement of Work (CLP-SOW) for Inorganic Analysis, rev. ILM05.4", the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" and the judgment of the reviewer. The comments presented herein are based on the information provided for the review.

TIMELINESS - Acceptable

The holding time from the date of collection to the date of digestion and analyses were met for all elements (180 days, Hg 28 days). Samples were collected on 9/24/09 through 9/26/09. ICP-AES analysis was conducted on 10/2/09. Mercury analysis was conducted on 10/2/09.

INSTRUMENT CALIBRATION/VERIFICTION - Acceptable

Instrument calibration for the ICP-AES was performed within the method requirements. Recoveries for verification standards (94-106%) met the frequency (10%) and recovery (90-110%) criteria.

For mercury, a blank and five standards were digested for instrument calibration. The correlation coefficient ($\geq$ 0.999) met the linearity criterion ($\geq$ 0.995). Percent recoveries for verification standards (96-103%) met the frequency (10%) and recovery (80-120%) criteria.

Quantitation verification standards met both the frequency and recovery criteria for all elements.

ICP INTERFERENCE CHECK SAMPLE (ICS) - Acceptable

An ICS was analyzed at the required frequency and recoveries met the criteria (80-120% or $\pm$ 2xCRQL) for all elements.

LABORATORY CONTROL SAMPLES (LCS) - Acceptable

A solid LCS was digested and analyzed. Recoveries were within the acceptance limits for solids.

BLANKS

Laboratory blanks were prepared and analyzed in accordance with method requirements. Blanks were not detected within a concentration factor (5X) of samples with the exception of sodium. Affected samples were qualified (U) for this element.

MATRIX SPIKE ANALYSIS

A matrix spike was analyzed for sample MJBQS1. Percent recoveries (75-121%) met the acceptance criterion (75-125%) for the matrix spike analysis with the exception of antimony (61%), selenium (74%) and thallium (61%). Data for these elements were qualified (JL or UJL) and may be biased low.

DUPLICATE SAMPLE ANALYSIS - Acceptable

A duplicate sample was analyzed for sample MJBQE4. Relative percent differences ($\leq$ 17%) met the control limits ($\pm$ 35% or $\pm$ 2xCRQL) for duplicate sample analysis in soils.

ICP SERIAL DILUTION

A five-fold serial dilution was analyzed for sample MJBQE4. Percent differences exceeded the acceptance criteria ($\leq$ 10%) for all applicable elements (>50xMDL). These are: aluminum (15%), barium (16%), calcium (19%), chromium (15%), iron (20%), magnesium (17%), manganese (20%), sodium (28%), vanadium (21%) and zinc (19%). Data for these elements were qualified (JL) and may be biased low.

ASSESSMENT SUMMARY

The following is a summary of qualified data:

Sodium data were qualified (U) due to the detected presence of this element in the laboratory blanks.

Antimony, selenium and thallium data were qualified (JL or UJL) due to a low spike recoveries. Values for these elements may be biased low.

Aluminum, barium, calcium, chromium, iron, magnesium, manganese, sodium, vanadium and zinc data were qualified (JL) due to high percent differences in the serial dilution results. Values for these elements may be biased low.

DATA QUALIFIERS

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

J - The associated value is an estimated quantity.

R - The data are unusable. The analyte may or may not be present in the sample.

UJ - The analyte was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

PROJECT SPECIFIC DATA QUALIFIERS:

L - Low bias.

H - High bias.

K - Unknown Bias.

Q - Detected concentration is below the method reporting limit / Contract Required Quantitation Limit, but is above the method detection limit.

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQD1

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-01

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 76.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	24200		~~E~~ JL	P
7440-36-0	Antimony	1.1	~~J~~	JQ ~~N JL~~	P
7440-38-2	Arsenic	2.4			P
7440-39-3	Barium	246		~~E~~ JL	P
7440-41-7	Beryllium	0.73			P
7440-43-9	Cadmium	0.14	~~J~~	JQ ~~Q~~ m	P
7440-70-2	Calcium	3020		~~E~~ JL	P
7440-47-3	Chromium	15.3		~~E~~ JL	P
7440-48-4	Cobalt	18.4			P
7440-50-8	Copper	17.8			P
7439-89-6	Iron	34200		~~E~~ JL	P
7439-92-1	Lead	8.7			P
7439-95-4	Magnesium	3870		~~E~~ JL	P
7439-96-5	Manganese	662		~~E~~ JL	P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	12.8			P
7440-09-7	Potassium	914			P
7782-49-2	Selenium	1.6	~~J~~	JQ ~~N JL m~~	P
7440-22-4	Silver	0.17	~~J~~	JQ	P
7440-23-5	Sodium	138	~~J~~	~~E~~ u	P
7440-28-0	Thallium	3.0	~~E~~	~~N~~ uJL	P
7440-62-2	Vanadium	89.2		~~E~~ JL	P
7440-66-6	Zinc	58.5		~~E~~ JL	P
57-12-5	Cyanide				NR

DM
10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQD2

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-02

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 88.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14300		~~E~~ JL	P
7440-36-0	Antimony	0.75	~~J~~	JQ ~~N~~ ~~JLm~~	P
7440-38-2	Arsenic	1.1			P
7440-39-3	Barium	125		~~E~~ JL	P
7440-41-7	Beryllium	0.43			P
7440-43-9	Cadmium	0.13	~~J~~	JQ	P
7440-70-2	Calcium	4120		~~E~~ JL	P
7440-47-3	Chromium	22.0		~~E~~ JL	P
7440-48-4	Cobalt	18.6			P
7440-50-8	Copper	21.7			P
7439-89-6	Iron	27900		~~E~~ JL	P
7439-92-1	Lead	3.4			P
7439-95-4	Magnesium	4830		~~E~~ JL	P
7439-96-5	Manganese	477		~~E~~ JL	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	19.7			P
7440-09-7	Potassium	1140			P
7782-49-2	Selenium	0.88	~~J~~	JQ ~~N~~ ~~JLm~~	P
7440-22-4	Silver	0.20	~~J~~	JQ	P
7440-23-5	Sodium	339	~~J~~	JQ ~~E~~ ~~JLm~~	P
7440-28-0	Thallium	2.1	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	57.9		~~E~~ JL	P
7440-66-6	Zinc	43.0		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQD3

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-03

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 89.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9650		~~E~~ JL	P
7440-36-0	Antimony	0.86	~~J~~	JQ ~~N JLpm~~	P
7440-38-2	Arsenic	1.1			P
7440-39-3	Barium	130		~~E~~ JL	P
7440-41-7	Beryllium	0.42	~~J~~	JQ ~~Qpm~~	P
7440-43-9	Cadmium	0.13	~~J~~	JQ	P
7440-70-2	Calcium	4200		~~E~~ JL	P
7440-47-3	Chromium	7.6		~~E~~ JL	P
7440-48-4	Cobalt	13.7			P
7440-50-8	Copper	20.2			P
7439-89-6	Iron	25300		~~E~~ JL	P
7439-92-1	Lead	3.7			P
7439-95-4	Magnesium	2880		~~E~~ JL	P
7439-96-5	Manganese	351		~~E~~ JL	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	8.8			P
7440-09-7	Potassium	702			P
7782-49-2	Selenium	0.81	~~J~~	JQ ~~N JLpm~~	P
7440-22-4	Silver	0.20	~~J~~	JQ	P
7440-23-5	Sodium	228	~~J~~	JQ ~~E JLpm~~	P
7440-28-0	Thallium	2.6	~~U~~	~~N~~ uJL	P
7440-62-2	Vanadium	66.3		~~E~~ JL	P
7440-66-6	Zinc	42.9		~~E~~ JL	P
57-12-5	Cyanide				NR

DM
10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQD4

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-04

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 91.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7730		~~E~~ JL	P
7440-36-0	Antimony	2.8	~~J~~	JQ ~~N~~ ~~JLm~~	P
7440-38-2	Arsenic	3.3			P
7440-39-3	Barium	66.6		~~E~~ JL	P
7440-41-7	Beryllium	0.40	~~J~~	JQ	P
7440-43-9	Cadmium	0.22	~~J~~	JQ	P
7440-70-2	Calcium	3700		~~E~~ JL	P
7440-47-3	Chromium	1000		~~E~~ JL	P
7440-48-4	Cobalt	13.6			P
7440-50-8	Copper	71.3			P
7439-89-6	Iron	50800		~~E~~ JL	P
7439-92-1	Lead	2.8			P
7439-95-4	Magnesium	2480		~~E~~ JL	P
7439-96-5	Manganese	501		~~E~~ JL	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	57.0			P
7440-09-7	Potassium	410	~~J~~	JQ	P
7782-49-2	Selenium	0.98	~~J~~	JQ ~~N~~ ~~JLm~~	P
7440-22-4	Silver	0.19	~~J~~	JQ	P
7440-23-5	Sodium	205	~~J~~	JQ ~~E~~ ~~JLm~~	P
7440-28-0	Thallium	2.3	~~U~~	~~N~~ uJL	P
7440-62-2	Vanadium	132		~~E~~ JL	P
7440-66-6	Zinc	33.1		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQD9

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-05

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 68.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15700		~~E~~ JL	P
7440-36-0	Antimony	10.4		~~N~~ JL	P
7440-38-2	Arsenic	8.3			P
7440-39-3	Barium	138		~~E~~ JL	P
7440-41-7	Beryllium	0.26	~~J~~	JQ	P
7440-43-9	Cadmium	3.6			P
7440-70-2	Calcium	3970		~~E~~ JL	P
7440-47-3	Chromium	327		~~E~~ JL	P
7440-48-4	Cobalt	22.6			P
7440-50-8	Copper	3700			P
7439-89-6	Iron	88300		~~E~~ JL	P
7439-92-1	Lead	348			P
7439-95-4	Magnesium	2550		~~E~~ JL	P
7439-96-5	Manganese	780		~~E~~ JL	P
7439-97-6	Mercury	0.13	~~J~~	JQ	CV
7440-02-0	Nickel	191			P
7440-09-7	Potassium	322	~~J~~	JQ	P
7782-49-2	Selenium	2.9	~~J~~	JQ ~~*JLM~~	P
7440-22-4	Silver	5.0			P
7440-23-5	Sodium	295	~~J~~	JQ ~~E JLM~~	P
7440-28-0	Thallium	3.3	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	66.1		~~E~~ JL	P
7440-66-6	Zinc	1100		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQE4

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-06

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 91.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18000		~~E~~ JL	P
7440-36-0	Antimony	1.0	~~+~~	JQ ~~* JLM~~	P
7440-38-2	Arsenic	1.9			P
7440-39-3	Barium	170		~~E~~ JL	P
7440-41-7	Beryllium	0.63			P
7440-43-9	Cadmium	0.12	~~+~~	JQ	P
7440-70-2	Calcium	3710		~~E~~ JL	P
7440-47-3	Chromium	10.6		~~E~~ JL	P
7440-48-4	Cobalt	19.0			P
7440-50-8	Copper	25.2			P
7439-89-6	Iron	30000		~~E~~ JL	P
7439-92-1	Lead	8.1			P
7439-95-4	Magnesium	3610		~~E~~ JL	P
7439-96-5	Manganese	579		~~E~~ JL	P
7439-97-6	Mercury	0.043	~~+~~	JQ	CV
7440-02-0	Nickel	11.0			P
7440-09-7	Potassium	400	~~+~~	JQ	P
7782-49-2	Selenium	1.1	~~+~~	JQ ~~* JLM~~	P
7440-22-4	Silver	0.10	~~+~~	JQ	P
7440-23-5	Sodium	205	~~+~~	JQ ~~E JLM~~	P
7440-28-0	Thallium	2.7	~~+~~	~~*~~ UJL	P
7440-62-2	Vanadium	81.2		~~E~~ JL	P
7440-66-6	Zinc	52.3		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQE5

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-09

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 91.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12000		~~E~~ JL	P
7440-36-0	Antimony	0.94	~~J~~	JQ ~~X~~ ~~JLmu~~	P
7440-38-2	Arsenic	1.2			P
7440-39-3	Barium	147		~~E~~ JL	P
7440-41-7	Beryllium	0.47			P
7440-43-9	Cadmium	0.12	~~J~~	JQ	P
7440-70-2	Calcium	3830		~~E~~ JL	P
7440-47-3	Chromium	9.3		~~E~~ JL	P
7440-48-4	Cobalt	16.5			P
7440-50-8	Copper	18.6			P
7439-89-6	Iron	26200		~~E~~ JL	P
7439-92-1	Lead	4.0			P
7439-95-4	Magnesium	3200		~~E~~ JL	P
7439-96-5	Manganese	401		~~E~~ JL	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	11.2			P
7440-09-7	Potassium	327	~~J~~	JQ	P
7782-49-2	Selenium	0.48	~~J~~	JQ ~~X~~ ~~JLmu~~	P
7440-22-4	Silver	0.19	~~J~~	JQ	P
7440-23-5	Sodium	206	~~J~~	JQ ~~E~~ ~~JLmu~~	P
7440-28-0	Thallium	2.3	~~U~~	~~N~~ uJL	P
7440-62-2	Vanadium	71.5		~~E~~ JL	P
7440-66-6	Zinc	44.6		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQE6

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-10

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 92.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10900		~~E~~ JL	P
7440-36-0	Antimony	0.88	~~+~~	JQ ~~*~~ ~~JLMu~~	P
7440-38-2	Arsenic	1.4			P
7440-39-3	Barium	126		~~E~~ JL	P
7440-41-7	Beryllium	0.52			P
7440-43-9	Cadmium	0.14	~~+~~	JQ	P
7440-70-2	Calcium	4860		~~E~~ JL	P
7440-47-3	Chromium	10.9		~~E~~ JL	P
7440-48-4	Cobalt	16.3			P
7440-50-8	Copper	23.5			P
7439-89-6	Iron	28300		~~E~~ JL	P
7439-92-1	Lead	4.1			P
7439-95-4	Magnesium	4270		~~E~~ JL	P
7439-96-5	Manganese	414		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	13.8			P
7440-09-7	Potassium	480			P
7782-49-2	Selenium	0.78	~~+~~	JQ ~~*~~ ~~JLMu~~	P
7440-22-4	Silver	0.16	~~+~~	JQ	P
7440-23-5	Sodium	246	~~+~~	JQ ~~E~~ ~~JLMu~~	P
7440-28-0	Thallium	2.4	~~+~~	~~*~~ UJL	P
7440-62-2	Vanadium	66.8		~~E~~ JL	P
7440-66-6	Zinc	45.7		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQE7

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-11

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 91.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6260		~~E~~ JL	P
7440-36-0	Antimony	5.2	~~U~~	~~N~~ UJL	P
7440-38-2	Arsenic	1.3			P
7440-39-3	Barium	68.8		~~E~~ JL	P
7440-41-7	Beryllium	0.31	~~J~~	JQ	P
7440-43-9	Cadmium	0.10	~~J~~	JQ	P
7440-70-2	Calcium	3720		~~E~~ JL	P
7440-47-3	Chromium	6.7		~~E~~ JL	P
7440-48-4	Cobalt	9.9			P
7440-50-8	Copper	18.4			P
7439-89-6	Iron	19000		~~E~~ JL	P
7439-92-1	Lead	3.0			P
7439-95-4	Magnesium	2780		~~E~~ JL	P
7439-96-5	Manganese	287		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	7.6			P
7440-09-7	Potassium	452			P
7782-49-2	Selenium	0.53	~~J~~	JQ ~~N~~ ~~JLMu~~	P
7440-22-4	Silver	0.13	~~J~~	JQ	P
7440-23-5	Sodium	180	~~J~~	U ~~E~~ ~~UMu~~	P
7440-28-0	Thallium	2.1	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	45.8		~~E~~ JL	P
7440-66-6	Zinc	33.4		~~E~~ JL	P
57-12-5	Cyanide				NR

DH 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

IA-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQE8

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-12

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 88.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16700		~~E~~ JL	P
7440-36-0	Antimony	1.1	~~J~~	JQ ~~N~~ ~~FLM~~	P
7440-38-2	Arsenic	1.5			P
7440-39-3	Barium	237		~~E~~ JL	P
7440-41-7	Beryllium	0.54	~~J~~	JQ	P
7440-43-9	Cadmium	0.098	~~J~~	JQ	P
7440-70-2	Calcium	2990		~~E~~ JL	P
7440-47-3	Chromium	9.1		~~E~~ JL	P
7440-48-4	Cobalt	16.4			P
7440-50-8	Copper	18.5			P
7439-89-6	Iron	28700		~~E~~ JL	P
7439-92-1	Lead	5.4			P
7439-95-4	Magnesium	2880		~~E~~ JL	P
7439-96-5	Manganese	456		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	9.8			P
7440-09-7	Potassium	526	~~J~~	JQ	P
7782-49-2	Selenium	0.66	~~J~~	JQ ~~N~~ ~~FLM~~	P
7440-22-4	Silver	0.15	~~J~~	JQ	P
7440-23-5	Sodium	165	~~J~~	~~E~~ U	P
7440-28-0	Thallium	2.8	~~J~~	~~N~~ UJL	P
7440-62-2	Vanadium	78.2		~~E~~ JL	P
7440-66-6	Zinc	48.3		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQE9

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-13

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 88.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13300		~~E~~ JL	P
7440-36-0	Antimony	0.76	~~J~~	JQ ~~N J~~	P
7440-38-2	Arsenic	1.1			P
7440-39-3	Barium	131		~~E~~ JL	P
7440-41-7	Beryllium	0.52			P
7440-43-9	Cadmium	0.12	~~J~~	JQ	P
7440-70-2	Calcium	3760		~~E~~ JL	P
7440-47-3	Chromium	9.4		~~E~~ JL	P
7440-48-4	Cobalt	16.5			P
7440-50-8	Copper	19.1			P
7439-89-6	Iron	24600		~~E~~ JL	P
7439-92-1	Lead	5.9			P
7439-95-4	Magnesium	3190		~~E~~ JL	P
7439-96-5	Manganese	494		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	11.8			P
7440-09-7	Potassium	402	~~J~~	JQ	P
7782-49-2	Selenium	3.1	~~U~~	~~N~~ UJL	P
7440-22-4	Silver	0.13	~~J~~	JQ	P
7440-23-5	Sodium	166	~~J~~	~~E~~ U	P
7440-28-0	Thallium	2.2	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	57.3		~~E~~ JL	P
7440-66-6	Zinc	45.7		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

1A-IN

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQF0

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-14

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 88.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8880		~~E~~ JL	P
7440-36-0	Antimony	0.70	J	JQ ~~N~~ ~~JLM~~	P
7440-38-2	Arsenic	1.4			P
7440-39-3	Barium	111		~~E~~ JL	P
7440-41-7	Beryllium	0.36	J	JQ	P
7440-43-9	Cadmium	0.095	J	JQ	P
7440-70-2	Calcium	3920		~~E~~ JL	P
7440-47-3	Chromium	8.3		~~E~~ JL	P
7440-48-4	Cobalt	12.0			P
7440-50-8	Copper	19.3			P
7439-89-6	Iron	21200		~~E~~ JL	P
7439-92-1	Lead	3.7			P
7439-95-4	Magnesium	3160		~~E~~ JL	P
7439-96-5	Manganese	313		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	10.4			P
7440-09-7	Potassium	444			P
7782-49-2	Selenium	0.51	J	JQ ~~N~~ ~~JLM~~	P
7440-22-4	Silver	0.12	J	JQ	P
7440-23-5	Sodium	203	J	JQ ~~E~~ ~~JLM~~	P
7440-28-0	Thallium	1.9	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	50.8		~~E~~ JL	P
7440-66-6	Zinc	37.0		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQF1

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-15

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 88.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17300		~~E~~ JL	P
7440-36-0	Antimony	6.4	~~U~~	~~N~~ UJL	P
7440-38-2	Arsenic	1.6			P
7440-39-3	Barium	180		~~E~~ JL	P
7440-41-7	Beryllium	0.62			P
7440-43-9	Cadmium	0.086	~~J~~	JQ	P
7440-70-2	Calcium	3200		~~E~~ JL	P
7440-47-3	Chromium	8.3		~~E~~ JL	P
7440-48-4	Cobalt	16.3			P
7440-50-8	Copper	19.9			P
7439-89-6	Iron	26700		~~E~~ JL	P
7439-92-1	Lead	8.8			P
7439-95-4	Magnesium	3050		~~E~~ JL	P
7439-96-5	Manganese	518		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	9.1			P
7440-09-7	Potassium	650			P
7782-49-2	Selenium	0.86	~~J~~	JQ ~~N~~ ~~JLM~~	P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	184	~~J~~	~~E~~ U	P
7440-28-0	Thallium	2.7	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	63.0		~~E~~ JL	P
7440-66-6	Zinc	46.9		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQF2

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-16

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 88.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10400		~~E~~ JL	P
7440-36-0	Antimony	0.85	~~J~~	JQ ~~N~~ ~~JLMU~~	P
7440-38-2	Arsenic	1.4			P
7440-39-3	Barium	114		~~E~~ JL	P
7440-41-7	Beryllium	0.49	~~J~~	JQ	P
7440-43-9	Cadmium	0.13	~~J~~	JQ	P
7440-70-2	Calcium	4920		~~E~~ JL	P
7440-47-3	Chromium	12.0		~~E~~ JL	P
7440-48-4	Cobalt	15.9			P
7440-50-8	Copper	24.2			P
7439-89-6	Iron	26600		~~E~~ JL	P
7439-92-1	Lead	4.4			P
7439-95-4	Magnesium	3790		~~E~~ JL	P
7439-96-5	Manganese	427		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	12.0			P
7440-09-7	Potassium	556			P
7782-49-2	Selenium	1.2	~~J~~	JQ ~~N~~ ~~JLMU~~	P
7440-22-4	Silver	0.14	~~J~~	JQ	P
7440-23-5	Sodium	266	~~J~~	JQ ~~E~~ ~~JLMU~~	P
7440-28-0	Thallium	2.5	~~J~~	~~N~~ UJL	P
7440-62-2	Vanadium	66.9		~~E~~ JL	P
7440-66-6	Zinc	48.7		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQF7

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-17

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 91.1

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14100		~~E~~ JL	P
7440-36-0	Antimony	0.92	~~J~~	JQ ~~N JLMW~~	P
7440-38-2	Arsenic	1.2			P
7440-39-3	Barium	343		~~E~~ JL	P
7440-41-7	Beryllium	0.48			P
7440-43-9	Cadmium	0.15	~~J~~	JQ	P
7440-70-2	Calcium	3580		~~E~~ JL	P
7440-47-3	Chromium	5.6		~~E~~ JL	P
7440-48-4	Cobalt	15.1			P
7440-50-8	Copper	18.9			P
7439-89-6	Iron	24600		~~E~~ JL	P
7439-92-1	Lead	5.3			P
7439-95-4	Magnesium	2460		~~E~~ JL	P
7439-96-5	Manganese	383		~~E~~ JL	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	7.6			P
7440-09-7	Potassium	555			P
7782-49-2	Selenium	0.66	~~J~~	JQ ~~N JLMW~~	P
7440-22-4	Silver	0.17	~~J~~	JQ	P
7440-23-5	Sodium	202	~~J~~	JQ ~~E JLMW~~	P
7440-28-0	Thallium	2.3	~~E~~	~~N~~ UJL	P
7440-62-2	Vanadium	66.0		~~E~~ JL	P
7440-66-6	Zinc	46.7		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQF8

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-18

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 92.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8270		~~E~~ JL	P
7440-36-0	Antimony	0.73	J	JQ ~~N JLMW~~	P
7440-38-2	Arsenic	0.90			P
7440-39-3	Barium	102		~~E~~ JL	P
7440-41-7	Beryllium	0.33	J	JQ	P
7440-43-9	Cadmium	0.086	J	JQ	P
7440-70-2	Calcium	3490		~~E~~ JL	P
7440-47-3	Chromium	5.2		~~E~~ JL	P
7440-48-4	Cobalt	12.9			P
7440-50-8	Copper	16.6			P
7439-89-6	Iron	19500		~~E~~ JL	P
7439-92-1	Lead	3.2			P
7439-95-4	Magnesium	2400		~~E~~ JL	P
7439-96-5	Manganese	332		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	8.4			P
7440-09-7	Potassium	267	J	JQ	P
7782-49-2	Selenium	0.46	J	JQ ~~N JLMW~~	P
7440-22-4	Silver	0.14	J	JQ	P
7440-23-5	Sodium	207	J	JQ ~~E JLMW~~	P
7440-28-0	Thallium	1.9	U	~~N~~ UJL	P
7440-62-2	Vanadium	52.8		~~E~~ JL	P
7440-66-6	Zinc	34.1		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-26-09

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQF9

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: SDG No.: MJBQD1

Matrix: (soil/water) SOIL Lab Sample ID: A4488-19

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 91.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7140		~~E~~ JL	P
7440-36-0	Antimony	5.9	~~U~~	~~N~~ UJL	P
7440-38-2	Arsenic	0.95	~~J~~	JQ	P
7440-39-3	Barium	113		~~E~~ JL	P
7440-41-7	Beryllium	0.32	~~J~~	JQ	P
7440-43-9	Cadmium	0.083	~~J~~	JQ	P
7440-70-2	Calcium	3960		~~E~~ JL	P
7440-47-3	Chromium	8.9		~~E~~ JL	P
7440-48-4	Cobalt	11.1			P
7440-50-8	Copper	19.3			P
7439-89-6	Iron	20900		~~E~~ JL	P
7439-92-1	Lead	2.7			P
7439-95-4	Magnesium	3110		~~E~~ JL	P
7439-96-5	Manganese	291		~~E~~ JL	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	9.4			P
7440-09-7	Potassium	396	~~J~~	JQ	P.
7782-49-2	Selenium	0.84	~~J~~	JQ ~~N~~ ~~JL~~ MW	P
7440-22-4	Silver	0.13	~~J~~	JQ	P
7440-23-5	Sodium	235	~~J~~	JQ ~~E~~ ~~JL~~ MW	P
7440-28-0	Thallium	2.4	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	41.9		~~E~~ JL	P
7440-66-6	Zinc	30.8		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

DM 10-26-09

Comments:

9-IN

METHOD DETECTION LIMITS (ANNUALLY)

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Instrument Type: CV Instrument ID: CV1 Date: 01/07/2009

Preparation Method: CS1

Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Wavelength /Mass	CRQL	MDL
Aluminum		20	
Antimony		6	
Arsenic		1	
Barium		20	
Beryllium		0.5	
Cadmium		0.5	
Calcium		500	
Chromium		1	
Cobalt		5	
Copper		2.5	
Iron		10	
Lead		1	
Magnesium		500	
Manganese		1.5	
Mercury	253.70	0.1	0.033
Nickel		4	
Potassium		500	
Selenium		3.5	
Silver		1	
Sodium		500	
Thallium		2.5	
Vanadium		5	
Zinc		6	
Cyanide		2.5	

Comments:

9-IN
METHOD DETECTION LIMITS (ANNUALLY)

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Instrument Type: P Instrument ID: P5 Date: 01/05/2009

Preparation Method: HS1

Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Wavelength /Mass	CRQL	MDL
Aluminum	396.15	20	0.70
Antimony	206.83	6	0.80
Arsenic	189.04	1	0.21
Barium	493.41	20	0.47
Beryllium	234.86	0.5	0.060
Cadmium	214.44	0.5	0.050
Calcium	373.69	500	18.2
Chromium	267.72	1	0.11
Cobalt	228.62	5	0.56
Copper	324.75	2.5	0.54
Iron	259.84	10	3.9
Lead	220.35	1	0.18
Magnesium	279.08	500	11.3
Manganese	257.61	1.5	0.31
Mercury		0.1	
Nickel	231.60	4	0.38
Potassium	769.90	500	9.7
Selenium	196.09	3.5	0.49
Silver	328.07	1	0.090
Sodium	818.33	500	2.1
Thallium	190.86	2.5	0.32
Vanadium	292.40	5	0.78
Zinc	213.86	6	0.70
Cyanide		2.5	

Comments:

9-IN

METHOD DETECTION LIMITS (ANNUALLY)

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Instrument Type: P Instrument ID: P5 Date: 01/05/2009

Preparation Method: NP1

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	CRQL	MDL
Aluminum	396.15	200	12.5
Antimony	206.83	60	6.6
Arsenic	189.04	10	3.1
Barium	493.41	200	4.5
Beryllium	234.86	5	0.60
Cadmium	214.44	5	0.40
Calcium	373.69	5000	32.6
Chromium	267.72	10	1.0
Cobalt	228.62	50	5.0
Copper	324.75	25	5.1
Iron	259.84	100	18.1
Lead	220.35	10	2.0
Magnesium	279.08	5000	41.3
Manganese	257.61	15	1.8
Mercury		0.2	
Nickel	231.60	40	3.5
Potassium	769.90	5000	82.2
Selenium	196.09	35	5.4
Silver	328.07	10	1.0
Sodium	818.33	5000	33.8
Thallium	190.86	25	3.5
Vanadium	292.40	50	7.5
Zinc	213.86	60	5.0
Cyanide		10	

Comments:

12-IN
PREPARATION LOG

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Preparation Method: HS1

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSS	10/01/2009	1.00	100
MJBQD1	10/01/2009	1.08	100
MJBQD2	10/01/2009	1.34	100
MJBQD3	10/01/2009	1.08	100
MJBQD4	10/01/2009	1.20	100
MJBQD9	10/01/2009	1.10	100
MJBQE4	10/01/2009	1.00	100
MJBQE4D	10/01/2009	1.00	100
MJBQE4S	10/01/2009	1.00	100
MJBQE5	10/01/2009	1.18	100
MJBQE6	10/01/2009	1.13	100
MJBQE7	10/01/2009	1.28	100
MJBQE8	10/01/2009	1.01	100
MJBQE9	10/01/2009	1.28	100
MJBQF0	10/01/2009	1.50	100
MJBQF1	10/01/2009	1.06	100
MJBQF2	10/01/2009	1.11	100
MJBQF7	10/01/2009	1.17	100
MJBQF8	10/01/2009	1.41	100
MJBQF9	10/01/2009	1.12	100
PBS	10/01/2009	1.00	100

12-IN
PREPARATION LOG

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQD1

Preparation Method: CS1

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
CCB	10/01/2009		100
CCV	10/01/2009		100
CRI	10/01/2009		100
ICB	10/01/2009		100
ICV	10/01/2009		100
LCSS	10/01/2009	0.20	100
MJBQD1	10/01/2009	0.21	100
MJBQD2	10/01/2009	0.22	100
MJBQD3	10/01/2009	0.22	100
MJBQD4	10/01/2009	0.21	100
MJBQD9	10/01/2009	0.22	100
MJBQE4	10/01/2009	0.20	100
MJBQE4D	10/01/2009	0.20	100
MJBQE4S	10/01/2009	0.20	100
MJBQE5	10/01/2009	0.21	100
MJBQE6	10/01/2009	0.20	100
MJBQE7	10/01/2009	0.20	100
MJBQE8	10/01/2009	0.20	100
MJBQE9	10/01/2009	0.20	100
MJBQF0	10/01/2009	0.20	100
MJBQF1	10/01/2009	0.20	100
MJBQF2	10/01/2009	0.20	100
MJBQF7	10/01/2009	0.21	100
MJBQF8	10/01/2009	0.20	100
MJBQF9	10/01/2009	0.21	100
PBS	10/01/2009	0.20	100
S0	10/01/2009		100
S0.2	10/01/2009		100
S2.5	10/01/2009		100
S5.0	10/01/2009		100
S7.5	10/01/2009		100
S10.0	10/01/2009		100

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: October 30, 2009

TO: Josh Hancock, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Inorganic Data Summary Check,**
Biffle Property Site, Vancouver, Washington

REF: TDD: 09-07-0007 PAN: 002233.0471.01IA

The data summary check of 19 soil samples collected from the Biffle Property site in Vancouver, Washington, has been completed. Target Analyte List (TAL) metals analyses (EPA CLP SOW ILM05.4) were performed by Chemtech, Mountainside, New Jersey.

The samples were numbered:

MJBQA2	MJBQA3	MJBQA5	MJBQA6	MJBQA7	MJBQA8
MJBQA9	MJBQB9	MJBQC0	MJBQC1	MJBQC2	MJBQC3
MJBQC4	MJBQC5	MJBQC6	MJBQC8	MJBQC9	MJBQD0
MJBQD5					

No discrepancies were noted.

Sample results less than the CRQL but greater than the IDL were qualified as "JQ" to indicate that the result was an estimated quantity less than the CRQL but greater than the IDL. The "Q" bias qualifier supersedes other bias qualifiers.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, Washington 98101

October 27, 2009

Reply To
Attn. Of: OEA-095

MEMORANDUM

SUBJECT: Data Validation for Biffle Property Integrated Assessment, Case# 39007, SDG: MJBQA2, Inorganic Analysis

FROM: Donald Matheny, Chemist
Environmental Services Unit, OEA

TO: Monica Tonel, Site Assessment Manager
Office of Environmental Cleanup (ECL-112)

CC: Renee Nordeen, Ecology & Environment, Inc.,

The data validation of inorganic analyses for the above sample set is complete. Nineteen (19) soil/sediment samples were analyzed for total elements by Chemtech, Mountainside, NJ. The sample numbers for this delivery group are:

MJBQA2	MJBQA3	MJBQA5	MJBQA6	MJBQA7	MJBQA8	MJBQA9
MJBQB9	MJBQC0	MJBQC1	MJBQC2	MJBQC3	MJBQC4	MJBQC5
MJBQC6	MJBQC8	MJBQC9	MJBQD0	MJBQD5		

DATA QUALIFICATIONS

The following comments refer to the lab's performance in meeting the specifications outlined in the "CLP Statement of Work (CLP-SOW) for Inorganic Analysis, rev. ILM05.4", the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" and the judgment of the reviewer. The comments presented herein are based on the information provided for the review.

TIMELINESS - Acceptable

The holding time from the date of collection to the date of digestion and analyses were met for all elements (180 days, Hg 28 days). Samples were collected on 9/21/09 through 9/24/09. ICP-AES analysis was conducted on 10/2/09. Mercury analysis was conducted on 10/2/09.

INSTRUMENT CALIBRATION/VERIFICTION - Acceptable

Instrument calibration for the ICP-AES was performed within the method requirements. Recoveries for verification standards (94-106%) met the frequency (10%) and recovery (90-110%) criteria.

For mercury, a blank and five standards were digested for instrument calibration. The correlation coefficient ($\geq$ 0.999) met the linearity criterion ($\geq$ 0.995). Percent recoveries for verification standards (98-103%) met the frequency (10%) and recovery (80-120%) criteria.

Quantitation verification standards met both the frequency and recovery criteria for all elements.

ICP INTERFERENCE CHECK SAMPLE (ICS) - Acceptable

An ICS was analyzed at the required frequency and recoveries met the criteria (80-120% or $\pm$ 2xCRQL) for all elements.

LABORATORY CONTROL SAMPLES (LCS) - Acceptable

A solid LCS was digested and analyzed. Recoveries were within the acceptance limits for solids.

BLANKS

Laboratory blanks were prepared and analyzed in accordance with method requirements. Blanks were not detected within a concentration factor (5X) of samples with the exception of arsenic and cadmium. Affected samples were qualified (U) for these elements.

MATRIX SPIKE ANALYSIS

A matrix spike was analyzed for sample MJBQC8. Percent recoveries (83-104%) met the acceptance criterion (75-125%) with the exception of antimony (70%), silver (127%) and thallium (62%). Antimony and thallium data were qualified (JL or UJL) and may be biased low. Silver data were qualified (JH) and may be biased high.

DUPLICATE SAMPLE ANALYSIS - Acceptable

A duplicate sample was analyzed for sample MJBQC8. Relative percent differences ($\leq$ 9%) met the control limits ($\pm$ 35% or $\pm$ 2xCRQL) for duplicate sample analysis in soil/sediments.

ICP SERIAL DILUTION

A five-fold serial dilution was analyzed for sample MJBQC8. Percent differences ($\leq$ 10%) met the acceptance criteria ($\leq$ 10%) with the exception of aluminum (14%), barium (15%), calcium (17%), chromium (18%), copper (14%), iron (18%), magnesium (15%), manganese (18%), potassium (13%), vanadium (18%) and zinc (13%). Data for these elements were qualified (JL) and may be biased low.

ASSESSMENT SUMMARY

The following is a summary of qualified data:

Arsenic and cadmium data were qualified (U) due to the detected presence of these elements in the laboratory blanks.

Antimony and thallium data were qualified (JL or UJL) due to a low spike recoveries. Values for these elements may be biased low.

Silver data were qualified (JH) due to a high spike recovery. Values for silver may be biased high.

Aluminum, barium, calcium, chromium, copper, iron, magnesium, manganese, potassium, vanadium and zinc data were qualified (JL) due to high percent differences in the serial dilution results. Values for these elements may be biased low.

DATA QUALIFIERS

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

J - The associated value is an estimated quantity.

R - The data are unusable. The analyte may or may not be present in the sample.

UJ - The analyte was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

PROJECT SPECIFIC DATA QUALIFIERS:

L - Low bias.

H - High bias.

K - Unknown Bias.

Q - Detected concentration is below the method reporting limit / Contract Required Quantitation Limit, but is above the method detection limit.

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQA2

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-01

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 94.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10600		~~E~~ JL	P
7440-36-0	Antimony	0.65	~~J~~	JQ ~~N~~ ~~JL~~ AV	P
7440-38-2	Arsenic	1.2		U	P
7440-39-3	Barium	130		~~E~~ JL	P
7440-41-7	Beryllium	0.42			P
7440-43-9	Cadmium	0.18	~~J~~	U	P
7440-70-2	Calcium	4130		~~E~~ JL	P
7440-47-3	Chromium	10.1		~~E~~ JL	P
7440-48-4	Cobalt	14.8			P
7440-50-8	Copper	19.7		~~E~~ JL	P
7439-89-6	Iron	23500		~~E~~ JL	P
7439-92-1	Lead	4.0			P
7439-95-4	Magnesium	3350		~~E~~ JL	P
7439-96-5	Manganese	319		~~E~~ JL	P
7439-97-6	Mercury	0.097	U		CV
7440-02-0	Nickel	13.2			P
7440-09-7	Potassium	594		~~E~~ JL	P
7782-49-2	Selenium	0.79	~~J~~	JQ	P
7440-22-4	Silver	0.14	~~J~~	JQ ~~N~~ ~~JL~~ HM	P
7440-23-5	Sodium	318	~~J~~	JQ	P
7440-28-0	Thallium	1.9	~~U~~	~~N~~ U JL	P
7440-62-2	Vanadium	55.7		~~E~~ JL	P
7440-66-6	Zinc	38.8		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQA3

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-02

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 87.5

Concentration Units (**ug/L** or **mg/kg** dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11600		~~E~~ JL	P
7440-36-0	Antimony	0.96	~~J~~	JQ ~~N~~ ~~JLM~~	P
7440-38-2	Arsenic	1.4		U	P
7440-39-3	Barium	122		~~E~~ JL	P
7440-41-7	Beryllium	0.44			P
7440-43-9	Cadmium	0.25	~~J~~	U	P
7440-70-2	Calcium	4240		~~E~~ JL	P
7440-47-3	Chromium	11.7		~~E~~ JL	P
7440-48-4	Cobalt	15.6			P
7440-50-8	Copper	21.7		~~E~~ JL	P
7439-89-6	Iron	28100		~~E~~ JL	P
7439-92-1	Lead	3.8			P
7439-95-4	Magnesium	3960		~~E~~ JL	P
7439-96-5	Manganese	372		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	17.1			P
7440-09-7	Potassium	573		~~E~~ JL	P
7782-49-2	Selenium	1.3	~~J~~	JQ	P
7440-22-4	Silver	0.20	~~J~~	JQ ~~N~~ ~~JHM~~	P
7440-23-5	Sodium	267	~~J~~	JQ	P
7440-28-0	Thallium	2.0	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	72.6		~~E~~ JL	P
7440-66-6	Zinc	45.0		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQA5

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-03

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 89.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	28700		~~E~~ JL	P
7440-36-0	Antimony	1.2	~~+~~	JQ ~~N~~ ~~JLm~~	P
7440-38-2	Arsenic	2.3		U	P
7440-39-3	Barium	206		~~E~~ JL	P
7440-41-7	Beryllium	0.76			P
7440-43-9	Cadmium	0.59		U	P
7440-70-2	Calcium	2560		~~E~~ JL	P
7440-47-3	Chromium	10.5		~~E~~ JL	P
7440-48-4	Cobalt	20.0			P
7440-50-8	Copper	25.6		~~E~~ JL	P
7439-89-6	Iron	34100		~~E~~ JL	P
7439-92-1	Lead	45.1			P
7439-95-4	Magnesium	2620		~~E~~ JL	P
7439-96-5	Manganese	630		~~E~~ JL	P
7439-97-6	Mercury	0.10	~~+~~	JQ	CV
7440-02-0	Nickel	10.0			P
7440-09-7	Potassium	625		~~E~~ JL	P
7782-49-2	Selenium	1.6	~~+~~	JQ	P
7440-22-4	Silver	0.17	~~+~~	JQ ~~N~~ ~~JLm~~	P
7440-23-5	Sodium	205	~~+~~	JQ	P
7440-28-0	Thallium	2.5	~~+~~	~~N~~ UJL	P
7440-62-2	Vanadium	101		~~E~~ JL	P
7440-66-6	Zinc	111		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DM 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQA6

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-04

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 89.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	22700		~~E~~ JL	P
7440-36-0	Antimony	1.1	~~J~~	JQ ~~N JHM~~	P
7440-38-2	Arsenic	2.2		U	P
7440-39-3	Barium	203		~~E~~ JL	P
7440-41-7	Beryllium	0.63			P
7440-43-9	Cadmium	0.29	~~J~~	U	P
7440-70-2	Calcium	2890		~~E~~ JL	P
7440-47-3	Chromium	10.6		~~E~~ JL	P
7440-48-4	Cobalt	19.3			P
7440-50-8	Copper	22.8		~~E~~ JL	P
7439-89-6	Iron	33000		~~E~~ JL	P
7439-92-1	Lead	19.2			P
7439-95-4	Magnesium	3640		~~E~~ JL	P
7439-96-5	Manganese	554		~~E~~ JL	P
7439-97-6	Mercury	0.055	~~J~~	JQ	CV
7440-02-0	Nickel	13.6			P
7440-09-7	Potassium	553		~~E~~ JL	P
7782-49-2	Selenium	0.95	~~J~~	JQ	P
7440-22-4	Silver	0.13	~~J~~	JQ ~~N JHM~~	P
7440-23-5	Sodium	217	~~J~~	JQ	P
7440-28-0	Thallium	2.6	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	90.4		~~E~~ JL	P
7440-66-6	Zinc	72.7		~~E~~ JL	P
57-12-5	Cyanide				NR

DM 10-27-09

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQA7

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-05

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 91.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13000		~~E~~ JL	P
7440-36-0	Antimony	0.98	~~J~~	JQ ~~N~~ ~~JLM~~	P
7440-38-2	Arsenic	1.1		U	P
7440-39-3	Barium	136		~~E~~ JL	P
7440-41-7	Beryllium	0.49	~~J~~	JQ	P
7440-43-9	Cadmium	0.26	~~J~~	U	P
7440-70-2	Calcium	3920		~~E~~ JL	P
7440-47-3	Chromium	16.4		~~E~~ JL	P
7440-48-4	Cobalt	19.6			P
7440-50-8	Copper	25.1		~~E~~ JL	P
7439-89-6	Iron	30600		~~E~~ JL	P
7439-92-1	Lead	6.8			P
7439-95-4	Magnesium	3710		~~E~~ JL	P
7439-96-5	Manganese	476		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	13.2			P
7440-09-7	Potassium	992		~~E~~ JL	P
7782-49-2	Selenium	0.90	~~J~~	JQ	P
7440-22-4	Silver	0.16	~~J~~	JQ ~~N~~ ~~JLM~~	P
7440-23-5	Sodium	344	~~J~~	JQ	P
7440-28-0	Thallium	2.6	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	90.1		~~E~~ JL	P
7440-66-6	Zinc	55.1		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DM 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQA8

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-06

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 77.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	29100		E JL	P
7440-36-0	Antimony	1.6	J	JQ N ~~JHTMW~~	P
7440-38-2	Arsenic	2.9		U	P
7440-39-3	Barium	262		E JL	P
7440-41-7	Beryllium	0.79			P
7440-43-9	Cadmium	0.73		U	P
7440-70-2	Calcium	3790		E JL	P
7440-47-3	Chromium	15.1		E JL	P
7440-48-4	Cobalt	21.1			P
7440-50-8	Copper	36.1		E JL	P
7439-89-6	Iron	39100		E JL	P
7439-92-1	Lead	110			P
7439-95-4	Magnesium	2880		E JL	P
7439-96-5	Manganese	655		E JL	P
7439-97-6	Mercury	0.078	J	JQ	CV
7440-02-0	Nickel	12.6			P
7440-09-7	Potassium	756		E JL	P
7782-49-2	Selenium	1.8	J	JQ	P
7440-22-4	Silver	0.21	J	JQ N ~~JHTMW~~	P
7440-23-5	Sodium	208	J	JQ	P
7440-28-0	Thallium	3.1	U	N U JL	P
7440-62-2	Vanadium	132		E JL	P
7440-66-6	Zinc	200		E JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

Comments:

JM 10-27-09

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQA9

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-07

Level: (low/med) LOW Date Received: 09/25/2009

% Solids: 90.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8590		~~E~~ JL	P
7440-36-0	Antimony	0.71	~~J~~	JQ ~~N~~ ~~JL~~ ~~M~~	P
7440-38-2	Arsenic	1.2		U	P
7440-39-3	Barium	85.4		~~E~~ JL	P
7440-41-7	Beryllium	0.39	~~J~~	JQ	P
7440-43-9	Cadmium	0.13	~~J~~	U	P
7440-70-2	Calcium	4350		~~E~~ JL	P
7440-47-3	Chromium	14.4		~~E~~ JL	P
7440-48-4	Cobalt	14.8			P
7440-50-8	Copper	20.7		~~E~~ JL	P
7439-89-6	Iron	25800		~~E~~ JL	P
7439-92-1	Lead	3.7			P
7439-95-4	Magnesium	3640		~~E~~ JL	P
7439-96-5	Manganese	335		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	12.5			P
7440-09-7	Potassium	516		~~E~~ JL	P
7782-49-2	Selenium	0.51	~~J~~	JQ	P
7440-22-4	Silver	0.17	~~J~~	JQ ~~N~~ ~~JL~~ ~~M~~	P
7440-23-5	Sodium	231	~~J~~	JQ	P
7440-28-0	Thallium	2.0	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	72.8		~~E~~ JL	P
7440-66-6	Zinc	44.0		E JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DM 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQB9

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-08

Level: (low/med) LOW Date Received: 09/26/2009

% Solids: 89.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17100		~~E~~ JL	P
7440-36-0	Antimony	1.0	~~J~~	JQ ~~N JL~~	P
7440-38-2	Arsenic	1.4		U	P
7440-39-3	Barium	167		~~E~~ JL	P
7440-41-7	Beryllium	0.53			P
7440-43-9	Cadmium	0.14	~~J~~	U	P
7440-70-2	Calcium	3600		~~E~~ JL	P
7440-47-3	Chromium	13.6		~~E~~ JL	P
7440-48-4	Cobalt	19.9			P
7440-50-8	Copper	24.3		~~E~~ JL	P
7439-89-6	Iron	30900		~~E~~ JL	P
7439-92-1	Lead	6.2			P
7439-95-4	Magnesium	4240		~~E~~ JL	P
7439-96-5	Manganese	523		~~E~~ JL	P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	18.5			P
7440-09-7	Potassium	757		~~E~~ JL	P
7782-49-2	Selenium	0.75	~~J~~	JQ	P
7440-22-4	Silver	0.19	~~J~~	JQ ~~N JL~~ MU	P
7440-23-5	Sodium	210	~~J~~	JQ	P
7440-28-0	Thallium	1.9	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	80.1		~~E~~ JL	P
7440-66-6	Zinc	56.3		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DH 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQC0

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-09

Level: (low/med) LOW Date Received: 09/26/2009

% Solids: 89.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7950		~~E~~ JL	P
7440-36-0	Antimony	6.7	~~U~~	~~N~~ UJL	P
7440-38-2	Arsenic	1.1		U	P
7440-39-3	Barium	79.7		~~E~~ JL	P
7440-41-7	Beryllium	0.34	~~J~~	JQ	P
7440-43-9	Cadmium	0.12	~~J~~	U	P
7440-70-2	Calcium	4020		~~E~~ JL	P
7440-47-3	Chromium	8.7		~~E~~ JL	P
7440-48-4	Cobalt	15.7			P
7440-50-8	Copper	19.2		~~E~~ JL	P
7439-89-6	Iron	24300		~~E~~ JL	P
7439-92-1	Lead	3.5			P
7439-95-4	Magnesium	3710		~~E~~ JL	P
7439-96-5	Manganese	383		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	11.6			P
7440-09-7	Potassium	411	~~J~~	JQ ~~E JL~~	P
7782-49-2	Selenium	3.9	U		P
7440-22-4	Silver	0.19	~~J~~	JQ ~~N~~	P
7440-23-5	Sodium	224	~~J~~	JQ	P
7440-28-0	Thallium	2.8	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	62.8		~~E~~ JL	P
7440-66-6	Zinc	41.4		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DL 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQC1

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-18

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 89.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11900		~~E~~ JL	P
7440-36-0	Antimony	1.0	~~J~~	JQ ~~N~~ ~~JL~~ MM	P
7440-38-2	Arsenic	0.72	~~J~~	U	P
7440-39-3	Barium	123		~~E~~ JL	P
7440-41-7	Beryllium	0.50	~~J~~	~~J~~ Q	P
7440-43-9	Cadmium	0.15	~~J~~	U	P
7440-70-2	Calcium	5050		~~E~~ JL	P
7440-47-3	Chromium	15.4		~~E~~ JL	P
7440-48-4	Cobalt	20.1			P
7440-50-8	Copper	26.7		~~E~~ JL	P
7439-89-6	Iron	31800		~~E~~ JL	P
7439-92-1	Lead	4.1			P
7439-95-4	Magnesium	4780		~~E~~ JL	P
7439-96-5	Manganese	543		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	18.6			P
7440-09-7	Potassium	572		~~E~~ JL	P
7782-49-2	Selenium	1.1	~~J~~	JQ	P
7440-22-4	Silver	0.27	~~J~~	JQ ~~N~~ ~~JL~~ MM	P
7440-23-5	Sodium	325	~~J~~	JQ	P
7440-28-0	Thallium	2.5	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	85.6		~~E~~ JL	P
7440-66-6	Zinc	52.7		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

DM 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQC2

Lab Name: CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-19

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 86.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20700		~~E~~ JL	P
7440-36-0	Antimony	1.3	~~J~~	JQ ~~N JL~~	P
7440-38-2	Arsenic	5.2			P
7440-39-3	Barium	174		~~E~~ JL	P
7440-41-7	Beryllium	0.58			P
7440-43-9	Cadmium	0.20	~~J~~	U	P
7440-70-2	Calcium	3110		~~E~~ JL	P
7440-47-3	Chromium	12.4		~~E~~ JL	P
7440-48-4	Cobalt	17.4			P
7440-50-8	Copper	27.4		~~E~~ JL	P
7439-89-6	Iron	30200		~~E~~ JL	P
7439-92-1	Lead	24.0			P
7439-95-4	Magnesium	3450		~~E~~ JL	P
7439-96-5	Manganese	536		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	12.8			P
7440-09-7	Potassium	542		~~E~~ JL	P
7782-49-2	Selenium	1.4	~~J~~	JQ	P
7440-22-4	Silver	0.16	~~J~~	JQ ~~N JHM~~	P
7440-23-5	Sodium	214	~~J~~	JQ	P
7440-28-0	Thallium	2.1	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	82.8		~~E~~ JL	P
7440-66-6	Zinc	73.0		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DM 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQC3

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-10

Level: (low/med) LOW Date Received: 09/26/2009

% Solids: 86.3

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18800		~~E~~ JL	P
7440-36-0	Antimony	0.95	~~J~~	JQ ~~N~~ ~~JFM~~	P
7440-38-2	Arsenic	2.5		U	P
7440-39-3	Barium	183		~~E~~ JL	P
7440-41-7	Beryllium	0.57			P
7440-43-9	Cadmium	0.14	~~J~~	U	P
7440-70-2	Calcium	2940		~~E~~ JL	P
7440-47-3	Chromium	10.6		~~E~~ JL	P
7440-48-4	Cobalt	19.0			P
7440-50-8	Copper	21.5		~~E~~ JL	P
7439-89-6	Iron	31200		~~E~~ JL	P
7439-92-1	Lead	8.8			P
7439-95-4	Magnesium	3220		~~E~~ JL	P
7439-96-5	Manganese	558		~~E~~ JL	P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	10.9			P
7440-09-7	Potassium	630		~~E~~ JL	P
7782-49-2	Selenium	1.2	~~J~~	JQ	P
7440-22-4	Silver	0.14	~~J~~	JQ ~~N~~ ~~JFM~~	P
7440-23-5	Sodium	179	~~J~~	JQ	P
7440-28-0	Thallium	2.3	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	88.3		~~E~~ JL	P
7440-66-6	Zinc	56.3		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DM 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQC4

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-11

Level: (low/med) LOW Date Received: 09/26/2009

% Solids: 90.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10300		~~E~~ JL	P
7440-36-0	Antimony	1.2	~~J~~	JQ ~~N~~ ~~J~~ JMW	P
7440-38-2	Arsenic	4.5			P
7440-39-3	Barium	91.9		~~E~~ JL	P
7440-41-7	Beryllium	0.40	~~J~~	JQ	P
7440-43-9	Cadmium	0.15	~~J~~	U	P
7440-70-2	Calcium	4240		~~E~~ JL	P
7440-47-3	Chromium	12.9		~~E~~ JL	P
7440-48-4	Cobalt	16.0			P
7440-50-8	Copper	22.5		~~E~~ JL	P
7439-89-6	Iron	28000		~~E~~ JL	P
7439-92-1	Lead	4.9			P
7439-95-4	Magnesium	3400		~~E~~ JL	P
7439-96-5	Manganese	377		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	11.1			P
7440-09-7	Potassium	463	~~J~~	JQ ~~E~~ JL JMW	P
7782-49-2	Selenium	1.1	~~J~~	JQ	P
7440-22-4	Silver	0.16	~~J~~	JQ ~~N~~ ~~J~~ HMV	P
7440-23-5	Sodium	289	~~J~~	JQ	P
7440-28-0	Thallium	2.8	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	80.3		~~E~~ JL	P
7440-66-6	Zinc	47.2		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DM 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQC5

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-20

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 79.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	27600		~~E~~ JL	P
7440-36-0	Antimony	0.95	~~J~~	JQ ~~N~~ ~~SLMW~~	P
7440-38-2	Arsenic	2.4		U	P
7440-39-3	Barium	241		~~E~~ JL	P
7440-41-7	Beryllium	0.76			P
7440-43-9	Cadmium	0.18	~~J~~	U	P
7440-70-2	Calcium	1980		~~E~~ JL	P
7440-47-3	Chromium	11.7		~~E~~ JL	P
7440-48-4	Cobalt	20.8			P
7440-50-8	Copper	22.3		~~E~~ JL	P
7439-89-6	Iron	35700		~~E~~ JL	P
7439-92-1	Lead	18.7			P
7439-95-4	Magnesium	3210		~~E~~ JL	P
7439-96-5	Manganese	707		~~E~~ JL	P
7439-97-6	Mercury	0.065	~~J~~	JQ	CV
7440-02-0	Nickel	11.7			P
7440-09-7	Potassium	607		~~E~~ JL	P
7782-49-2	Selenium	1.4	~~J~~	JQ	P
7440-22-4	Silver	0.20	~~J~~	JQ ~~N~~ ~~SLMW~~	P
7440-23-5	Sodium	173	~~J~~	JQ	P
7440-28-0	Thallium	2.8	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	104		~~E~~ JL	P
7440-66-6	Zinc	71.8		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DM 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQC6

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-21

Level: (low/med) LOW Date Received: 09/29/2009

% Solids: 90.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7810		~~E~~ JL	P
7440-36-0	Antimony	0.78	~~J~~	JQ ~~N~~ ~~JLM~~	P
7440-38-2	Arsenic	1.2		U	P
7440-39-3	Barium	137		~~E~~ JL	P
7440-41-7	Beryllium	0.34	~~J~~	JQ	P
7440-43-9	Cadmium	0.13	~~J~~	U	P
7440-70-2	Calcium	4220		~~E~~ JL	P
7440-47-3	Chromium	11.2		~~E~~ JL	P
7440-48-4	Cobalt	13.8			P
7440-50-8	Copper	18.0		~~E~~ JL	P
7439-89-6	Iron	23100		~~E~~ JL	P
7439-92-1	Lead	2.9			P
7439-95-4	Magnesium	3390		~~E~~ JL	P
7439-96-5	Manganese	317		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	13.0			P
7440-09-7	Potassium	455	~~J~~	JQ ~~E~~ ~~JLM~~	P
7782-49-2	Selenium	0.75	~~J~~	JQ	P
7440-22-4	Silver	0.16	~~J~~	JQ ~~N~~ ~~JLM~~	P
7440-23-5	Sodium	282	~~J~~	JQ	P
7440-28-0	Thallium	2.4	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	61.6		~~E~~ JL	P
7440-66-6	Zinc	41.1		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DM 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQC8

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-12

Level: (low/med) LOW Date Received: 09/26/2009

% Solids: 87.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14300		~~E~~ JL	P
7440-36-0	Antimony	1.0	~~J~~	JQ ~~N~~ ~~JLM~~	P
7440-38-2	Arsenic	2.9			P
7440-39-3	Barium	127		~~E~~ JL	P
7440-41-7	Beryllium	0.55	~~J~~	JQ	P
7440-43-9	Cadmium	0.70		U	P
7440-70-2	Calcium	4290		~~E~~ JL	P
7440-47-3	Chromium	14.4		~~E~~ JL	P
7440-48-4	Cobalt	20.9			P
7440-50-8	Copper	34.0		~~E~~ JL	P
7439-89-6	Iron	33500		~~E~~ JL	P
7439-92-1	Lead	27.2			P
7439-95-4	Magnesium	3970		~~E~~ JL	P
7439-96-5	Manganese	478		~~E~~ JL	P
7439-97-6	Mercury	0.053	~~J~~	JQ	CV
7440-02-0	Nickel	17.6			P
7440-09-7	Potassium	622		~~E~~ JL	P
7782-49-2	Selenium	0.84	~~J~~	JQ	P
7440-22-4	Silver	0.24	~~J~~	JQ ~~N~~ ~~JLM~~	P
7440-23-5	Sodium	282	~~J~~	JQ	P
7440-28-0	Thallium	2.9	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	92.4		~~E~~ JL	P
7440-66-6	Zinc	86.6		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DM 10-27-09

Comments:

FORM IA-IN ILM05.4

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1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQC9

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-15

Level: (low/med) LOW Date Received: 09/26/2009

% Solids: 59.2

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14800		~~E~~ JL	P
7440-36-0	Antimony	2.1	~~J~~	JQ ~~N~~ ~~JL~~ MU	P
7440-38-2	Arsenic	17.7			P
7440-39-3	Barium	124		~~E~~ JL	P
7440-41-7	Beryllium	0.46	~~J~~	JQ	P
7440-43-9	Cadmium	1.3			P
7440-70-2	Calcium	5170		~~E~~ JL	P
7440-47-3	Chromium	71.6		~~E~~ JL	P
7440-48-4	Cobalt	12.0			P
7440-50-8	Copper	121		~~E~~ JL	P
7439-89-6	Iron	33600		~~E~~ JL	P
7439-92-1	Lead	120			P
7439-95-4	Magnesium	2700		~~E~~ JL	P
7439-96-5	Manganese	366		~~E~~ JL	P
7439-97-6	Mercury	0.10	~~J~~	JQ	CV
7440-02-0	Nickel	27.9			P
7440-09-7	Potassium	626	~~J~~	JQ ~~E~~ ~~JL~~ MU	P
7782-49-2	Selenium	1.4	~~J~~	JQ	P
7440-22-4	Silver	0.17	~~J~~	JQ ~~N~~ ~~JL~~ MU	P
7440-23-5	Sodium	348	~~J~~	JQ	P
7440-28-0	Thallium	3.7	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	88.2		~~E~~ JL	P
7440-66-6	Zinc	490		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DM 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQD0

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-16

Level: (low/med) LOW Date Received: 09/26/2009

% Solids: 89.8

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10500		~~E~~ JL	P
7440-36-0	Antimony	0.97	~~J~~	JQ ~~N~~ ~~JLMW~~	P
7440-38-2	Arsenic	1.2		U	P
7440-39-3	Barium	123		~~E~~ JL	P
7440-41-7	Beryllium	0.40	~~J~~	JQ	P
7440-43-9	Cadmium	0.17	~~J~~	U	P
7440-70-2	Calcium	3850		~~E~~ JL	P
7440-47-3	Chromium	9.8		~~E~~ JL	P
7440-48-4	Cobalt	16.6			P
7440-50-8	Copper	22.0		~~E~~ JL	P
7439-89-6	Iron	26800		~~E~~ JL	P
7439-92-1	Lead	5.3			P
7439-95-4	Magnesium	3550		~~E~~ JL	P
7439-96-5	Manganese	394		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	11.3			P
7440-09-7	Potassium	536		~~E~~ JL	P
7782-49-2	Selenium	0.83	~~J~~	JQ	P
7440-22-4	Silver	0.16	~~J~~	JQ ~~N~~ ~~JLMW~~	P
7440-23-5	Sodium	242	~~J~~	JQ	P
7440-28-0	Thallium	2.6	~~U~~	~~N~~ UJL	P
7440-62-2	Vanadium	78.3		~~E~~ JL	P
7440-66-6	Zinc	49.0		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

DM 10-27-09

Comments:

USEPA - CLP

1A-IN
INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MJBQD5

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Matrix: (soil/water) SOIL Lab Sample ID: A4481-17

Level: (low/med) LOW Date Received: 09/26/2009

% Solids: 88.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8950		~~E~~ JL	P
7440-36-0	Antimony	0.97	~~J~~	JQ ~~N~~ ~~JL~~ MY	P
7440-38-2	Arsenic	1.9		U	P
7440-39-3	Barium	110		~~E~~ JL	P
7440-41-7	Beryllium	0.38	~~J~~	JQ	P
7440-43-9	Cadmium	0.33	~~J~~	U	P
7440-70-2	Calcium	3640		~~E~~ JL	P
7440-47-3	Chromium	15.1		~~E~~ JL	P
7440-48-4	Cobalt	15.9			P
7440-50-8	Copper	24.7		~~E~~ JL	P
7439-89-6	Iron	24500		~~E~~ JL	P
7439-92-1	Lead	9.3			P
7439-95-4	Magnesium	3810		~~E~~ JL	P
7439-96-5	Manganese	393		~~E~~ JL	P
7439-97-6	Mercury	0.11	U		CV
7440-02-0	Nickel	15.2			P
7440-09-7	Potassium	569		~~E~~ JL	P
7782-49-2	Selenium	0.79	~~J~~	JQ	P
7440-22-4	Silver	0.15	~~J~~	JQ ~~N~~ ~~JH~~ MW	P
7440-23-5	Sodium	224	~~J~~	JQ	P
7440-28-0	Thallium	2.8	~~U~~	~~N~~ U JL	P
7440-62-2	Vanadium	62.6		~~E~~ JL	P
7440-66-6	Zinc	52.5		~~E~~ JL	P
57-12-5	Cyanide				NR

Color Before: BROWN Clarity Before: _____ Texture: MEDIUM

Color After: YELLOW Clarity After: _____ Artifacts: _____

JM 10-27-09

Comments:

FORM IA-IN ILM05.4

USEPA - CLP

9-IN
METHOD DETECTION LIMITS (ANNUALLY)

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Instrument Type: CV Instrument ID: CV1 Date: 01/07/2009

Preparation Method: CS1

Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Wavelength /Mass	CRQL	MDL
Aluminum		20	
Antimony		6	
Arsenic		1	
Barium		20	
Beryllium		0.5	
Cadmium		0.5	
Calcium		500	
Chromium		1	
Cobalt		5	
Copper		2.5	
Iron		10	
Lead		1	
Magnesium		500	
Manganese		1.5	
Mercury	253.70	0.1	0.033
Nickel		4	
Potassium		500	
Selenium		3.5	
Silver		1	
Sodium		500	
Thallium		2.5	
Vanadium		5	
Zinc		6	
Cyanide		2.5	

Comments:

USEPA - CLP

9-IN
METHOD DETECTION LIMITS (ANNUALLY)

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: SDG No.: MJBQA2

Instrument Type: P Instrument ID: P5 Date: 01/05/2009

Preparation Method: HS1

Concentration Units (ug/L or mg/kg): MG/KG

Analyte	Wavelength /Mass	CRQL	MDL
Aluminum	396.15	20	0.70
Antimony	206.83	6	0.80
Arsenic	189.04	1	0.21
Barium	493.41	20	0.47
Beryllium	234.86	0.5	0.060
Cadmium	214.44	0.5	0.050
Calcium	373.69	500	18.2
Chromium	267.72	1	0.11
Cobalt	228.62	5	0.56
Copper	324.75	2.5	0.54
Iron	259.84	10	3.9
Lead	220.35	1	0.18
Magnesium	279.08	500	11.3
Manganese	257.61	1.5	0.31
Mercury		0.1	
Nickel	231.60	4	0.38
Potassium	769.90	500	9.7
Selenium	196.09	3.5	0.49
Silver	328.07	1	0.090
Sodium	818.33	500	2.1
Thallium	190.86	2.5	0.32
Vanadium	292.40	5	0.78
Zinc	213.86	6	0.70
Cyanide		2.5	

Comments:

USEPA - CLP

9-IN
METHOD DETECTION LIMITS (ANNUALLY)

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Instrument Type: P Instrument ID: P5 Date: 01/05/2009

Preparation Method: NP1

Concentration Units (ug/L or mg/kg): UG/L

Analyte	Wavelength /Mass	CRQL	MDL
Aluminum	396.15	200	12.5
Antimony	206.83	60	6.6
Arsenic	189.04	10	3.1
Barium	493.41	200	4.5
Beryllium	234.86	5	0.60
Cadmium	214.44	5	0.40
Calcium	373.69	5000	32.6
Chromium	267.72	10	1.0
Cobalt	228.62	50	5.0
Copper	324.75	25	5.1
Iron	259.84	100	18.1
Lead	220.35	10	2.0
Magnesium	279.08	5000	41.3
Manganese	257.61	15	1.8
Mercury		0.2	
Nickel	231.60	40	3.5
Potassium	769.90	5000	82.2
Selenium	196.09	35	5.4
Silver	328.07	10	1.0
Sodium	818.33	5000	33.8
Thallium	190.86	25	3.5
Vanadium	292.40	50	7.5
Zinc	213.86	60	5.0
Cyanide		10	

Comments:

USEPA - CLP

12-IN
PREPARATION LOG

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: _____ SDG No.: MJBQA2

Preparation Method: CS1

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
CCB	10/01/2009		100
CCV	10/01/2009		100
CRI	10/01/2009		100
ICB	10/01/2009		100
ICV	10/01/2009		100
LCSS	10/01/2009	0.20	100
MJBQA2	10/01/2009	0.22	100
MJBQA3	10/01/2009	0.20	100
MJBQA5	10/01/2009	0.20	100
MJBQA6	10/01/2009	0.20	100
MJBQA7	10/01/2009	0.20	100
MJBQA8	10/01/2009	0.21	100
MJBQA9	10/01/2009	0.20	100
MJBQB9	10/01/2009	0.22	100
MJBQC0	10/01/2009	0.20	100
MJBQC1	10/01/2009	0.20	100
MJBQC2	10/01/2009	0.21	100
MJBQC3	10/01/2009	0.20	100
MJBQC4	10/01/2009	0.20	100
MJBQC5	10/01/2009	0.20	100
MJBQC6	10/01/2009	0.20	100
MJBQC8	10/01/2009	0.20	100
MJBQC8D	10/01/2009	0.20	100
MJBQC8S	10/01/2009	0.20	100
MJBQC9	10/01/2009	0.21	100
MJBQD0	10/01/2009	0.21	100
MJBQD5	10/01/2009	0.20	100
PBS	10/01/2009	0.20	100
S0	10/01/2009		100
S0.2	10/01/2009		100
S2.5	10/01/2009		100
S5.0	10/01/2009		100
S7.5	10/01/2009		100
S10.0	10/01/2009		100

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12-IN
PREPARATION LOG

Lab Name CHEMTECH CONSULTING GROUP Contract: EPW08065

Lab Code: CHEM Case No.: 39007 NRAS No.: SDG No.: MJBQA2

Preparation Method: HS1

EPA Sample No.	Preparation Date	Weight (gram)	Volume (mL)
LCSS	10/01/2009	1.00	100
MJBQA2	10/01/2009	1.43	100
MJBQA3	10/01/2009	1.42	100
MJBQA5	10/01/2009	1.10	100
MJBQA6	10/01/2009	1.08	100
MJBQA7	10/01/2009	1.04	100
MJBQA8	10/01/2009	1.05	100
MJBQA9	10/01/2009	1.38	100
MJBQB9	10/01/2009	1.47	100
MJBQC0	10/01/2009	1.01	100
MJBQC1	10/01/2009	1.12	100
MJBQC2	10/01/2009	1.41	100
MJBQC3	10/01/2009	1.26	100
MJBQC4	10/01/2009	1.00	100
MJBQC5	10/01/2009	1.12	100
MJBQC6	10/01/2009	1.14	100
MJBQC8	10/01/2009	1.00	100
MJBQC8D	10/01/2009	1.00	100
MJBQC8S	10/01/2009	1.00	100
MJBQC9	10/01/2009	1.14	100
MJBQD0	10/01/2009	1.09	100
MJBQD5	10/01/2009	1.00	100
PBS	10/01/2009	1.00	100

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: November 9, 2009

TO: Josh Hancock, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Summary Check,**
Biffle Property Site, Vancouver, Washington

REF: TDD: 09-07-0007 PAN: 002233.0471.01IA

The data summary check of 2 soil samples collected from the Biffle Property site in Vancouver, Washington, has been completed. Total Organic Carbon analyses were performed at the Manchester Environmental Laboratory, Port Orchard, Washington.

The samples were numbered: 09384440 09384449

No discrepancies were noted.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

MEMORANDUM

SUBJECT: Data Release for Inorganics Results from the USEPA Region 10 Laboratory

PROJECT NAME: Biffle Property

PROJECT CODE: TEC-964A

FROM: Gerald Dodo, Supervisory Chemist
Office of Environmental Assessment
USEPA Region 10 Laboratory

TO: Monica Tonel, Project Manager
Office of Environmental Cleanup, Assessment and Brownfields Unit 1
USEPA Region 10

CC: Jeff Fowlow, USEPA Region 10
Linda Costello, Ecology and Environment
Ann Rivers, Ecology and Environment

I have authorized release of this data package. Attached you will find total organic carbon results for two soil samples from the Biffle Property project collected on 09/22/2009 and 09/25/2009. For further information regarding the attached data, contact Stephanie Le at 360-871-8715.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 LABORATORY
7411 Beach Dr. East
Port Orchard, Washington 98366

QUALITY ASSURANCE MEMORANDUM FOR INORGANIC CHEMICAL ANALYSES

DATE: October 26, 2009

TO: Monica Tonel, Project Manager
Office of Environmental Cleanup, Assessment and Brownfields Unit 1, US EPA Region 10

FROM: Stephanie Le, Chemist
Office of Environmental Assessment, US EPA Region 10 Laboratory

SUBJECT: Quality Assurance Review of Biffle Property Project Results
For Total Organic Carbon

Project Code: TEC-964A
Account Code: 09T10P302DD2C10ZZLA00

CC: Jeff Fowlow, USEPA Region 10
Linda Costello, Ecology and Environment
Ann Rivers, Ecology and Environment

The following is a quality assurance review of the results of the analysis of 2 soil samples for Total Organic Carbon (TOC). These samples were submitted for the Biffle Property Project. The analyses were performed by ESAT chemists at the US EPA Region 10 Laboratory in Port Orchard, WA, following US EPA and Laboratory guidelines.

This review was conducted for the following samples:

09384440 09384449

Data Qualifications

Comments below refer to the quality control specifications outlined in the Laboratory's current Quality Assurance Manual, Standard Operating Procedures (SOPs) and the Quality Assurance Project Plan (QAPP). No excursions were required from the method Standard Operating Procedure.

The quality control measures which did not meet Laboratory/QAPP criteria are annotated in the title of each affected subsection with **"Laboratory/QAPP Criteria Not Met".**

For those tests for which the USEPA Region 10 Laboratory has been accredited by the National Environmental Laboratory Accreditation Conference (NELAC), all requirements of the current NELAC Standard have been met. The Region 10 Laboratory's Quality System has also been accredited to the standards of the National Environmental Laboratory Accreditation Conference (NELAC).

1. Sample Transport and Receipt - Laboratory/QAPP Criteria Not Met

Refer to the Corrective Action Notice dated 9/29/2009 for a record of observations made during sample receipt.

2. Sample Holding Times

The concentration of an analyte in a sample or sample extract may increase or decrease over time depending on the nature of the analyte. For this reason, holding time limits are recommended for samples. The samples covered by this review met method holding time recommendations.

3. Sample Preparation

Samples were prepared according to the method outlined in the SOP for these analytes for this type of matrix. No qualification of the data was required based on sample preparation.

4. Initial Calibration and Calibration Verification

The initial calibration met method criteria. All calibration verification checks met the frequency and recovery criteria on the day of analysis. No qualification was required based on calibration or calibration verification.

5. Laboratory Control Samples

All laboratory control sample results met the recovery acceptance criteria for the method. No qualification was required based on laboratory control sample analysis.

6. Blank Analysis

The method blanks did not contain detectable levels of analyte which would require data qualification.

7. Duplicate Analysis

Duplicate analysis was performed on sample 09384440. Sample results which were greater than five times the MRL level were within the ± 25% RPD requirement. No qualification was required based on duplicate analysis.

8. Matrix Spike/Matrix Spike Duplicate Analysis

Matrix spike analyses were performed on sample 09384440. Sample results were within the ± 25% recovery and relative percent difference (RPD) requirements. No qualification was required based on matrix spike analyses.

9. Instrument Peak Integrations

No manual integrations were performed for this method.

10. Reporting Limits

All sample results that fall below the Minimum Reporting Limit (MRL) are assigned the value of the MRL and the 'U' qualifier is attached.

11. Data Qualifiers

The (U) qualifier was attached to the sample results that were below the MRL. No other qualification was required. The definition for the data qualifier is as follows:

U - The analyte was not detected at or above the reported value.

The usefulness of qualified data should be treated according to the severity of the qualifier in light of the project's data quality objectives. Should questions arise regarding the data, contact Stephanie Le at the Region 10 Laboratory, phone

number (360) 871- 8715.

12. Definitions

Accuracy - the degree of conformity of a measured or calculated quantity to its actual value.

Duplicate Analysis – when a duplicate of a sample (DS), a matrix spike (MSD), or a laboratory control sample (LCSD) is analyzed, it is possible to use the comparison of the results in terms of relative percent difference (RPD) to calculate precision.

Laboratory Control Sample (LCS) - a clean matrix spiked with known quantities of analytes. The LCS is processed with samples through every step of preparation and analysis. Measuring percent recovery of each analyte in the LCS provides a measurement of accuracy for the analyte in the project samples. A laboratory control sample is prepared and analyzed at a frequency no less than one for every 20 project samples.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) - Sample analyses performed to provide information about the effect of the sample matrix on analyte recovery and measurement within the project samples. To create the MS/MSD, a project sample is spiked with known quantities of analyte(s) and the percent recovery of the analyte(s) is (are) determined.

Method Blank- An analytical control that is carried through the entire analytical procedure. The method blank is used to define the level of laboratory background and reagent contamination. A method blank is prepared and analyzed for every batch of samples at a minimum frequency of one per every 20 samples. To produce unqualified data, the result of the method blank analysis is required to be less than the MRL and less than 10 times the amount of analyte found in any project sample.

Minimum Reporting Level (MRL) - the smallest measured concentration of a substance that can be reliably measured using a given analytical method.

Peak Integrations - The output of many analytical instruments is a peak which represents the quantity of analyte in the sample. The instrument automatically integrates the peak area to provide the concentration of the analyte; however, sometimes these peaks need to be manually integrated by the analyst.

Precision – the degree of mutual agreement or repeatability among a series of individual results.

Relative Percent Difference – The difference between two sample results divided by their mean and expressed as a percentage.

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/22/09	**10:20:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384440	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP04SB16			

	Result	Units	Qlfr

GEN

Parameter : Total Organic Carbon — Container ID : N1
Method : PSEP Puget Sound Estuary Program — Analysis Date : 10/9/2009
Prep Method : PSEP Puget Sound Estuary Program — Prep Date : 10/9/2009

Analytes(s):			
***90064**	**Total Organic Carbon**	**1250**	**mg/kg-dry**

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	09384440
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Duplicate
Station Description:			

	Result	Units	Qlfr

GEN

Parameter : Total Organic Carbon — Container ID : N1
Method : PSEP Puget Sound Estuary Program — Analysis Date : 10/9/2009
Prep Method : PSEP Puget Sound Estuary Program — Prep Date : 10/9/2009

Analytes(s):				
	***90064**	**Total Organic Carbon**	**1050**	**mg/kg-dry**

09384440 Duplicate

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	09384440
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Matrix Spike
Station Description:			

	Result	Units	Qlfr

GEN

Parameter : Total Organic Carbon — Container ID : N1
Method : PSEP Puget Sound Estuary Program — Analysis Date : 10/9/2009
Prep Method : PSEP Puget Sound Estuary Program — Prep Date : 10/9/2009

Surrogate(s : *90064	Total Organic Carbon	94	%Rec

09384440 Matrix Spike

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	09384440
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Matrix Spike Dupl
Station Description:			

	Result	Units	Qlfr

GEN

Parameter : Total Organic Carbon — Container ID : N1
Method : PSEP Puget Sound Estuary Program — Analysis Date : 10/9/2009
Prep Method : PSEP Puget Sound Estuary Program — Prep Date : 10/9/2009

Surrogate(s : *90064	Total Organic Carbon	89	%Rec

09384440 Matrix Spike Du .

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	9/25/09	**8:40:00**
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid	
Project Officer:	MONICA TONEL	**Sample Number:**	09384449	
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	Reg sample	
Station Description:	BP10SB16			

	Result	Units	Qlfr

GEN

Parameter : Total Organic Carbon — Container ID : N1
Method : PSEP Puget Sound Estuary Program — Analysis Date : 10/9/2009
Prep Method : PSEP Puget Sound Estuary Program — Prep Date : 10/9/2009

Analytes(s):			
***90064**	**Total Organic Carbon**	**146**	**mg/kg-dry**

09384449 Reg sample

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	IS100909A
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCS
Station Description:			

	Result	Units	Qlfr

GEN

Parameter : Total Organic Carbon — Container ID :
Method : PSEP Puget Sound Estuary Program — Analysis Date : 10/9/2009
Prep Method : PSEP Puget Sound Estuary Program — Prep Date : 10/9/2009

Surrogate(s : *90064	Total Organic Carbon	98	%Rec

IS100909A LCS

Manchester Environmental Laboratory
Report by Parameter for Project TEC-964A

Project Code:	TEC-964A	**Collected:**	
Project Name:	BIFFLE PROPERTY	**Matrix:**	Solid
Project Officer:	MONICA TONEL	**Sample Number:**	IS100909A
Account Code:	09T10P302DD2C10ZZLA00	**Type:**	LCSD
Station Description:			

	Result	Units	Qlfr

GEN

Parameter : Total Organic Carbon — Container ID :
Method : PSEP Puget Sound Estuary Program — Analysis Date : 10/9/2009
Prep Method : PSEP Puget Sound Estuary Program — Prep Date : 10/9/2009

Surrogate(s : *90064	Total Organic Carbon	98	%Rec

IS100909A LCSD

ecology and environment, inc.
International Specialists in the Environment
720 Third Avenue, Suite 1700, Seattle, WA 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

MEMORANDUM

DATE: January 15, 2010

TO: Josh Hancock, Project Manager, E & E, Seattle, Washington

FROM: Mark Woodke, START-3 Chemist, E & E, Seattle, Washington MW

SUBJ: **Organic Data Summary Check, Biffle Property Site, Vancouver, Washington**

REF: TDD: 09-07-0007 PAN: 002233.0471.01IA

The data summary check of 9 soil samples collected from the Biffle Property site in Vancouver, Washington, has been completed. Volatile organic compound (VOC) and semivolatile organic compound (SVOC) analyses (EPA CLP SOW SOM01.2) were performed by KAP Technologies, The Woodlands, Texas.

The samples were numbered:

JBQA9	JBQC4	JBQC8	JBQC9	JBQD5
JBQD9	JBQE2	JBQE5	JBQE7	

No discrepancies were noted.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

January 12, 2010

MEMORANDUM

SUBJECT: Data validation report for the Volatile Organic (VOC) & Semi-Volatile Organic (SVOC) analyses of samples from the Biffle Property Integrated Assessment (IA) Site Case: 39007 SDG: JBQA9

FROM: Raymond Wu, QA Chemist
Office of Environmental Assessment 1/12/10

TO: Monica Tonel, EPA Task Monitor
Office of Environmental Cleanup – Brownfield Unit

CC: Renee Nordeen, Site Assessment Project Leader
Ecology & Environment, Inc.

The quality assurance (QA) review of nine soil samples collected from the above referenced site has been completed. The samples were analyzed for VOC & SVOC in accordance with USEPA Contract Laboratory Program (CLP) Statement of Work (SOW) for Multi-Concentration Organic Analyses (SOM01.2) by KAP Technologies, in The Woodlands, Texas. The following samples were evaluated in this validation report:

SDG: JBQA9

JBQA9	JBQC4	JBQC8	JBQC9	JBQD5	JBQD9	JBQE2
JBQE5	JBQE7					

DATA QUALIFICATIONS

The following comments refer to the laboratory performance specification outlined in the Quality Assurance Project Plan (for Biffle Property IA Site in Vancouver, Washington, dated August, 2009, USEPA CLP SOW for Organic Analysis (SOM01.2, 05/2008), and applicable criteria set forth in the USEPA CLP National Functional Guidelines for Organic Data Review (07/2007). Note that some of the analytical data reported may be qualified based on the professional judgment of the data reviewer.

The conclusions presented herein were based on the information provided for the review.

Holding Time - Acceptable

All of the samples met the extraction, Validated Time of Sample Receipt (VTSR), extraction and analytical holding time criteria for VOC & SVOC analyses. The samples were collected between 8/24/09 and 8/25/09, received by the laboratory between 9/22/09 and 9/25/09, preserved on ice, analyzed for VOC within 14 days of sample collection & extracted within 14 days of sample collection for SVOC. The samples were analyzed for SVOC within 40 days of sample collection. The cooler temperatures, upon the verified time of sample receipt (VTSR), were at ~ 3 °C. That was within the acceptable limits of 2 °C to 10 °C. None of the data was qualified on this basis.

Instrument Performance Checks - Acceptable

Four GC/MS systems were used for the sample analyses which met the performance checks, ion abundance criteria and retention time stability checks. All of the samples were analyzed within acceptable 12-hour QC periods. The instruments used remained stable throughout the course of analyses. None of the data was qualified on this basis.

Initial Calibrations (ICAL)

Volatile

Two Volatile ICALs were evaluated in this report. They met the technical acceptance criteria set forth by the SOW for the percent relative standard deviation (%RSD), chromatographic resolutions, retention times, and the minimum relative response factors (RRFs) for all target compounds and surrogates with the exception of the following:

- The %RSD of 1,4-Dichlorobenzene (36.6%) in the VOC initial calibration (10/2/09, instrument A-5973) exceeded the control limit of 30%. Recalculation of the %RSD indicated that this compound was not linear at the high end of the curve. This compound should be qualified "J/None" in the corresponding samples.

- 1,4-Dioxane was lower than the required minimum RRF (0.01) for the ICALs (10/2/09 instrument A-5973, 9/15/09 instrument B-5973) and it was not detected in any associated samples. Due to the possibility of false negatives, all 1,4-dioxane results were qualified unusable, "R".

Semivolatile

Two Semivolatile ICALs were evaluated in this report. They met the technical acceptance criteria set forth by the SOW for the percent relative standard deviation (%RSD), chromatographic resolutions, retention times, and the minimum relative response factors (RRFs) for all target compounds and surrogates and none of the data was qualified on this basis.

Continuing Calibration Verification (CCV)

The frequency of analysis of CCV checks, chromatographic resolution, minimum response factors and retention time shifts were met by all target compounds and surrogates. The recoveries of the calibration standard mixtures were within the control limits with exceptions of the following:

All of the volatile CCV checks met the criteria for frequency of analysis, the SOW specified, minimum RRFs and %D as compared to the initial calibration with the exception of the RRF for 1,4-Dioxane and the following:

VOCs

Date/Time of Analysis/ Inst.	Compound	%D	Qualifier Detect/Non-detect	Associated Samples
10/6/09 10:41 (opening ccv, A-5973)	Isopropylbenzene	32.0	J/None	JBQC9ME, JBQD9ME
10/1/09 11:15 (opening ccv, B-5973)	Methylene Chloride	29.1	J/None	JBQA9
10/5/09 09:40 (opening ccv, B-5973)	Bromomethane	-26.8	J/UJ	JBQC4, JBQC8 JBQC9, JBQD5

The SVOC continuing calibration verification (CCV) checks met the criteria for frequency of analysis, minimum response factors (RFs) and percent difference (%D) of the daily RF when compared to the mean RRF calculated from the initial calibration with exception of the following:

SVOCs

Date/Time of Analysis/ Inst.	Compound	%D	Qualifier Detect/Non-detect	Associated Samples
10/16/09 11:54 (opening ccv, C-5975)	Benzo(b)fluoranthene	-27.7	J/UJ	JBQC8, JBQC9 JBQD5, JBQD9 JBQE7

Quantitation Limits - Acceptable

The sample results were adjusted for the amount extracted. All of the sample runs met the contract required quantitation limits (CRQLs). The CRQLs were based on the lowest standard concentration analyzed in the initial calibration. Target compounds that were detected at concentrations less than the CRQLs were qualified as estimated, "J". When applicable, all of the "B" & "J" qualifiers applied by the laboratory were crossed out by the reviewer.

Blanks

The frequency of analysis of blank and surrogate recovery criteria were met by all of the blanks analyzed. There were combination of trace Acetone, Methylene Chloride, Toluene, 1,2,4-Trichlorobenzene, 1,2,3-Trichlorobenzene, detected in the volatile method blanks and / or storage blank. When detected in samples, concentrations less than 10x the blank values, were qualified as non-detects, "U", at the level of detection, or

reported "U" at the CRQL.
Analytical Sequence - Acceptable

All of the standards, blanks, samples, and QC samples were analyzed in accordance with the SOW specified analytical sequence. The retention times as monitored by the internal standards and surrogates were within the specified RT windows. All of the sample analyses were run within acceptable 12 hour QC periods and were bracketed by technically acceptable CCV check standards. None of the data was qualified on this basis.

Surrogates/Deuterated Monitoring Compound (DMC) Recoveries

Fourteen deuterated VOCs were spiked in all the samples and QCs to evaluate laboratory performance. The 14 DMCs and their corresponding recovery acceptance limits are:

"Volatile Soil"

DMCs	Recovery Limits (%)	DMCs	Recovery Limits (%)
Vinyl chloride -d3 (VCL)	68-122	1,2- Dichloropropane-d6 (DPA)	74-124
Chloroethane-d5 (CLA)	61-130	Toluene-d8 (TOL)	78-121
1,1- Dichloroethene-d2 (DCE)	45-132	trans-1,3-dichloropropene-d4 (TDP)	72-130
2-Butanone-d5 (BUT)	20-182	2-Hexanone-d5 (HEX)	17-184
Chloroform-d (CLF)	72-123	1,4-Dioxane (DXE)	50-150
1,2-Dichloroethane-d4 (DCA)	79-122	1,1,2,2-Tetrachloroethane-d2 (TCA)	56-161
Benzene-d6 (BEN)	80-121	1,2-dichlorobenzene-d4 (DCZ)	70-131

All of the soil volatile surrogate recoveries met the applicable recovery criteria with exceptions of the following:

Sample	**DMC**	**%Recovery**	**Qualification Detects/Non-detects**	**Associated VOCs**
JBQD9	CLF	70	J/UJ	1,1-Dichloroethane, Bromochloromethane, Chloroform, Dibromochloromethane, Bromoform

Surrogates or deuterated monitoring compounds (DMCs) are known concentrations of isotope-labeled acid and base / neutral or polynuclear hydrocarbon compounds added to the field and QC samples prior to extraction for SVOC analyses to monitor the laboratory's performance and efficiency, and efficiency during sample processing, extraction and analysis. The following is the list of DMCs/surrogates added to all field and QC samples prior to sample extraction:

"SVOC Soil"

DMCs	Recovery Limits (%)	DMCs	Recovery Limits (%)
Phenol-d5 (PHL)	17-103	Dimethylphthalate-d6 (DMP)	43-111
Bis(2-chloroethyl)ether-d8 (BCE)	12-98	Acenapthylene-d8 (ACY)	20-97
2-Chlorophenol-d4 (2CP)	13-101	4-Nitrophenol-d4 (4NP)	16-166
4-Methylphenol-d8 (4MP)	8-100	Fluorene-d10 (FLR)	40-108
Nitrobenzene-d4 (NBZ)	16-103	4,6-Dinitro-2-methylphenol-d2 (NMP)	1-121
2-Nitrophenol-d4 (2NP)	16-104	Anthracene-d10 (ANC)	22-98
2,4-Dichlorophenol-d3 (DCP)	23-104	Pyrene-d10 (PYR)	51-120
4-Chloroaniline-d4 (4CA)	1-145	Benzo(a)pyrene-d12 (BAP)	43-111

All of the soil semivolatile surrogate recoveries met the applicable recovery criteria and none of the data was qualified on this basis.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) - NA

Internal Standards - Acceptable

The acceptance criteria for internal standards (IS) was within +/- 30 seconds for retention time (RT) shifts and 50% to 200% of the IS area as compared to the IS RT and area of the daily continuing verification standard. All of the analyses met the IS area & RT criteria and none of the data was qualified on this basis.

Compound Identification - Acceptable

All of the detected target compounds were within the retention time windows, met the USEPA spectral matching criteria and were judged to be acceptable. None of the data was qualified on this basis.

Tentatively Identified Compounds

Chromatographic peaks in the samples with areas > 10% of the nearest Internal Standard, but not part of the target compound list, were identified as tentatively identified compounds (TICs) at estimated concentrations, "JN"

Laboratory Contact

The lab was contacted during this review.

Overall Assessment

The total number of data points evaluated was 885. As the result of the data validation, data results were qualified as follows: 1.0% of the total data points were qualified as non-detects, "U"; 1.0% of them were qualified due to failing calibration; 0.6% of them were qualified due to failing surrogates; 0.9% of the total data points were qualified unusable, R, due to extremely low & unacceptable instrument response. With the exception of 1,4-Dioxane, the rest of the VOC data is acceptable.

The data, as qualified, are acceptable and can be used for all purposes.

Data Qualifiers		
	U	The analyte was not detected at or above the reported result.
	J	The analyte was positively identified. The associated numerical result is an estimate.
	UJ	The analyte was not detected at or above the reported estimated result. The associated numerical value is an estimate of the quantitation limit of the analyte in this sample.
	R	The data are unusable for all purposes.
	N	There is evidence the analyte is present in this sample.
	JN	There is evidence that the analyte is present. The associated numerical result is an estimate.
	L	Low Bias
	H	High Bias
	Q	The result is estimated because the concentration is below the Contract Required Quantitation Limits (CRQLs)
	K	Unknown Bias

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQA9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2680.01

Sample wt/vol: 5.300 (g/mL) G Lab File ID: B24338

Level: (TRACE/LOW/MED) LOW Date Received: 09/24/2009

% Moisture: not dec. 8.0 Date Analyzed: 10/01/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	5.1	U
108-87-2	Methylcyclohexane	5.1	U
78-87-5	1,2-Dichloropropane	5.1	U
75-27-4	Bromodichloromethane	5.1	U
10061-01-5	cis-1,3-Dichloropropene	5.1	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.1	U
10061-02-6	trans-1,3-Dichloropropene	5.1	U
79-00-5	1,1,2-Trichloroethane	5.1	U
127-18-4	Tetrachloroethene	5.1	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.1	U
106-93-4	1,2-Dibromoethane	5.1	U
108-90-7	Chlorobenzene	5.1	U
100-41-4	Ethylbenzene	5.1	U
95-47-6	o-Xylene	5.1	U
179601-23-1	m,p-Xylene	5.1	U
100-42-5	Styrene	5.1	U
75-25-2	Bromoform	5.1	U
98-82-8	Isopropylbenzene	5.1	U
79-34-5	1,1,2,2-Tetrachloroethane	5.1	U
541-73-1	1,3-Dichlorobenzene	5.1	U
106-46-7	1,4-Dichlorobenzene	5.1	U
95-50-1	1,2-Dichlorobenzene	5.1	U
96-12-8	1,2-Dibromo-3-chloropropane	5.1	U
120-82-1	1,2,4-Trichlorobenzene	5.1	U
87-61-6	1,2,3-Trichlorobenzene	5.1	U

1/8/10

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQA9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2680.01

Sample wt/vol: 5.300 (g/mL) G Lab File ID: B24338

Level: (TRACE/LOW/MED) LOW Date Received: 09/24/2009

% Moisture: not dec. 8.0 Date Analyzed: 10/01/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5.1	U
74-87-3	Chloromethane	5.1	U
75-01-4	Vinyl chloride	5.1	U
74-83-9	Bromomethane	5.1	U
75-00-3	Chloroethane	5.1	U
75-69-4	Trichlorofluoromethane	5.1	U
75-35-4	1,1-Dichloroethene	5.1	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.1	U
67-64-1	Acetone	14	~~B~~U
75-15-0	Carbon disulfide	5.1	U
79-20-9	Methyl acetate	5.1	U
75-09-2	Methylene chloride	12	~~B~~U
156-60-5	trans-1,2-Dichloroethene	5.1	U
1634-04-4	Methyl tert-butyl ether	5.1	U
75-34-3	1,1-Dichloroethane	5.1	U
156-59-2	cis-1,2-Dichloroethene	5.1	U
78-93-3	2-Butanone	10	U
74-97-5	Bromochloromethane	5.1	U
67-66-3	Chloroform	5.1	U
71-55-6	1,1,1-Trichloroethane	5.1	U
110-82-7	Cyclohexane	5.1	U
56-23-5	Carbon tetrachloride	5.1	U
71-43-2	Benzene	5.1	U
107-06-2	1,2-Dichloroethane	5.1	U
123-91-1	1,4-Dioxane	100	~~U~~R

Report 1,4-Dioxane for Low-Medium VOA analysis only

1/8/10

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQA9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2680.01

Sample wt/vol: 5.300 (g/mL) G Lab File ID: B24338

Level: (TRACE or LOW/MED) LOW Date Received: 09/24/2009

% Moisture: not dec. 8.0 Date Analyzed: 10/01/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	11.17	73	JN
02	~~000541-05-9~~	~~Cyclotrisiloxane, hexamethyl~~	~~12.06~~	~~13~~	~~NJ~~
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	6.2	JN

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

0031

1/8/10

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQC4

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.01

Sample wt/vol: 5.100 (g/mL) G Lab File ID: B24440

Level: (TRACE/LOW/MED) LOW Date Received: 09/25/2009

% Moisture: not dec. 9.0 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5.4	U
74-87-3	Chloromethane	5.4	U
75-01-4	Vinyl chloride	5.4	U
74-83-9	Bromomethane	5.4	U JK
75-00-3	Chloroethane	5.4	U
75-69-4	Trichlorofluoromethane	5.4	U
75-35-4	1,1-Dichloroethene	5.4	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.4	U
67-64-1	Acetone	18	~~B~~U
75-15-0	Carbon disulfide	5.4	U
79-20-9	Methyl acetate	5.4	U
75-09-2	Methylene chloride	5.4	U
156-60-5	trans-1,2-Dichloroethene	5.4	U
1634-04-4	Methyl tert-butyl ether	5.4	U
75-34-3	1,1-Dichloroethane	5.4	U
156-59-2	cis-1,2-Dichloroethene	5.4	U
78-93-3	2-Butanone	11	U
74-97-5	Bromochloromethane	5.4	U
67-66-3	Chloroform	5.4	U
71-55-6	1,1,1-Trichloroethane	5.4	U
110-82-7	Cyclohexane	5.4	U
56-23-5	Carbon tetrachloride	5.4	U
71-43-2	Benzene	5.4	U
107-06-2	1,2-Dichloroethane	5.4	U
123-91-1	1,4-Dioxane	110	~~U~~R

Report 1,4-Dioxane for Low-Medium VOA analysis only

1/8/10

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQC4

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.01

Sample wt/vol: 5.100 (g/mL) G Lab File ID: B24440

Level: (TRACE/LOW/MED) LOW Date Received: 09/25/2009

% Moisture: not dec. 9.0 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	5.4	U
108-87-2	Methylcyclohexane	5.4	U
78-87-5	1,2-Dichloropropane	5.4	U
75-27-4	Bromodichloromethane	5.4	U
10061-01-5	cis-1,3-Dichloropropene	5.4	U
108-10-1	4-Methyl-2-pentanone	11	U
108-88-3	Toluene	5.4	U
10061-02-6	trans-1,3-Dichloropropene	5.4	U
79-00-5	1,1,2-Trichloroethane	5.4	U
127-18-4	Tetrachloroethene	5.4	U
591-78-6	2-Hexanone	11	U
124-48-1	Dibromochloromethane	5.4	U
106-93-4	1,2-Dibromoethane	5.4	U
108-90-7	Chlorobenzene	5.4	U
100-41-4	Ethylbenzene	5.4	U
95-47-6	o-Xylene	5.4	U
179601-23-1	m,p-Xylene	5.4	U
100-42-5	Styrene	5.4	U
75-25-2	Bromoform	5.4	U
98-82-8	Isopropylbenzene	5.4	U
79-34-5	1,1,2,2-Tetrachloroethane	5.4	U
541-73-1	1,3-Dichlorobenzene	5.4	U
106-46-7	1,4-Dichlorobenzene	5.4	U
95-50-1	1,2-Dichlorobenzene	5.4	U
96-12-8	1,2-Dibromo-3-chloropropane	5.4	U
120-82-1	1,2,4-Trichlorobenzene	5.4	U
87-61-6	1,2,3-Trichlorobenzene	5.4	U

1/8/10

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQC4

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.01

Sample wt/vol: 5.100 (g/mL) G Lab File ID: B24440

Level: (TRACE or LOW/MED) LOW Date Received: 09/25/2009

% Moisture: not dec. 9.0 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	11.16	80	~~J~~N
02	~~000541-05-9~~	~~Cyclotrisiloxane, hexamethyl-~~	~~12.05~~	~~24~~	~~NJ~~
03	~~000556-67-2~~	~~Cyclotetrasiloxane, octamethy~~	~~16.17~~	~~11~~	~~NJ~~
04					
05					
06					
07					
08					
09					
10					
11					
12					
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19					
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22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

0044

1/8/10

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQE7

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.07

Sample wt/vol: 5.700 (g/mL) G Lab File ID: B24453

Level: (TRACE or LOW/MED) LOW Date Received: 09/29/2009

% Moisture: not dec. 7.0 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	11.17	74	JN
02	~~000541-05-9~~	~~Cyclotrisiloxane, hexamethyl-~~	~~12.06~~	~~19~~	~~NJ~~
03	~~000556-67-2~~	~~Cyclotetrasiloxane, octamethy~~	~~16.17~~	~~12~~	~~NJ~~
04					
05					
06					
07					
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28					
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30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

0185

1/8/10

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQE7

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.07

Sample wt/vol: 5.700 (g/mL) G Lab File ID: B24453

Level: (TRACE/LOW/MED) LOW Date Received: 09/29/2009

% Moisture: not dec. 7.0 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	4.7	U
108-87-2	Methylcyclohexane	4.7	U
78-87-5	1,2-Dichloropropane	4.7	U
75-27-4	Bromodichloromethane	4.7	U
10061-01-5	cis-1,3-Dichloropropene	4.7	U
108-10-1	4-Methyl-2-pentanone	9.4	U
108-88-3	Toluene	4.7	U
10061-02-6	trans-1,3-Dichloropropene	4.7	U
79-00-5	1,1,2-Trichloroethane	4.7	U
127-18-4	Tetrachloroethene	4.7	U
591-78-6	2-Hexanone	9.4	U
124-48-1	Dibromochloromethane	4.7	U
106-93-4	1,2-Dibromoethane	4.7	U
108-90-7	Chlorobenzene	4.7	U
100-41-4	Ethylbenzene	4.7	U
95-47-6	o-Xylene	4.7	U
179601-23-1	m,p-Xylene	4.7	U
100-42-5	Styrene	4.7	U
75-25-2	Bromoform	4.7	U
98-82-8	Isopropylbenzene	4.7	U
79-34-5	1,1,2,2-Tetrachloroethane	4.7	U
541-73-1	1,3-Dichlorobenzene	4.7	U
106-46-7	1,4-Dichlorobenzene	4.7	U
95-50-1	1,2-Dichlorobenzene	4.7	U
96-12-8	1,2-Dibromo-3-chloropropane	4.7	U
120-82-1	1,2,4-Trichlorobenzene	4.7	U
87-61-6	1,2,3-Trichlorobenzene	4.7	U

1/8/10

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQE7

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.07

Sample wt/vol: 5.700 (g/mL) G Lab File ID: B24453

Level: (TRACE/LOW/MED) LOW Date Received: 09/29/2009

% Moisture: not dec. 7.0 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	4.7	U
74-87-3	Chloromethane	4.7	U
75-01-4	Vinyl chloride	4.7	U
74-83-9	Bromomethane	4.7	U
75-00-3	Chloroethane	4.7	U
75-69-4	Trichlorofluoromethane	4.7	U
75-35-4	1,1-Dichloroethene	4.7	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	4.7	U
67-64-1	Acetone	10.	BU
75-15-0	Carbon disulfide	4.7	U
79-20-9	Methyl acetate	4.7	U
75-09-2	Methylene chloride	4.7	U
156-60-5	trans-1,2-Dichloroethene	4.7	U
1634-04-4	Methyl tert-butyl ether	4.7	U
75-34-3	1,1-Dichloroethane	4.7	U
156-59-2	cis-1,2-Dichloroethene	4.7	U
78-93-3	2-Butanone	9.4	U
74-97-5	Bromochloromethane	4.7	U
67-66-3	Chloroform	4.7	U
71-55-6	1,1,1-Trichloroethane	4.7	U
110-82-7	Cyclohexane	4.7	U
56-23-5	Carbon tetrachloride	4.7	U
71-43-2	Benzene	4.7	U
107-06-2	1,2-Dichloroethane	4.7	U
123-91-1	1,4-Dioxane	94	UR

Report 1,4-Dioxane for Low-Medium VOA analysis only

0183

1/8/10

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQE5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.06

Sample wt/vol: 5.300 (g/mL) G Lab File ID: B24452

Level: (TRACE or LOW/MED) LOW Date Received: 09/29/2009

% Moisture: not dec. 6.0 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	11.17	79	JN
02	~~000541-05-9~~	~~Cyclotrisiloxane, hexamethyl-~~	~~12.06~~	~~23~~	~~NJ~~
03	~~000556-67-2~~	~~Cyclotetrasiloxane, octamethy~~	~~16.17~~	~~11~~	~~NJ~~
04		Unknown-02	18.84	8.3	JN
05					
06					
07					
08					
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28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

0171

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1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQE5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.06

Sample wt/vol: 5.300 (g/mL) G Lab File ID: B24452

Level: (TRACE/LOW/MED) LOW Date Received: 09/29/2009

% Moisture: not dec. 6.0 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

1/8/10

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQE5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.06

Sample wt/vol: 5.300 (g/mL) G Lab File ID: B24452

Level: (TRACE/LOW/MED) LOW Date Received: 09/29/2009

% Moisture: not dec. 6.0 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U
67-64-1	Acetone	10 ~~9.8~~	~~JB~~ U
75-15-0	Carbon disulfide	5.0	U
79-20-9	Methyl acetate	5.0	U
75-09-2	Methylene chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-Butanone	10	U
74-97-5	Bromochloromethane	5.0	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
110-82-7	Cyclohexane	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
123-91-1	1,4-Dioxane	100	~~U~~ R

Report 1,4-Dioxane for Low-Medium VOA analysis only

1/8/10

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQD9ME

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.04ME

Sample wt/vol: 5.000 (g/mL) G Lab File ID: A23713

Level: (TRACE or LOW/MED) MED Date Received: 09/29/2009

% Moisture: not dec. 40 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	11.02	8000	JN
02	001124-27-2	Cyclohexane, 1-methyl-4-(1-me	17.27	10000	NJ
03	005989-27-5	D-Limonene	17.42	1800	NJ
04					
05					
06					
07					
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28					
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30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

0156

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1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQD9ME

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.04ME

Sample wt/vol: 5.000 (g/mL) G Lab File ID: A23713

Level: (TRACE/LOW/MED) MED Date Received: 09/29/2009

% Moisture: not dec. 40 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 100 (uL)

Purge Volume: 5.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	580	U
108-87-2	Methylcyclohexane	580	U
78-87-5	1,2-Dichloropropane	580	U
75-27-4	Bromodichloromethane	580	U
10061-01-5	cis-1,3-Dichloropropene	580	U
108-10-1	4-Methyl-2-pentanone	1200	U
108-88-3	Toluene	17000	~~B~~ → Report
10061-02-6	trans-1,3-Dichloropropene	580	U
79-00-5	1,1,2-Trichloroethane	580	U
127-18-4	Tetrachloroethene	580	U
591-78-6	2-Hexanone	1200	U
124-48-1	Dibromochloromethane	580	U
106-93-4	1,2-Dibromoethane	580	U
108-90-7	Chlorobenzene	580	U
100-41-4	Ethylbenzene	580	U
95-47-6	o-Xylene	580	U
179601-23-1	m,p-Xylene	580	U
100-42-5	Styrene	580	U
75-25-2	Bromoform	580	U
98-82-8	Isopropylbenzene	580	U
79-34-5	1,1,2,2-Tetrachloroethane	580	U
541-73-1	1,3-Dichlorobenzene	580	U
106-46-7	1,4-Dichlorobenzene	580	U
95-50-1	1,2-Dichlorobenzene	580	U
96-12-8	1,2-Dibromo-3-chloropropane	580	U
120-82-1	1,2,4-Trichlorobenzene	580	U
87-61-6	1,2,3-Trichlorobenzene	580	U

1/8/10

REPORT TOLUENE ONLY

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQD9ME

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.04ME

Sample wt/vol: 5.000 (g/mL) G Lab File ID: A23713

Level: (TRACE/LOW/MED) MED Date Received: 09/29/2009

% Moisture: not dec. 40 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 100 (uL)

Purge Volume: 5.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	580	U
74-87-3	Chloromethane	580	U
75-01-4	Vinyl chloride	580	U
74-83-9	Bromomethane	580	U
75-00-3	Chloroethane	580	U
75-69-4	Trichlorofluoromethane	580	U
75-35-4	1,1-Dichloroethene	580	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	580	U
67-64-1	Acetone	1200	U
75-15-0	Carbon disulfide	580	U
79-20-9	Methyl acetate	580	U
75-09-2	Methylene chloride	580	U
156-60-5	trans-1,2-Dichloroethene	580	U
1634-04-4	Methyl tert-butyl ether	580	U
75-34-3	1,1-Dichloroethane	580	U
156-59-2	cis-1,2-Dichloroethene	580	U
78-93-3	2-Butanone	1200	U
74-97-5	Bromochloromethane	580	U
67-66-3	Chloroform	580	U
71-55-6	1,1,1-Trichloroethane	580	U
110-82-7	Cyclohexane	580	U
56-23-5	Carbon tetrachloride	580	U
71-43-2	Benzene	580	U
107-06-2	1,2-Dichloroethane	580	U
123-91-1	1,4-Dioxane	12000	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1/8/10

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQD9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.04

Sample wt/vol: 0.7000 (g/mL) G Lab File ID: B24458

Level: (TRACE or LOW/MED) LOW Date Received: 09/29/2009

% Moisture: not dec. 40 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	11.17	790	JN
02	000541-05-9	Cyclotrisiloxane, hexamethyl-	12.06	510	NJ
03	007785-26-4	1S-.alpha.-Pinene	15.30	450	NJ
04		Unknown-02	16.18	580	JN
05	000611-14-3	Benzene, 1-ethyl-2-methyl-	16.57	660	NJ
06	001124-27-2	Cyclohexane, 1-methyl-4-(1-me	17.48	36000	NJ
07	005989-27-5	D-Limonene	17.61	3900	NJ
08	000527-84-4	Benzene, 1-methyl-2-(1-methyl	17.93	940	NJ
09	000586-62-9	Cyclohexene, 1-methyl-4-(1-me	18.83	490	NJ
10	000874-41-9	Benzene, 1-ethyl-2,4-dimethyl	19.37	410	NJ
11	000112-40-3	Dodecane	20.64	1300	NJ
12	017301-23-4	Undecane, 2,6-dimethyl-	20.97	450	NJ
13		Unknown-03	22.12	420	JN
14	000629-50-5	Tridecane	22.53	510	NJ
15					
16					
17					
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25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	940	JN

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

0127

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1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQD9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.04

Sample wt/vol: 0.7000 (g/mL) G Lab File ID: B24458

Level: (TRACE/LOW/MED) LOW Date Received: 09/29/2009

% Moisture: not dec. 40 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	60	U
108-87-2	Methylcyclohexane	60	U
78-87-5	1,2-Dichloropropane	60	U
75-27-4	Bromodichloromethane	60	U
10061-01-5	cis-1,3-Dichloropropene	60	U
108-10-1	4-Methyl-2-pentanone	120	U
108-88-3	Toluene	9100	E → Report from JBQD9ME
10061-02-6	trans-1,3-Dichloropropene	60	U
79-00-5	1,1,2-Trichloroethane	60	U
127-18-4	Tetrachloroethene	60	U
591-78-6	2-Hexanone	120	U
124-48-1	Dibromochloromethane	60	UJK
106-93-4	1,2-Dibromoethane	60	U
108-90-7	Chlorobenzene	60	U
100-41-4	Ethylbenzene	87	
95-47-6	o-Xylene	180	
179601-23-1	m,p-Xylene	310	
100-42-5	Styrene	60	U
75-25-2	Bromoform	60	UJK
98-82-8	Isopropylbenzene	60	U
79-34-5	1,1,2,2-Tetrachloroethane	60	U
541-73-1	1,3-Dichlorobenzene	60	U
106-46-7	1,4-Dichlorobenzene	60	U
95-50-1	1,2-Dichlorobenzene	60	U
96-12-8	1,2-Dibromo-3-chloropropane	60	U
120-82-1	1,2,4-Trichlorobenzene	60	U
87-61-6	1,2,3-Trichlorobenzene	60	U

1/8/10

REPORT ALL BUT TOLUENE

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQD9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.04

Sample wt/vol: 0.7000 (g/mL) G Lab File ID: B24458

Level: (TRACE/LOW/MED) LOW Date Received: 09/29/2009

% Moisture: not dec. 40 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	60	U
74-87-3	Chloromethane	60	U
75-01-4	Vinyl chloride	60	U
74-83-9	Bromomethane	60	U
75-00-3	Chloroethane	60	U
75-69-4	Trichlorofluoromethane	60	U
75-35-4	1,1-Dichloroethene	60	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	60	U
67-64-1	Acetone	310	U ~~B~~ ~~U~~
75-15-0	Carbon disulfide	60	U
79-20-9	Methyl acetate	60	U
75-09-2	Methylene chloride	60	U
156-60-5	trans-1,2-Dichloroethene	60	U
1634-04-4	Methyl tert-butyl ether	60	U
75-34-3	1,1-Dichloroethane	60	UJK
156-59-2	cis-1,2-Dichloroethene	60	U
78-93-3	2-Butanone	120	U
74-97-5	Bromochloromethane	60	UJK
67-66-3	Chloroform	60	UJK
71-55-6	1,1,1-Trichloroethane	60	U
110-82-7	Cyclohexane	60	U
56-23-5	Carbon tetrachloride	60	U
71-43-2	Benzene	60	U
107-06-2	1,2-Dichloroethane	60	U
123-91-1	1,4-Dioxane	1200	~~U~~ R

Report 1,4-Dioxane for Low-Medium VOA analysis only

1/8/10

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQD5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2698.01

Sample wt/vol: 5.000 (g/mL) G Lab File ID: B24443

Level: (TRACE or LOW/MED) LOW Date Received: 09/26/2009

% Moisture: not dec. 9.0 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	11.15	80	JN
02	~~000541-05-9~~	~~Cyclotrisiloxane, hexamethyl-~~	~~12.04~~	~~22~~	~~NJ~~
03		Unknown-02	22.98	14	JN
04					
05					
06					
07					
08					
09					
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28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

0114

1/8/10

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQD5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2698.01

Sample wt/vol: 5.000 (g/mL) G Lab File ID: B24443

Level: (TRACE/LOW/MED) LOW Date Received: 09/26/2009

% Moisture: not dec. 9.0 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	5.5	U
108-87-2	Methylcyclohexane	5.5	U
78-87-5	1,2-Dichloropropane	5.5	U
75-27-4	Bromodichloromethane	5.5	U
10061-01-5	cis-1,3-Dichloropropene	5.5	U
108-10-1	4-Methyl-2-pentanone	11	U
108-88-3	Toluene	6.3	
10061-02-6	trans-1,3-Dichloropropene	5.5	U
79-00-5	1,1,2-Trichloroethane	5.5	U
127-18-4	Tetrachloroethene	5.5	U
591-78-6	2-Hexanone	11	U
124-48-1	Dibromochloromethane	5.5	U
106-93-4	1,2-Dibromoethane	5.5	U
108-90-7	Chlorobenzene	5.5	U
100-41-4	Ethylbenzene	5.5	U
95-47-6	o-Xylene	5.5	U
179601-23-1	m,p-Xylene	5.5	U
100-42-5	Styrene	5.5	U
75-25-2	Bromoform	5.5	U
98-82-8	Isopropylbenzene	5.5	U
79-34-5	1,1,2,2-Tetrachloroethane	5.5	U
541-73-1	1,3-Dichlorobenzene	5.5	U
106-46-7	1,4-Dichlorobenzene	5.5	U
95-50-1	1,2-Dichlorobenzene	5.5	U
96-12-8	1,2-Dibromo-3-chloropropane	5.5	U
120-82-1	1,2,4-Trichlorobenzene	5.5	U
87-61-6	1,2,3-Trichlorobenzene	5.5	U

1/8/10

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQD5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2698.01

Sample wt/vol: 5.000 (g/mL) G Lab File ID: B24443

Level: (TRACE/LOW/MED) LOW Date Received: 09/26/2009

% Moisture: not dec. 9.0 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	5.5	U
74-87-3	Chloromethane	5.5	U
75-01-4	Vinyl chloride	5.5	U
74-83-9	Bromomethane	5.5	UJK
75-00-3	Chloroethane	5.5	U
75-69-4	Trichlorofluoromethane	5.5	U
75-35-4	1,1-Dichloroethene	5.5	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.5	U
67-64-1	Acetone	11 ~~10~~	~~JB~~ U
75-15-0	Carbon disulfide	5.5	U
79-20-9	Methyl acetate	5.5	U
75-09-2	Methylene chloride	5.5	U
156-60-5	trans-1,2-Dichloroethene	5.5	U
1634-04-4	Methyl tert-butyl ether	5.5	U
75-34-3	1,1-Dichloroethane	5.5	U
156-59-2	cis-1,2-Dichloroethene	5.5	U
78-93-3	2-Butanone	11	U
74-97-5	Bromochloromethane	5.5	U
67-66-3	Chloroform	5.5	U
71-55-6	1,1,1-Trichloroethane	5.5	U
110-82-7	Cyclohexane	5.5	U
56-23-5	Carbon tetrachloride	5.5	U
71-43-2	Benzene	5.5	U
107-06-2	1,2-Dichloroethane	5.5	U
123-91-1	1,4-Dioxane	110	~~UJ~~R

Report 1,4-Dioxane for Low-Medium VOA analysis only

1/8/10

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQC9ME

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.03ME

Sample wt/vol: 5.000 (g/mL) G Lab File ID: A23712

Level: (TRACE or LOW/MED) MED Date Received: 09/25/2009

% Moisture: not dec. 23 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 75 (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	11.02	7800	JN
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
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22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

0102

1/8/10

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQC9ME

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.03ME

Sample wt/vol: 5.000 (g/mL) G Lab File ID: A23712

Level: (TRACE/LOW/MED) MED Date Received: 09/25/2009

% Moisture: not dec. 23 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 75 (uL)

Purge Volume: 5.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	530	U
108-87-2	Methylcyclohexane	530	U
78-87-5	1,2-Dichloropropane	530	U
75-27-4	Bromodichloromethane	530	U
10061-01-5	cis-1,3-Dichloropropene	530	U
108-10-1	4-Methyl-2-pentanone	1100	U
108-88-3	Toluene	8200	~~B~~ → Report
10061-02-6	trans-1,3-Dichloropropene	530	U
79-00-5	1,1,2-Trichloroethane	530	U
127-18-4	Tetrachloroethene	530	U
591-78-6	2-Hexanone	1100	U
124-48-1	Dibromochloromethane	530	U
106-93-4	1,2-Dibromoethane	530	U
108-90-7	Chlorobenzene	530	U
100-41-4	Ethylbenzene	530	U
95-47-6	o-Xylene	530	U
179601-23-1	m,p-Xylene	530	U
100-42-5	Styrene	530	U
75-25-2	Bromoform	530	U
98-82-8	Isopropylbenzene	530	U
79-34-5	1,1,2,2-Tetrachloroethane	530	U
541-73-1	1,3-Dichlorobenzene	530	U
106-46-7	1,4-Dichlorobenzene	530	U
95-50-1	1,2-Dichlorobenzene	530	U
96-12-8	1,2-Dibromo-3-chloropropane	530	U
120-82-1	1,2,4-Trichlorobenzene	530	U
87-61-6	1,2,3-Trichlorobenzene	530	U

1/8/10

REPORT TOLUENE ONLY

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQC9ME

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.03ME

Sample wt/vol: 5.000 (g/mL) G Lab File ID: A23712

Level: (TRACE/LOW/MED) MED Date Received: 09/25/2009

% Moisture: not dec. 23 Date Analyzed: 10/06/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 75 (uL)

Purge Volume: 5.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	530	U
74-87-3	Chloromethane	530	U
75-01-4	Vinyl chloride	530	U
74-83-9	Bromomethane	530	U
75-00-3	Chloroethane	530	U
75-69-4	Trichlorofluoromethane	530	U
75-35-4	1,1-Dichloroethene	530	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	530	U
67-64-1	Acetone	1100	U
75-15-0	Carbon disulfide	530	U
79-20-9	Methyl acetate	530	U
75-09-2	Methylene chloride	310	J
156-60-5	trans-1,2-Dichloroethene	530	U
1634-04-4	Methyl tert-butyl ether	530	U
75-34-3	1,1-Dichloroethane	530	U
156-59-2	cis-1,2-Dichloroethene	530	U
78-93-3	2-Butanone	1100	U
74-97-5	Bromochloromethane	530	U
67-66-3	Chloroform	530	U
71-55-6	1,1,1-Trichloroethane	530	U
110-82-7	Cyclohexane	530	U
56-23-5	Carbon tetrachloride	530	U
71-43-2	Benzene	530	U
107-06-2	1,2-Dichloroethane	530	U
123-91-1	1,4-Dioxane	11000	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

1/8/10

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQC9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.03

Sample wt/vol: 0.5000 (g/mL) G Lab File ID: B24445

Level: (TRACE or LOW/MED) LOW Date Received: 09/25/2009

% Moisture: not dec. 23 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	11.15	810	JN
02	~~000541-05-9~~	~~Cyclotrisiloxane, hexamethyl-~~	~~12.05~~	~~360~~	~~NJ~~
03	000080-56-8	.alpha.-Pinene	15.30	170	NJ
04	~~000556-67-2~~	~~Cyclotetrasiloxane, octamethy~~	~~16.17~~	~~400~~	~~NJ~~
05	000127-91-3	.beta.-Pinene	16.53	140	NJ
06	002847-72-5	Decane, 4-methyl-	17.02	71	NJ
07	005989-27-5	D-Limonene	17.61	550	NJ
08	000527-84-4	Benzene, 1-methyl-2-(1-methyl	17.93	1300	NJ
09		Unknown-02	18.31	71	JN
10	029050-33-7	(+)-4-Carene	18.82	110	NJ
11		Unknown-03	18.84	200	JN
12		Unknown-04	19.65	190	JN
13		Unknown-05	23.00	240	JN
14					
15					
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26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	930	JN

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

0070

1/8/10

REPORT ALL EXCEPT TOLUENE

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQC9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.03

Sample wt/vol: 0.5000 (g/mL) G Lab File ID: B24445

Level: (TRACE/LOW/MED) LOW Date Received: 09/25/2009

% Moisture: not dec. 23 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	65	U
108-87-2	Methylcyclohexane	65	U
78-87-5	1,2-Dichloropropane	65	U
75-27-4	Bromodichloromethane	65	U
10061-01-5	cis-1,3-Dichloropropene	65	U
108-10-1	4-Methyl-2-pentanone	130	U
108-88-3	Toluene	11000	E → Report from JBQC9ME
10061-02-6	trans-1,3-Dichloropropene	65	U
79-00-5	1,1,2-Trichloroethane	65	U
127-18-4	Tetrachloroethene	65	U
591-78-6	2-Hexanone	130	U
124-48-1	Dibromochloromethane	65	U
106-93-4	1,2-Dibromoethane	65	U
108-90-7	Chlorobenzene	65	U
100-41-4	Ethylbenzene	65	U
95-47-6	o-Xylene	65	U
179601-23-1	m,p-Xylene	65	U
100-42-5	Styrene	65	U
75-25-2	Bromoform	65	U
98-82-8	Isopropylbenzene	65	U
79-34-5	1,1,2,2-Tetrachloroethane	65	U
541-73-1	1,3-Dichlorobenzene	65	U
106-46-7	1,4-Dichlorobenzene	65	U
95-50-1	1,2-Dichlorobenzene	65	U
96-12-8	1,2-Dibromo-3-chloropropane	65	U
120-82-1	1,2,4-Trichlorobenzene	65	U
87-61-6	1,2,3-Trichlorobenzene	65	U

1/8/10

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQC9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.03

Sample wt/vol: 0.5000 (g/mL) G Lab File ID: B24445

Level: (TRACE/LOW/MED) LOW Date Received: 09/25/2009

% Moisture: not dec. 23 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	65	U
74-87-3	Chloromethane	65	U
75-01-4	Vinyl chloride	65	U
74-83-9	Bromomethane	65	UJK
75-00-3	Chloroethane	65	U
75-69-4	Trichlorofluoromethane	65	U
75-35-4	1,1-Dichloroethene	65	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	65	U
67-64-1	Acetone	460	U ~~BU~~
75-15-0	Carbon disulfide	65	U
79-20-9	Methyl acetate	360	
75-09-2	Methylene chloride	65	U
156-60-5	trans-1,2-Dichloroethene	65	U
1634-04-4	Methyl tert-butyl ether	65	U
75-34-3	1,1-Dichloroethane	65	U
156-59-2	cis-1,2-Dichloroethene	65	U
78-93-3	2-Butanone	130	U
74-97-5	Bromochloromethane	65	U
67-66-3	Chloroform	65	U
71-55-6	1,1,1-Trichloroethane	65	U
110-82-7	Cyclohexane	65	U
56-23-5	Carbon tetrachloride	65	U
71-43-2	Benzene	65	U
107-06-2	1,2-Dichloroethane	65	U
123-91-1	1,4-Dioxane	1300	~~U~~R

Report 1,4-Dioxane for Low-Medium VOA analysis only

0068

1/8/10

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQC8

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.02

Sample wt/vol: 4.200 (g/mL) G Lab File ID: B24441

Level: (TRACE or LOW/MED) LOW Date Received: 09/25/2009

% Moisture: not dec. 12 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	11.15	100	JN
02	~~000541-05-9~~	~~Cyclotrisiloxane, hexamethyl~~	~~12.04~~	~~21~~	~~NJ~~
03	~~000556-67-2~~	~~Cyclotetrasiloxane, octamethy~~	~~16.17~~	~~12~~	~~NJ~~
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1] EPA-designated Registry Number.

SOM01.2 (6/2007)

0057

1/8/10

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQC8

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.02

Sample wt/vol: 4.200 (g/mL) G Lab File ID: B24441

Level: (TRACE/LOW/MED) LOW Date Received: 09/25/2009

% Moisture: not dec. 12 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
79-01-6	Trichloroethene	6.8	U
108-87-2	Methylcyclohexane	6.8	U
78-87-5	1,2-Dichloropropane	6.8	U
75-27-4	Bromodichloromethane	6.8	U
10061-01-5	cis-1,3-Dichloropropene	6.8	U
108-10-1	4-Methyl-2-pentanone	14	U
108-88-3	Toluene	6.8	U
10061-02-6	trans-1,3-Dichloropropene	6.8	U
79-00-5	1,1,2-Trichloroethane	6.8	U
127-18-4	Tetrachloroethene	6.8	U
591-78-6	2-Hexanone	14	U
124-48-1	Dibromochloromethane	6.8	U
106-93-4	1,2-Dibromoethane	6.8	U
108-90-7	Chlorobenzene	6.8	U
100-41-4	Ethylbenzene	6.8	U
95-47-6	o-Xylene	6.8	U
179601-23-1	m,p-Xylene	6.8	U
100-42-5	Styrene	6.8	U
75-25-2	Bromoform	6.8	U
98-82-8	Isopropylbenzene	6.8	U
79-34-5	1,1,2,2-Tetrachloroethane	6.8	U
541-73-1	1,3-Dichlorobenzene	6.8	U
106-46-7	1,4-Dichlorobenzene	6.8	U
95-50-1	1,2-Dichlorobenzene	6.8	U
96-12-8	1,2-Dibromo-3-chloropropane	6.8	U
120-82-1	1,2,4-Trichlorobenzene	6.8	U
87-61-6	1,2,3-Trichlorobenzene	6.8	U

1/8/10

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQC8

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2690.02

Sample wt/vol: 4.200 (g/mL) G Lab File ID: B24441

Level: (TRACE/LOW/MED) LOW Date Received: 09/25/2009

% Moisture: not dec. 12 Date Analyzed: 10/05/2009

GC Column: RTX-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: ____ (uL)

Purge Volume: 10.0 (mL)

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-71-8	Dichlorodifluoromethane	6.8	U
74-87-3	Chloromethane	6.8	U
75-01-4	Vinyl chloride	6.8	U
74-83-9	Bromomethane	6.8	UJK
75-00-3	Chloroethane	6.8	U
75-69-4	Trichlorofluoromethane	6.8	U
75-35-4	1,1-Dichloroethene	6.8	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	6.8	U
67-64-1	Acetone	14 ~~13~~	~~JB~~U
75-15-0	Carbon disulfide	6.8	U
79-20-9	Methyl acetate	6.8	U
75-09-2	Methylene chloride	6.8	U
156-60-5	trans-1,2-Dichloroethene	6.8	U
1634-04-4	Methyl tert-butyl ether	6.8	U
75-34-3	1,1-Dichloroethane	6.8	U
156-59-2	cis-1,2-Dichloroethene	6.8	U
78-93-3	2-Butanone	14	U
74-97-5	Bromochloromethane	6.8	U
67-66-3	Chloroform	6.8	U
71-55-6	1,1,1-Trichloroethane	6.8	U
110-82-7	Cyclohexane	6.8	U
56-23-5	Carbon tetrachloride	6.8	U
71-43-2	Benzene	6.8	U
107-06-2	1,2-Dichloroethane	6.8	U
123-91-1	1,4-Dioxane	140	UR

Report 1,4-Dioxane for Low-Medium VOA analysis only

1/8/10

1E - FORM I SV-2
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQC8

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.01

Sample wt/vol: 30.10 (g/mL) G Lab File ID: C02086

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 12 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	370	U
100-02-7	4-Nitrophenol	370	U
132-64-9	Dibenzofuran	190	U
121-14-2	2,4-Dinitrotoluene	190	U
84-66-2	Diethylphthalate	190	U
86-73-7	Fluorene	190	U
7005-72-3	4-Chlorophenyl-phenylether	190	U
100-01-6	4-Nitroaniline	370	U
534-52-1	4,6-Dinitro-2-methylphenol	370	U
86-30-6	N-Nitrosodiphenylamine [1]	190	U
95-94-3	1,2,4,5-Tetrachlorobenzene	190	U
101-55-3	4-Bromophenyl-phenylether	190	U
118-74-1	Hexachlorobenzene	190	U
1912-24-9	Atrazine	190	U
87-86-5	Pentachlorophenol	370	U
85-01-8	Phenanthrene	190	U
120-12-7	Anthracene	190	U
86-74-8	Carbazole	190	U
84-74-2	Di-n-butylphthalate	190	U
206-44-0	Fluoranthene	190	U
129-00-0	Pyrene	190	U
85-68-7	Butylbenzylphthalate	270	
91-94-1	3,3'-Dichlorobenzidine	190	U
56-55-3	Benzo(a)anthracene	190	U
218-01-9	Chrysene	190	U
117-81-7	Bis(2-ethylhexyl)phthalate	190	U
117-84-0	Di-n-octylphthalate	190	U
205-99-2	Benzo(b)fluoranthene	190	U JK
207-08-9	Benzo(k)fluoranthene	190	U
50-32-8	Benzo(a)pyrene	190	U
193-39-5	Indeno(1,2,3-cd)pyrene	190	U
53-70-3	Dibenzo(a,h)anthracene	190	U
191-24-2	Benzo(g,h,i)perylene	190	U
58-90-2	2,3,4,6-Tetrachlorophenol	190	U

[1] Cannot be separated from Diphenylamine

0416

1/11/10

1D - FORM I SV-1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JBQC8

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.01

Sample wt/vol: 30.10 (g/mL) G Lab File ID: C02086

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 12 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	190	U
108-95-2	Phenol	190	U
111-44-4	Bis(2-chloroethyl)ether	190	U
95-57-8	2-Chlorophenol	190	U
95-48-7	2-Methylphenol	190	U
108-60-1	2,2'-Oxybis(1-chloropropane)	190	U
98-86-2	Acetophenone	190	U
106-44-5	4-Methylphenol	190	U
621-64-7	N-Nitroso-di-n-propylamine	190	U
67-72-1	Hexachloroethane	190	U
98-95-3	Nitrobenzene	190	U
78-59-1	Isophorone	190	U
88-75-5	2-Nitrophenol	190	U
105-67-9	2,4-Dimethylphenol	190	U
111-91-1	Bis(2-chloroethoxy)methane	190	U
120-83-2	2,4-Dichlorophenol	190	U
91-20-3	Naphthalene	190	U
106-47-8	4-Chloroaniline	190	U
87-68-3	Hexachlorobutadiene	190	U
105-60-2	Caprolactam	190	U
59-50-7	4-Chloro-3-methylphenol	190	U
91-57-6	2-Methylnaphthalene	190	U
77-47-4	Hexachlorocyclopentadiene	190	U
88-06-2	2,4,6-Trichlorophenol	190	U
95-95-4	2,4,5-Trichlorophenol	190	U
92-52-4	1,1'-Biphenyl	190	U
91-58-7	2-Chloronaphthalene	190	U
88-74-4	2-Nitroaniline	370	U
131-11-3	Dimethylphthalate	190	U
606-20-2	2,6-Dinitrotoluene	190	U
208-96-8	Acenaphthylene	190	U
99-09-2	3-Nitroaniline	370	U
83-32-9	Acenaphthene	190	U

SOM01.2 (6/2007)

1/11/10

1K - FORM I SV-TIC
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQC8

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.01

Sample wt/vol: 30.10 (g/mL) G Lab File ID: C02086

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 12 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	004376-20-9	1,2-Benzenedicarboxylic acid,	16.78	260	NJ~~B~~
02		Unknown-01	17.36	300	JN
03		Unknown-02	17.51	180	JN
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[2]	Total Alkanes	N/A		

[2] EPA-designated Registry Number.

SOM01.2 (6/2007)

1/11/10

1D - FORM I SV-1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQC9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.02

Sample wt/vol: 29.90 (g/mL) G Lab File ID: C02087

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 23 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.1 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	220	U
108-95-2	Phenol	220	U
111-44-4	Bis(2-chloroethyl)ether	220	U
95-57-8	2-Chlorophenol	220	U
95-48-7	2-Methylphenol	220	U
108-60-1	2,2'-Oxybis(1-chloropropane)	220	U
98-86-2	Acetophenone	220	U
106-44-5	4-Methylphenol	220	U
621-64-7	N-Nitroso-di-n-propylamine	220	U
67-72-1	Hexachloroethane	220	U
98-95-3	Nitrobenzene	220	U
78-59-1	Isophorone	220	U
88-75-5	2-Nitrophenol	220	U
105-67-9	2,4-Dimethylphenol	220	U
111-91-1	Bis(2-chloroethoxy)methane	220	U
120-83-2	2,4-Dichlorophenol	220	U
91-20-3	Naphthalene	220	U
106-47-8	4-Chloroaniline	220	U
87-68-3	Hexachlorobutadiene	220	U
105-60-2	Caprolactam	220	U
59-50-7	4-Chloro-3-methylphenol	220	U
91-57-6	2-Methylnaphthalene	220	U
77-47-4	Hexachlorocyclopentadiene	220	U
88-06-2	2,4,6-Trichlorophenol	220	U
95-95-4	2,4,5-Trichlorophenol	220	U
92-52-4	1,1'-Biphenyl	220	U
91-58-7	2-Chloronaphthalene	220	U
88-74-4	2-Nitroaniline	430	U
131-11-3	Dimethylphthalate	220	U
606-20-2	2,6-Dinitrotoluene	220	U
208-96-8	Acenaphthylene	220	U
99-09-2	3-Nitroaniline	430	U
83-32-9	Acenaphthene	220	U

1/11/10

1E - FORM I SV-2
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQC9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.02

Sample wt/vol: 29.90 (g/mL) G Lab File ID: C02087

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 23 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.1 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	430	U
100-02-7	4-Nitrophenol	430	U
132-64-9	Dibenzofuran	220	U
121-14-2	2,4-Dinitrotoluene	220	U
84-66-2	Diethylphthalate	220	U
86-73-7	Fluorene	220	U
7005-72-3	4-Chlorophenyl-phenylether	220	U
100-01-6	4-Nitroaniline	430	U
534-52-1	4,6-Dinitro-2-methylphenol	430	U
86-30-6	N-Nitrosodiphenylamine 1	220	U
95-94-3	1,2,4,5-Tetrachlorobenzene	220	U
101-55-3	4-Bromophenyl-phenylether	220	U
118-74-1	Hexachlorobenzene	220	U
1912-24-9	Atrazine	220	U
87-86-5	Pentachlorophenol	430	U
85-01-8	Phenanthrene	500	
120-12-7	Anthracene	130	JQ
86-74-8	Carbazole	94	JQ
84-74-2	Di-n-butylphthalate	220	U
206-44-0	Fluoranthene	1400	
129-00-0	Pyrene	960	
85-68-7	Butylbenzylphthalate	120	JQ
91-94-1	3,3'-Dichlorobenzidine	220	U
56-55-3	Benzo(a)anthracene	820	
218-01-9	Chrysene	920	
117-81-7	Bis(2-ethylhexyl)phthalate	2100	
117-84-0	Di-n-octylphthalate	91	JQ
205-99-2	Benzo(b)fluoranthene	1200	JL
207-08-9	Benzo(k)fluoranthene	870	
50-32-8	Benzo(a)pyrene	870	
193-39-5	Indeno(1,2,3-cd)pyrene	940	
53-70-3	Dibenzo(a,h)anthracene	440	
191-24-2	Benzo(g,h,i)perylene	1200	
58-90-2	2,3,4,6-Tetrachlorophenol	220	U

[1] Cannot be separated from Diphenylamine

1/11/10

0436

1K - FORM I SV-TIC
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQC9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.02

Sample wt/vol: 29.90 (g/mL) G Lab File ID: C02087

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 23 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.1 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000779-02-2	Anthracene, 9-methyl-	14.50	400	NJ
02	000057-10-3	n-Hexadecanoic acid	14.62	1100	NJ
03	000057-10-3	n-Hexadecanoic acid	14.63	480	NJ
04		Unknown-01	14.80	380	JN
05		Unknown-02	14.92	760	J
06		Unknown-03	15.02	370	J
07		Unknown-04	15.11	550	J
08		Unknown-05	16.91	470	J
09		Unknown-06	17.03	510	J
10	002541-69-7	Benz[a]anthracene, 7-methyl-	17.12	430	NJ
11		Unknown-07	17.16	420	JN
12		Unknown-08	17.45	380	J
13		Unknown-09	17.53	780	J
14		Unknown-10	17.69	390	J
15	000205-82-3	Benzo[j]fluoranthene	17.96	550	NJ
16	007390-81-0	Oxirane, hexadecyl-	18.53	510	NJ
17		Unknown-11	18.55	380	JN
18		Unknown-12	18.60	430	J
19		Unknown-13	19.09	510	J
20		Unknown-14	19.55	380	J
21	000191-26-4	Dibenzo[def,mno]chrysene	20.74	910	NJ
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[2]	Total Alkanes	N/A	6800	JN

[2] EPA-designated Registry Number.

SOM01.2 (6/2007)

0437

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1D - FORM I SV-1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JBQD5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.03

Sample wt/vol: 30.30 (g/mL) G Lab File ID: C02088

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 9.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 5.9 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	180	U
108-95-2	Phenol	180	U
111-44-4	Bis(2-chloroethyl)ether	180	U
95-57-8	2-Chlorophenol	180	U
95-48-7	2-Methylphenol	180	U
108-60-1	2,2'-Oxybis(1-chloropropane)	180	U
98-86-2	Acetophenone	180	U
106-44-5	4-Methylphenol	180	U
621-64-7	N-Nitroso-di-n-propylamine	180	U
67-72-1	Hexachloroethane	180	U
98-95-3	Nitrobenzene	180	U
78-59-1	Isophorone	180	U
88-75-5	2-Nitrophenol	180	U
105-67-9	2,4-Dimethylphenol	180	U
111-91-1	Bis(2-chloroethoxy)methane	180	U
120-83-2	2,4-Dichlorophenol	180	U
91-20-3	Naphthalene	180	U
106-47-8	4-Chloroaniline	180	U
87-68-3	Hexachlorobutadiene	180	U
105-60-2	Caprolactam	180	U
59-50-7	4-Chloro-3-methylphenol	180	U
91-57-6	2-Methylnaphthalene	180	U
77-47-4	Hexachlorocyclopentadiene	180	U
88-06-2	2,4,6-Trichlorophenol	180	U
95-95-4	2,4,5-Trichlorophenol	180	U
92-52-4	1,1'-Biphenyl	180	U
91-58-7	2-Chloronaphthalene	180	U
88-74-4	2-Nitroaniline	360	U
131-11-3	Dimethylphthalate	180	U
606-20-2	2,6-Dinitrotoluene	180	U
208-96-8	Acenaphthylene	180	U
99-09-2	3-Nitroaniline	360	U
83-32-9	Acenaphthene	180	U

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1E - FORM I SV-2

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JBQD5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.03

Sample wt/vol: 30.30 (g/mL) G Lab File ID: C02088

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 9.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 5.9 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	360	U
100-02-7	4-Nitrophenol	360	U
132-64-9	Dibenzofuran	180	U
121-14-2	2,4-Dinitrotoluene	180	U
84-66-2	Diethylphthalate	180	U
86-73-7	Fluorene	180	U
7005-72-3	4-Chlorophenyl-phenylether	180	U
100-01-6	4-Nitroaniline	360	U
534-52-1	4,6-Dinitro-2-methylphenol	360	U
86-30-6	N-Nitrosodiphenylamine 1	180	U
95-94-3	1,2,4,5-Tetrachlorobenzene	180	U
101-55-3	4-Bromophenyl-phenylether	180	U
118-74-1	Hexachlorobenzene	180	U
1912-24-9	Atrazine	180	U
87-86-5	Pentachlorophenol	360	U
85-01-8	Phenanthrene	180	U
120-12-7	Anthracene	180	U
86-74-8	Carbazole	180	U
84-74-2	Di-n-butylphthalate	180	U
206-44-0	Fluoranthene	180	U
129-00-0	Pyrene	180	U
85-68-7	Butylbenzylphthalate	180	U
91-94-1	3,3'-Dichlorobenzidine	180	U
56-55-3	Benzo(a)anthracene	180	U
218-01-9	Chrysene	180	U
117-81-7	Bis(2-ethylhexyl)phthalate	180	U
117-84-0	Di-n-octylphthalate	180	U
205-99-2	Benzo(b)fluoranthene	180	UJK
207-08-9	Benzo(k)fluoranthene	180	U
50-32-8	Benzo(a)pyrene	180	U
193-39-5	Indeno(1,2,3-cd)pyrene	180	U
53-70-3	Dibenzo(a,h)anthracene	180	U
191-24-2	Benzo(g,h,i)perylene	180	U
58-90-2	2,3,4,6-Tetrachlorophenol	180	U

[1] Cannot be separated from Diphenylamine

1/11/10

0497

1D - FORM I SV-1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQD9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.04

Sample wt/vol: 30.10 (g/mL) G Lab File ID: C02089

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 40 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.8 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	280	U
108-95-2	Phenol	280	U
111-44-4	Bis(2-chloroethyl)ether	280	U
95-57-8	2-Chlorophenol	280	U
95-48-7	2-Methylphenol	280	U
108-60-1	2,2'-Oxybis(1-chloropropane)	280	U
98-86-2	Acetophenone	280	U
106-44-5	4-Methylphenol	250	JQ
621-64-7	N-Nitroso-di-n-propylamine	280	U
67-72-1	Hexachloroethane	280	U
98-95-3	Nitrobenzene	280	U
78-59-1	Isophorone	280	U
88-75-5	2-Nitrophenol	280	U
105-67-9	2,4-Dimethylphenol	280	U
111-91-1	Bis(2-chloroethoxy)methane	280	U
120-83-2	2,4-Dichlorophenol	280	U
91-20-3	Naphthalene	280	U
106-47-8	4-Chloroaniline	280	U
87-68-3	Hexachlorobutadiene	280	U
105-60-2	Caprolactam	280	U
59-50-7	4-Chloro-3-methylphenol	280	U
91-57-6	2-Methylnaphthalene	280	U
77-47-4	Hexachlorocyclopentadiene	280	U
88-06-2	2,4,6-Trichlorophenol	280	U
95-95-4	2,4,5-Trichlorophenol	280	U
92-52-4	1,1'-Biphenyl	280	U
91-58-7	2-Chloronaphthalene	280	U
88-74-4	2-Nitroaniline	550	U
131-11-3	Dimethylphthalate	280	U
606-20-2	2,6-Dinitrotoluene	280	U
208-96-8	Acenaphthylene	280	U
99-09-2	3-Nitroaniline	550	U
83-32-9	Acenaphthene	280	U

1/11/10

1K - FORM I SV-TIC
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQD5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.03

Sample wt/vol: 30.30 (g/mL) G Lab File ID: C02088

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 9.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 5.9 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[2]	Total Alkanes	N/A		

[2] EPA-designated Registry Number.

SOM01.2 (6/2007)

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1/11/10

1E - FORM I SV-2
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQD9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.04

Sample wt/vol: 30.10 (g/mL) G Lab File ID: C02089

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 40 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.8 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	550	U
100-02-7	4-Nitrophenol	550	U
132-64-9	Dibenzofuran	280	U
121-14-2	2,4-Dinitrotoluene	280	U
84-66-2	Diethylphthalate	280	U
86-73-7	Fluorene	280	U
7005-72-3	4-Chlorophenyl-phenylether	280	U
100-01-6	4-Nitroaniline	550	U
534-52-1	4,6-Dinitro-2-methylphenol	550	U
86-30-6	N-Nitrosodiphenylamine 1	280	U
95-94-3	1,2,4,5-Tetrachlorobenzene	280	U
101-55-3	4-Bromophenyl-phenylether	280	U
118-74-1	Hexachlorobenzene	280	U
1912-24-9	Atrazine	280	U
87-86-5	Pentachlorophenol	550	U
85-01-8	Phenanthrene	280	U
120-12-7	Anthracene	280	U
86-74-8	Carbazole	280	U
84-74-2	Di-n-butylphthalate	290	
206-44-0	Fluoranthene	280	U
129-00-0	Pyrene	280	U
85-68-7	Butylbenzylphthalate	280	U
91-94-1	3,3'-Dichlorobenzidine	280	U
56-55-3	Benzo(a)anthracene	280	U
218-01-9	Chrysene	280	U
117-81-7	Bis(2-ethylhexyl)phthalate	1400	
117-84-0	Di-n-octylphthalate	350	
205-99-2	Benzo(b)fluoranthene	280	UJK
207-08-9	Benzo(k)fluoranthene	280	U
50-32-8	Benzo(a)pyrene	280	U
193-39-5	Indeno(1,2,3-cd)pyrene	280	U
53-70-3	Dibenzo(a,h)anthracene	280	U
191-24-2	Benzo(g,h,i)perylene	280	U
58-90-2	2,3,4,6-Tetrachlorophenol	280	U

[1] Cannot be separated from Diphenylamine

0516

1/11/10

1K - FORM I SV-TIC
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQD9

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.04

Sample wt/vol: 30.10 (g/mL) G Lab File ID: C02089

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 40 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.8 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	002778-68-9	Bicyclo[4.1.0]heptane, 3,7,7-	5.25	1800	NJ
02		Unknown-01	13.42	670	JN
03		Unknown-02	13.47	870	J
04		Unknown-03	13.69	700	J
05		Unknown-04	14.26	580	J
06	004505-48-0	1H-Indene, 2-phenyl-	14.51	860	NJ
07		Unknown-05	15.05	610	JN
08		Unknown-06	15.07	710	JN
09	000112-79-8	9-Octadecenoic acid, (E)-	15.36	960	NJ
10	000078-51-3	Ethanol, 2-butoxy-, phosphate	16.33	770	NJ
11		Unknown-07	16.52	610	JN
12	003648-21-3	1,2-Benzenedicarboxylic acid,	16.56	1200	NJ
13	055320-06-4	Heneicosane, 11-decyl-	16.58	880	NJ
14	025116-58-9	20.Xi.-Lanosta-7,9(11)-diene-	16.89	1000	NJ
15		Unknown-08	17.07	610	JN
16		Unknown-09	17.11	1100	JN
17	1000214-29-6	4-[Trichloromethyl]-2-[[4-nit	17.45	920	NJ
18	006765-39-5	1-Heptadecene	18.13	540	NJ
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[2]	Total Alkanes	N/A	13000	JN

[2] EPA-designated Registry Number.

SOM01.2 (6/2007)

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1D - FORM I SV-1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JBQE2

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.05

Sample wt/vol: 30.10 (g/mL) G Lab File ID: C02076

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 7.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	180	U
108-95-2	Phenol	180	U
111-44-4	Bis(2-chloroethyl)ether	180	U
95-57-8	2-Chlorophenol	180	U
95-48-7	2-Methylphenol	180	U
108-60-1	2,2'-Oxybis(1-chloropropane)	180	U
98-86-2	Acetophenone	180	U
106-44-5	4-Methylphenol	180	U
621-64-7	N-Nitroso-di-n-propylamine	180	U
67-72-1	Hexachloroethane	180	U
98-95-3	Nitrobenzene	180	U
78-59-1	Isophorone	180	U
88-75-5	2-Nitrophenol	180	U
105-67-9	2,4-Dimethylphenol	180	U
111-91-1	Bis(2-chloroethoxy)methane	180	U
120-83-2	2,4-Dichlorophenol	180	U
91-20-3	Naphthalene	180	U
106-47-8	4-Chloroaniline	180	U
87-68-3	Hexachlorobutadiene	180	U
105-60-2	Caprolactam	180	U
59-50-7	4-Chloro-3-methylphenol	180	U
91-57-6	2-Methylnaphthalene	180	U
77-47-4	Hexachlorocyclopentadiene	180	U
88-06-2	2,4,6-Trichlorophenol	180	U
95-95-4	2,4,5-Trichlorophenol	180	U
92-52-4	1,1'-Biphenyl	180	U
91-58-7	2-Chloronaphthalene	180	U
88-74-4	2-Nitroaniline	350	U
131-11-3	Dimethylphthalate	180	U
606-20-2	2,6-Dinitrotoluene	180	U
208-96-8	Acenaphthylene	180	U
99-09-2	3-Nitroaniline	350	U
83-32-9	Acenaphthene	180	U

1/11/10

1E - FORM I SV-2
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQE2

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.05

Sample wt/vol: 30.10 (g/mL) G Lab File ID: C02076

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 7.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	350	U
100-02-7	4-Nitrophenol	350	U
132-64-9	Dibenzofuran	180	U
121-14-2	2,4-Dinitrotoluene	180	U
84-66-2	Diethylphthalate	180	U
86-73-7	Fluorene	180	U
7005-72-3	4-Chlorophenyl-phenylether	180	U
100-01-6	4-Nitroaniline	350	U
534-52-1	4,6-Dinitro-2-methylphenol	350	U
86-30-6	N-Nitrosodiphenylamine [1]	180	U
95-94-3	1,2,4,5-Tetrachlorobenzene	180	U
101-55-3	4-Bromophenyl-phenylether	180	U
118-74-1	Hexachlorobenzene	180	U
1912-24-9	Atrazine	180	U
87-86-5	Pentachlorophenol	350	U
85-01-8	Phenanthrene	180	U
120-12-7	Anthracene	180	U
86-74-8	Carbazole	180	U
84-74-2	Di-n-butylphthalate	180	U
206-44-0	Fluoranthene	180	U
129-00-0	Pyrene	180	U
85-68-7	Butylbenzylphthalate	35	JQ
91-94-1	3,3'-Dichlorobenzidine	180	U
56-55-3	Benzo(a)anthracene	180	U
218-01-9	Chrysene	180	U
117-81-7	Bis(2-ethylhexyl)phthalate	47	JQ
117-84-0	Di-n-octylphthalate	180	U
205-99-2	Benzo(b)fluoranthene	180	U
207-08-9	Benzo(k)fluoranthene	19	JQ
50-32-8	Benzo(a)pyrene	180	U
193-39-5	Indeno(1,2,3-cd)pyrene	180	U
53-70-3	Dibenzo(a,h)anthracene	180	U
191-24-2	Benzo(g,h,i)perylene	22	JQ
58-90-2	2,3,4,6-Tetrachlorophenol	180	U

[1] Cannot be separated from Diphenylamine

0564

1/11/10

1K - FORM I SV-TIC
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQE2

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.05

Sample wt/vol: 30.10 (g/mL) G Lab File ID: C02076

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 7.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	9.83	290	JN
02		Unknown-02	19.42	100	JN
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[2]	Total Alkanes	N/A		

[2] EPA-designated Registry Number.

SOM01.2 (6/2007)

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1D - FORM I SV-1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JBQE5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.06

Sample wt/vol: 30.20 (g/mL) G Lab File ID: C02077

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 6.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	180	U
108-95-2	Phenol	180	U
111-44-4	Bis(2-chloroethyl)ether	180	U
95-57-8	2-Chlorophenol	180	U
95-48-7	2-Methylphenol	180	U
108-60-1	2,2'-Oxybis(1-chloropropane)	180	U
98-86-2	Acetophenone	180	U
106-44-5	4-Methylphenol	180	U
621-64-7	N-Nitroso-di-n-propylamine	180	U
67-72-1	Hexachloroethane	180	U
98-95-3	Nitrobenzene	180	U
78-59-1	Isophorone	180	U
88-75-5	2-Nitrophenol	180	U
105-67-9	2,4-Dimethylphenol	180	U
111-91-1	Bis(2-chloroethoxy)methane	180	U
120-83-2	2,4-Dichlorophenol	180	U
91-20-3	Naphthalene	180	U
106-47-8	4-Chloroaniline	180	U
87-68-3	Hexachlorobutadiene	180	U
105-60-2	Caprolactam	180	U
59-50-7	4-Chloro-3-methylphenol	180	U
91-57-6	2-Methylnaphthalene	180	U
77-47-4	Hexachlorocyclopentadiene	180	U
88-06-2	2,4,6-Trichlorophenol	180	U
95-95-4	2,4,5-Trichlorophenol	180	U
92-52-4	1,1'-Biphenyl	180	U
91-58-7	2-Chloronaphthalene	180	U
88-74-4	2-Nitroaniline	350	U
131-11-3	Dimethylphthalate	180	U
606-20-2	2,6-Dinitrotoluene	180	U
208-96-8	Acenaphthylene	180	U
99-09-2	3-Nitroaniline	350	U
83-32-9	Acenaphthene	180	U

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1E - FORM I SV-2
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
JBQE5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.06

Sample wt/vol: 30.20 (g/mL) G Lab File ID: C02077

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 6.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	350	U
100-02-7	4-Nitrophenol	350	U
132-64-9	Dibenzofuran	180	U
121-14-2	2,4-Dinitrotoluene	180	U
84-66-2	Diethylphthalate	180	U
86-73-7	Fluorene	180	U
7005-72-3	4-Chlorophenyl-phenylether	180	U
100-01-6	4-Nitroaniline	350	U
534-52-1	4,6-Dinitro-2-methylphenol	350	U
86-30-6	N-Nitrosodiphenylamine [1]	180	U
95-94-3	1,2,4,5-Tetrachlorobenzene	180	U
101-55-3	4-Bromophenyl-phenylether	180	U
118-74-1	Hexachlorobenzene	180	U
1912-24-9	Atrazine	180	U
87-86-5	Pentachlorophenol	350	U
85-01-8	Phenanthrene	180	U
120-12-7	Anthracene	180	U
86-74-8	Carbazole	180	U
84-74-2	Di-n-butylphthalate	180	U
206-44-0	Fluoranthene	180	U
129-00-0	Pyrene	180	U
85-68-7	Butylbenzylphthalate	180	U
91-94-1	3,3'-Dichlorobenzidine	180	U
56-55-3	Benzo(a)anthracene	180	U
218-01-9	Chrysene	180	U
117-81-7	Bis(2-ethylhexyl)phthalate	180	U
117-84-0	Di-n-octylphthalate	180	U
205-99-2	Benzo(b)fluoranthene	180	U
207-08-9	Benzo(k)fluoranthene	180	U
50-32-8	Benzo(a)pyrene	180	U
193-39-5	Indeno(1,2,3-cd)pyrene	180	U
53-70-3	Dibenzo(a,h)anthracene	180	U
191-24-2	Benzo(g,h,i)perylene	180	U
58-90-2	2,3,4,6-Tetrachlorophenol	180	U

[1] Cannot be separated from Diphenylamine

0584

1/11/10

1K - FORM I SV-TIC
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQE5

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.06

Sample wt/vol: 30.20 (g/mL) G Lab File ID: C02077

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 6.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	9.83	290	JN
02		Unknown-02	18.36	97	JN
03		Unknown-03	19.42	150	JN
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
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19					
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22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[2]	Total Alkanes	N/A		

[2] EPA-designated Registry Number.

SOM01.2 (6/2007)

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1/11/10

1D - FORM I SV-1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JBQE7

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.07

Sample wt/vol: 29.90 (g/mL) G Lab File ID: C02090

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 7.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.1 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
100-52-7	Benzaldehyde	180	U
108-95-2	Phenol	180	U
111-44-4	Bis(2-chloroethyl)ether	180	U
95-57-8	2-Chlorophenol	180	U
95-48-7	2-Methylphenol	180	U
108-60-1	2,2'-Oxybis(1-chloropropane)	180	U
98-86-2	Acetophenone	180	U
106-44-5	4-Methylphenol	180	U
621-64-7	N-Nitroso-di-n-propylamine	180	U
67-72-1	Hexachloroethane	180	U
98-95-3	Nitrobenzene	180	U
78-59-1	Isophorone	180	U
88-75-5	2-Nitrophenol	180	U
105-67-9	2,4-Dimethylphenol	180	U
111-91-1	Bis(2-chloroethoxy)methane	180	U
120-83-2	2,4-Dichlorophenol	180	U
91-20-3	Naphthalene	180	U
106-47-8	4-Chloroaniline	180	U
87-68-3	Hexachlorobutadiene	180	U
105-60-2	Caprolactam	180	U
59-50-7	4-Chloro-3-methylphenol	180	U
91-57-6	2-Methylnaphthalene	180	U
77-47-4	Hexachlorocyclopentadiene	180	U
88-06-2	2,4,6-Trichlorophenol	180	U
95-95-4	2,4,5-Trichlorophenol	180	U
92-52-4	1,1'-Biphenyl	180	U
91-58-7	2-Chloronaphthalene	180	U
88-74-4	2-Nitroaniline	360	U
131-11-3	Dimethylphthalate	180	U
606-20-2	2,6-Dinitrotoluene	180	U
208-96-8	Acenaphthylene	180	U
99-09-2	3-Nitroaniline	360	U
83-32-9	Acenaphthene	180	U

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1E - FORM I SV-2

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

JBQE7

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.07

Sample wt/vol: 29.90 (g/mL) G Lab File ID: C02090

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 7.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) GPC Factor: 2.0 Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.1 Dilution Factor: 1.0

CAS No.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
51-28-5	2,4-Dinitrophenol	360	U
100-02-7	4-Nitrophenol	360	U
132-64-9	Dibenzofuran	180	U
121-14-2	2,4-Dinitrotoluene	180	U
84-66-2	Diethylphthalate	180	U
86-73-7	Fluorene	180	U
7005-72-3	4-Chlorophenyl-phenylether	180	U
100-01-6	4-Nitroaniline	360	U
534-52-1	4,6-Dinitro-2-methylphenol	360	U
86-30-6	N-Nitrosodiphenylamine [1]	180	U
95-94-3	1,2,4,5-Tetrachlorobenzene	180	U
101-55-3	4-Bromophenyl-phenylether	180	U
118-74-1	Hexachlorobenzene	180	U
1912-24-9	Atrazine	180	U
87-86-5	Pentachlorophenol	360	U
85-01-8	Phenanthrene	180	U
120-12-7	Anthracene	180	U
86-74-8	Carbazole	180	U
84-74-2	Di-n-butylphthalate	180	U
206-44-0	Fluoranthene	180	U
129-00-0	Pyrene	180	U
85-68-7	Butylbenzylphthalate	180	U
91-94-1	3,3'-Dichlorobenzidine	180	U
56-55-3	Benzo(a)anthracene	180	U
218-01-9	Chrysene	180	U
117-81-7	Bis(2-ethylhexyl)phthalate	130	J
117-84-0	Di-n-octylphthalate	180	U
205-99-2	Benzo(b)fluoranthene	180	UJK
207-08-9	Benzo(k)fluoranthene	180	U
50-32-8	Benzo(a)pyrene	180	U
193-39-5	Indeno(1,2,3-cd)pyrene	180	U
53-70-3	Dibenzo(a,h)anthracene	180	U
191-24-2	Benzo(g,h,i)perylene	180	U
58-90-2	2,3,4,6-Tetrachlorophenol	180	U

[1] Cannot be separated from Diphenylamine

1/11/10

0604

1K - FORM I SV-TIC
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
JBQE7

Lab Name: KAP TECHNOLOGIES, INC. Contract: EPW05032

Lab Code: KAP Case No.: 39007 Mod. Ref No.: _____ SDG No.: JBQA9

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: S-2703.07

Sample wt/vol: 29.90 (g/mL) G Lab File ID: C02090

Level: (LOW/MED) LOW Extraction: (Type) SONC

% Moisture: 7.0 Decanted: (Y/N) N Date Received: 09/29/2009

Concentrated Extract Volume: 500 (uL) Date Extracted: 09/30/2009

Injection Volume: 1.0 (uL) Date Analyzed: 10/16/2009

GPC Cleanup: (Y/N) Y pH: 6.1 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		Unknown-01	9.84	480	JN
02	000080-05-7	Phenol, 4,4'-(1-methylethylid	15.64	350	NJ
03		Unknown-02	19.45	300	JN
04					
05					
06					
07					
08					
09					
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12					
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22					
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24					
25					
26					
27					
28					
29					
30					
	E966796[2]	Total Alkanes	N/A		

[2] EPA-designated Registry Number.

SOM01.2 (6/2007)

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