

REPORT of 2010 SAMPLING EVENT

**OLD WAYNESBORO CITY DUMP
WAYNESBORO, WAYNE COUNTY, TENNESSEE
DIVISION OF REMEDIATION No. 91-502**

March 1, 2011



Prepared by

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1.0 INTRODUCTION

The Tennessee Division of Remediation (TDoR) conducted a sampling event at the Old Waynesboro City Dump (OWCD) in Waynesboro, Wayne County, Tennessee. TDoR conducted the sampling event to obtain environmental data to aid TDoR in determining if the remedy implemented at the OWCD site continues to be protective of human health and the environment and to determine if any changes occurred in site conditions.

To accomplish these goals TDoR compared groundwater, surface water, and sediment samples taken at the site to samples taken downstream and to previous analytical data for the source. The comparison of the data helped to determine the following:

- Are contaminants continuing to migrate from the landfill,
- Are residents and ecological receptors potentially exposed to the site contaminants, and
- If a potential exposure pathway exists, at what level compared to health and risk based screening levels, are area residents and ecological receptors potentially exposed?

2.0 SITE BACKGROUND

2.1 Site Description

OWCD covers an area of approximately 6 acres along the north side of Clifton Turnpike near the middle of Wayne County (Figure 1). The coordinates of the site are 35°19'28"N 87°46'55"W. The headwaters of Beech Creek begin on the northern end of the dump from a spring covered by the dump. Old Beech Creek Road lies east of the dump. Clifton Turnpike forms the southern boundary of the dump. Forestland borders the dump to the west.

The dump is trapezoidal in shape and is widest along the boundary that runs adjacent to Clifton Pike. Site structural features include concrete hydraulic diversion channels (ditches) along the east and west edges of the dump. These ditches divert runoff from the surrounding ridges away from the dump and into Beech Creek (as run-on control). A fenced settling pond collects surface runoff at the toe (northern end) of the dump (as runoff control). A fence along the southern edge of the dump separates it from Clifton Turnpike.

2.2 Site Legal History

On March 10, 1982, The United States District Court issued a Consent Decree (Decree) signed by the defendants Duracell International, Inc., Dart Industries, Inc., Aurora Corporation of Illinois, The City of Waynesboro, Tennessee, The State of Tennessee, Champion International Corporation, Ethel Turman, J.Fay Turman, Lillian Turman Hollis, Rex Turman, and Russ Turman which outlined specific directives for the closure, maintenance, and long term monitoring of the Waynesboro Dump Site. The decree established a settlement fund of \$500,000.00 for these purposes, which the State of Tennessee administered. The Consent Decree ordered the State of Tennessee (State) to oversee the monitoring and inspection of the area, and made the State responsible for the continued soil, sediment, surface water and groundwater sampling of the site and producing the reports for each inspection. The Consent Decree mandated that the EPA provide laboratory analysis of all samples taken at the expense of the State.

The Decree also reserved the rights of United States and the State of Tennessee to bring subsequent action for injunctive or similar relief concerning the site including, but not limited to an action seeking additional funds for work contemplated by or of the type contemplated by the Decree and seeking rehabilitation of Beech Creek.

2.3 Chronological Regulatory History

- 1972 Investigations by Tennessee Division of Water Quality Control (TDWQC) documented major biological destruction of Beech Creek downstream from the site; water quality problems were attributed to leachate from the dump.
- 1974 The Tennessee Division of Solid Waste (TDSW) required closure of the site. Dart, Allied, and the City of Waynesboro installed a runoff channel and collection pit. Champion placed a soil cover cut from the surrounding ridges over the wastes in an attempt to mitigate Polychlorinated Biphenyls (PCBs) contamination of Beech Creek.
- 1979 The EPA collected samples of leachate, water, sediment, and aquatic life in and near the dump and Beech Creek. Sampling revealed PCBs in Beech Creek water and sediments. One-third of the normal levels of families and species of aquatic live located one-half mile downstream was found to contain 140 parts per million (ppm) PCBs. This level exceeded EPA's maximum concentration by 115 times at the time of collection.
- 1982 The United States District Court issued Consent Decree for the Old Waynesboro City Dump Site.
- 1984 The Division of Solid Waste Management awarded a contract to Soil and Material Engineers (SME) for monitoring well installation and groundwater sampling of the site. Implementation of the monitoring plan, including installation of groundwater wells was begun by SME in July of 1984
- 1982 Envirodyne Engineers prepared a site closure and monitoring plan. Closure measures included a two-foot thick clay cap with a topsoil cover; construction of concrete drainage channels; removal of contaminated water and sediment in the collection pit; construction of a clay-lined settling pond; and fencing around the entire Site, including the settling pond.
- 1983-84 Damron Construction completed the Site closure activities, but did not fence the entire site, which EPA required.
- 1985-86 SME conducted an 18-month monitoring study of the site, which included quarterly sampling of groundwater at 9 locations and biannual sampling of surface water and sediment at 5 locations along Beech Creek from the site to the Tennessee River. Sample analyses show highly variable concentrations of PCBs in Beech Creek water and sediment. TCE and other volatile organic compounds (VOCs) were found in the groundwater, along with elevated concentrations of nickel and other metals. The SME study confirmed the continued migration of site contaminants, including PCBs and TCE, to groundwater and Beech Creek water and sediment, and recommended ongoing biannual sampling of groundwater, surface water and sediment.
- 1987-88 Tennessee Division of Superfund (TDSF) collected surface water and sediment samples along Beech Creek at six locations. PCBs were detected at low concentrations in one surface water sample, and in a sediment sample at a concentration of 246 ppm.
- 1988 The NUS Environmental Corporation (NUS) Region 4 Field Investigation Team (FIT 4) conducted a Preliminary Reassessment of the OWCD site. Conclusions of the NUS

reassessment report were: (1) the consent order requirements for a permanent abatement of all discharges or migration of PCBs and TCE into the environment clearly had not been met by previous containment measures; (2) continued discharge of PCBs from the dump into the environment was likely; (3) proper stabilization of the wastes in place was unlikely; and (4) that emergency removal action should be considered. NUS recommended further investigation of the site under the Federal Superfund program.

- 1991 Due to concern expressed by local residents, the State of Tennessee scheduled a Site Investigation Prioritization (SIP) in order to facilitate preliminary Hazard Ranking System (HRS), ranking of the site. TDSF conducted site reconnaissance and first phase sampling for the SIP on July 16, 1991.
- 1992 TDSF conducted site reconnaissance and second phase sampling for SIP on March 27, 1992 and March 31, 1992.
- 1995 Tennessee Department of Health (TDH) conducted a health consultation and sampled the drinking water from sixteen private wells (TDH 1995).
- 1996 PRC Environmental Management Inc. (PRC) conducted a groundwater sampling and analysis event for TDEC, Division of Superfund (PRC 1996).

3.0 SITE ACTIVITIES

TDoR personnel conducted sampling activities at the Old Waynesboro City Dump site from October 25 through November 5, 2010. Personnel performed work in accordance to the Sampling Analysis Plan (SAP) and Quality Assurance Program Plan (QAPP) developed for the sampling event. During the sampling event, deviations did occur. Sampling personnel collected sample OW10 from the Britt's residential well instead of a seep located on the site. Groundwater samples from monitoring wells MW-7D, MW-8S, MW-9M and the seeps (samples OW-11 and OW-12) located on site were not collected due to a lack of water. Because of the deviations, sampling personnel could not determine if contaminants are migrating from the site.

Sampling personnel employed an alphanumeric system to identify each sample for EPA's Forms II Lite data management system. The station identifier is a 4-digit alphanumeric designator. It is assigned to each sampling location; for Old Waynesboro City Dump it is OW01, OW02, and so forth. The sample identifier is an 8 digit alphanumeric designator. The first four digits identify the type of sample and its number at the station location, and the second for digits identify the month and year of the sample. The sample identifiers used are: GW for groundwater; SW for surface water; and SD for sediment. An example of sample number is OW01 GW01-1101. If a deviation occurred in collecting a sample, the deviation is noted in the section for that sample media. Figures 1 and 2, found in Appendix A, show the sampling locations. TDoR selected the sampling locations based on their original use as sampling locations. The following sections discuss various field activities performed as part of the sampling event.

3.1 Groundwater Sampling

TDoR collected the samples using guidance provided in EPA's Science and Ecosystem Support Division Procedure (SESDPROC) "*Groundwater Sampling*" SESDPROC 301-R1. In the Quality Assurance Project Plan (QAPP), TDoR proposed taking a total of nineteen groundwater samples: eight samples from groundwater monitoring wells located on the OWCD site; three samples from seeps located on the site; five samples from the residential wells listed below; and three springs located along Beech Creek (See Figures 1 and 2 in Appendix A). TDoR selected the sampling locations for monitoring based on their

original use as monitored wells during the 1995 investigation. The names below are the names of the residents in 1995. Table 1 correlates the current sampling locations and designations to the previous sampling locations and designations.

N. Pulley	Route 1	(3.3 miles downstream of site)
M. Hobbs	Route 1 P.O. Box 257A	(4.7 miles downstream of site)
H. McWilliams	Route 1 P.O. Box 272B	(5.4 miles downstream of site)
Mr. Billman	Route 1 P.O. Box 280	(7.9 miles downstream of site)
Mr. Goodman	Route 2 Clifton P.O. Box 140	(12.2 miles downstream of site)

Due to the lack of water during the sampling event, personnel did not sample monitoring wells MW-7D, MW-8S, and MW-9M. The three seeps located on the OWCD site were not flowing at the time of the sampling event. A groundwater sample was taken at the Britt residence at the request of the owner in place of one of the seep samples.

Personnel purged all wells without in-place pumps a minimum of three volumes. During the purging of the monitoring wells, personnel monitored the pH, specific conductivity, and temperature using YSI 556 MPS General Water Quality meter and the turbidity using a Hach Turbidimeter. Personnel recorded the water quality parameters and the volume of water removed from the monitoring wells (See Appendix C for Field Logs). Due to the depth of the wells, a Grundfos pump was used to take the samples. The pump was set to meet low flow requirements of 0.1 – 0.5 liters per minute. The residential wells with pumps in-place were sampled at the tap nearest the well. The tap was opened to allow the water to run for ten minutes to evacuate at least one volume of water from the system. General water quality parameters (pH, specific conductance, turbidity, dissolved oxygen, oxidation reduction potential, and temperature) were not monitored, and the volume of water removed was not recorded. Once the purge was completed, the samples were collected directly into the sample containers. All groundwater samples were analyzed for VOCs, PCBs, and TAL metals.

**TABLE 1
SAMPLING LOCATIONS AND DESIGNATIONS**

NEW SAMPLE NO.	LOCATION COORDINATES	CURRENT DESIGNATION OR DESCRIPTION	PREVIOUS DESIGNATION OR DESCRIPTION
OW01	35°19'25"N 87°47'10"W	MW located on South end of OWCD	MW-7S
OW02	35°19'25"N 87°47'03"W	MW located on South end of OWCD	MW-7D
OW03	35°19'28"N 87°47'04"W	MW located on West side of OWCD	MW-8S
OW04	35°19'28"N 87°47'05"W	MW located on West side of OWCD MW located on West side of OWCD (Duplicate)	MW-8D
OW05	35°19'27"N 87°47'00"W	MW located in creek below site	MW-10S
OW06	35°19'28"N 87°47'00"W	MW located in creek below site	MW-10D
OW07	35°19'35"N 87°47'01"W	MW located on the west side of OWCD	MW-9M
OW08	35°19'27"N 87°47'00"W	MW located on the west side of OWCD	MW-9S
OW10	35.35873N 087.799993W	Not taken on site. No flow during sample time. Used to sample the Britt Place. 1250 Old Beech Creek Rd	2.5 miles downstream from the dump. Residence: Joel P. Smith Rt. 1 Box 252 Waynesboro, TN 38485
OW11	TBD Leachate		Located on the dumpsite
OW12	TBD Leachate		Located on the dumpsite
OW14	TBD Leachate Sediment		Located on the dumpsite
OW15	TBD Leachate Sediment		Located on the dumpsite
OW16	TBD Leachate Sediment		Located on the dumpsite
OW18	35.36485 N, 087.80827 W	Pigg Residence Spring @ 106 Pulley Rd.	3.3 miles downstream from the dump
OW19	35.37377N 087.81686W	Bugnall Residence 1600 Old Beech Creek Rd.	Bugnall Residence

OW20	35.38054 N, 087.82554 W	1850 Old Beech Creek Rd (Spring not located sample across road)	R.E. Davis Rt.1 Box 265 Waynesboro, TN 38485
OW21	35.36463N 087.80811	Pigg Residence Spring @ 106 Pulley Rd	3.3 miles downstream from the dump
OW22	35.37362N 087.81657W	Bugnall Residence 1600 Old Beech Creek Rd	Bugnall Residence
OW23	35.38054N 087.82554W	1850 Old Beech Creek Rd (Spring not located sample across road)	R.E. Davis Rt.1 Box 265 Waynesboro, TN 38485
OW25	35.36694N 087.8098W	1422 Old Beech Creek Road Now owned by Roy Staggs	N. Pulley Route 1 (4.1 miles downstream (DS))
OW26	35.38211N 087.82729W	110 Mumaw Drive	M. Hobbs Rout 1 P.O. Box 257A (4.7 miles DS)
OW27	35.38557N 087.83430W	Cooper Residence. 1980 Old Beech Creek Rd Red and white double wide trailer with wraparound porch. Spigot located on back of trailer.	H. McWilliams Rt. 1 Box 567 Waynesboro, TN 38485 (5.4 miles DS)
OW28	35.39700N 087.85619W	Billman Well 1209 Bauchman Rd	Mr. Billman, Route .1 (7.9 miles DS)
OW29	35.40171N 087.87406W	Earl Goodman Well 702 Goodman Road	Mr. Earl Goodman Route 1 (12.2 miles DS)
OW30	35.42159N 087.91272W	Harold Denton Gavin Pulley Memorial Bridge @ Jeter Road	Approximately 10.2 miles DS from dump
OW31	35.36573N 087.80732W	Lark Pulley Resident Creek (Pulley Rd) Creek located near road	3.3 miles DS from the dump
OW32	35.32639N 087.78432W	Headwaters of Beech Creek, origin of flow	Headwaters of Beech Creek, origin of flow near drain pipe.
OW33	35.32734N 087.78381W	200 yards downstream from the dump	200 yards DS from the dump
OW34	35.35873N 087.799993W	Britt Residence	2.5 miles DS from the dump. Residence: Joel P. Smith Rt. 1 Box 252 Waynesboro, TN 38485
OW36	35.32639N 087.78423W	Headwaters of Beech Creek, origin of flow	Headwaters of Beech Creek, origin of flow near drain pipe.
OW37	35.32734N 087.78381W	200 yards downstream from the dump	200 yards DS from the dump
OW38	35.42159N 087.91272W	Harold Denton Gavin Pulley Memorial Bridge @ Jeter Road	Approximately 10.2 miles DS from the dump
OW39	35.36604N 087.80756W	Lark Pulley Resident Creek (Pulley Rd)@ bridge near Road	3.3 miles DS from the dump
OW40	35.35873N 087.799993W	Britt Residence Low water bridge	2.5 miles DS from the dump. Residence: Joel P. Smith Rt. 1 Box 252 Waynesboro, TN 38485

3.2 Surface Water and Sediment Sampling

TDoR personnel collected surface water and sediment samples from five locations at various points along Beech Creek (Figure 2). Personnel used guidance from SESDPROC "Surface Water Sampling" SESDPROC 201-R1 to collect the surface water samples. Samplers collected the surface water samples using the direct dipping method at the five locations listed below:

- Headwaters of Beech Creek, origin of flow,
- 200 yards downstream from the dump,
- 2.5 miles downstream from the dump (Britt residence),
- 3.3 miles downstream from the dump (N. Pulley's residence), and

- Harold Denton Gavin Pulley Memorial Bridge @ Jeter Road (approximately 10.2 miles downstream from the dump).

TDoR selected the locations based on their original use as monitoring points during the 1995 investigation. TDoR personnel collected sediment samples at the same locations as the surface water samples using guidance provided in SESDPROC "Sediment Sampling" SESDPROC 200-R. The surface water and sediment samples were analyzed for PCBs, VOCs, and TAL metals.

4.0 SAMPLE RESULTS

TDoR collected samples for groundwater, surface water and sediment. Each of the media was analyzed for VOCs, TAL metals, and Polychlorinated Biphenyls (PCBs). The analytical data for the samples collected is presented in the Tables 1-8 in Appendix B.

4.1 Groundwater Sample Results

Tables 1, 2, and 3 present the contaminants detected in the groundwater samples collected during the sampling event.

The groundwater sample collected at MW-9M showed Aroclor 1242 at a concentration of 25 mg/L which exceeds the maximum contaminant level (MCL) of 0.0005 mg/L as stated in the National Primary Drinking Water Regulations (NPDWRs). The concentration is qualified by J, I-5. The J denotes that the identification of the analyte is acceptable, but the reported value is an estimate. The I-5 denotes that there was a mixture of Aroclors present in the sample and that Aroclor 1242 is the predominant Aroclor.

The groundwater sample collected at MW-7D showed a concentration of 110 μ g/L, and the sample collected at MW-9M showed a concentration of 400 μ g/L for Trichloroethene (TCE). These levels exceed the MCL of 5 μ g/L. All other VOCs were below their respective MCLs.

In the sample collected at MW-9M, cobalt shows a concentration of 63 μ g/L which exceeds cobalt's tapwater RSL of 11 μ g/L, and manganese shows a concentration of 920 μ g/L which exceeds the RSL for tapwater of 880 μ g/L for manganese. Cobalt is not a historic contaminant of concern for the site. The sample collected at the Pigg residence shows an estimated concentration of 11 μ g/L for arsenic. While the value for arsenic is an estimate, it exceeds both the MCL of 10 μ g/L and the RSL of 0.045 μ g/L for arsenic.

4.2 Surface Water Sample Results

Tables 4 and 5 present the analytical data for the surface water samples collected during the sampling event.

The sample collected at the headwaters of Beech Creek showed the Aroclor 1242 at a concentration of 0.011mg/L and the sample collected 200 yards downstream showed a concentration of 0.0041mg/L. Each of the concentrations is qualified with J, I-5. The reported concentrations exceed the MCL for PCBs.

The reported concentrations of arsenic for the samples collected at the Harold Denton Gavin Pulley Memorial Bridge; the creek at Lark Pulley's Residence; low water bridge at the Britt residence; and the duplicate collected at the Britt's low water bridge exceed the MCL of 10 μ g/L and the RSL for tapwater of 0.045 μ g/L. All reported concentrations are J, Q-5 qualified. The Q-5 qualifier means that serial dilution precision outside method control limits occurred. The Quality Control sample is also flagged Q-5; therefore the data is not reliable and should not be used.

Sample analysis detected chloromethane (also known as methyl chloride) above the MDL. Chloromethane is found in nature but is also man-made. Chloromethane is used to make other chemicals and is found in vinyl chloride end-products. Analysis detected the contaminant in the trip blank. TDoR considers chloromethane as a lab contaminant.

4.3 Sediment Sample Results

Tables 6, 7, and 8 present the analytical data for the sediment samples collected during the sampling event.

Previous sampling events showed that PCBs had migrated from the OWCD site into Beech Creek. The data shows that eight of the nine sediment samples collected during this event had elevated levels of Aroclor 1248. Six of the eight sediment samples had concentration levels which exceeded the residential RSL of 0.22mg/kg of Aroclor 1248 in soil. Each of the elevated concentrations was qualified with J, CR, and I-5. The sample collected at Harold Denton Gavin Pulley Memorial Bridge had the additional qualifier Q-4. The CR qualifier denotes that the Aroclor pattern shows alteration. The alteration is due to the weathering of the PCB. The Q-4 denotes a greater than 40% difference between primary and confirmatory GC columns. The difference is due to difficulty of distinguishing the different Aroclors due to the weathering of the PCB. The reported concentration is for a single Aroclor and it is being compared to a composite value for all PCBs.

The laboratory analyzed the sediment sample for total metals; however, the performance evaluation sample recoveries for metals in soil by ICP-AES were scored as action high for calcium, magnesium, arsenic, chromium, cobalt, lead, and nickel by the web-based SPS Web software. All positive results for calcium, magnesium, arsenic, chromium, cobalt, lead, and nickel in soil were considered rejected and are R qualified.

1, 2, 3-Trichloropropane exceeded the residential soil RSL of 0.00072µg/L in the creek located at Lark Pulley's residence. 1,2,3-Trichloropropane is used primarily as a building block for pesticides, polysulfide elastomers, and Hexafluoropropylene; however it is not a contaminant of record for the site and TDoR does not consider the detection significant.

4.4 QA/QC Sample Results

The analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASBLOQAM). Chemistry data was verified based on the ASBLOQAM specifications and may have been qualified if the applicable quality control criteria were not met.

The PCB and VOA data incorporated any data qualifiers into the data sets and explanations of the qualifiers were included in the Data Qualifier Definitions section of each report.

Examination of the blank samples for the Total Metals data revealed apparent low-level contamination with several elements. Reported detection limits were adjusted as high as ten times blank levels to discount possible false positives due to contamination. In addition, it was noted that the Blind CLP Blank contained aluminum, arsenic, and sodium at levels greater than the Contract Required Quantitation Limits (CRQL). No qualification to field samples were made, but the levels of these elements in some of the field samples were less than ten times those in the blank. The laboratory used the Blind Blank as the quality control sample and for this reason the Blind Blank contains qualifiers.

The performance evaluation sample recoveries for metals in soil by ICP-AES were scored as action high for calcium, magnesium, arsenic, chromium, cobalt, lead, and nickel by the web-based SPS Web software. All positive results for calcium, magnesium, arsenic chromium, cobalt, lead, and nickel in soil were considered rejected and R qualified.

All sample collection, sample preservation, and chain of custody procedures used during the sampling event are in accordance with standard operating procedures as specified in the United States Environmental Protection Agency Field Branch Quality Systems and Technical Procedures.

5.0 SUMMARY AND CONCLUSIONS

Personnel did not sample three of the monitoring wells and the three seeps located on the site due to a lack of water. The analytical data from these sampling points could provide more definitive information on the presence and migration of contaminants from the site.

Several metals were detected during the analysis of samples taken for the OWCD site and Beech Creek; however, the only metals to exceed the MCL and/or RSL are arsenic and cobalt. The laboratory considered the results as rejected for arsenic in the sediment samples, and serial dilution precision was outside method control limits for groundwater and surface water samples. Arsenic is not a contaminant associated with the site. The RSL for cobalt is 11 µg/L and the concentration of 63 µg/L in MW-9M. The laboratory did not flag or qualify the results for cobalt. The reported concentration causes concern even though cobalt is not a historic contaminant of concern for the site.

TCE is a COC of record for the site. The laboratory analysis showed a concentration of 110 µg/L at sample site MW-7D and a concentration of 400 µg/L at MW-9M. These concentrations exceed the MCL of 0.005 µg/L as stated in the NPDWRs for drinking water.

The results of sample analysis show PCB contamination at sample site MW-9M at a concentration of 25 µg/L. The concentration level exceeds the MCL of 0.0005 µg/L and confirms the presence of the compound at the site. Sample analysis also showed concentrations of PCB which exceed the RSL and MCL at various locations downstream of the site in Beech Creek.

TDoR arrived at the following conclusions based on the analytical data:

- Contaminants are still present at the site;
- Residents and ecological receptors continue to be potentially exposed to the site contaminants.

The following actions are recommendations for the site:

- At least three more sampling events are conducted at the site in the next two years, and that two of the events take place in the spring.
- Evaluate the potential risk posed to human health and the environment by the Site for receptors along Beech Creek.

APPENDIX A

FIGURES



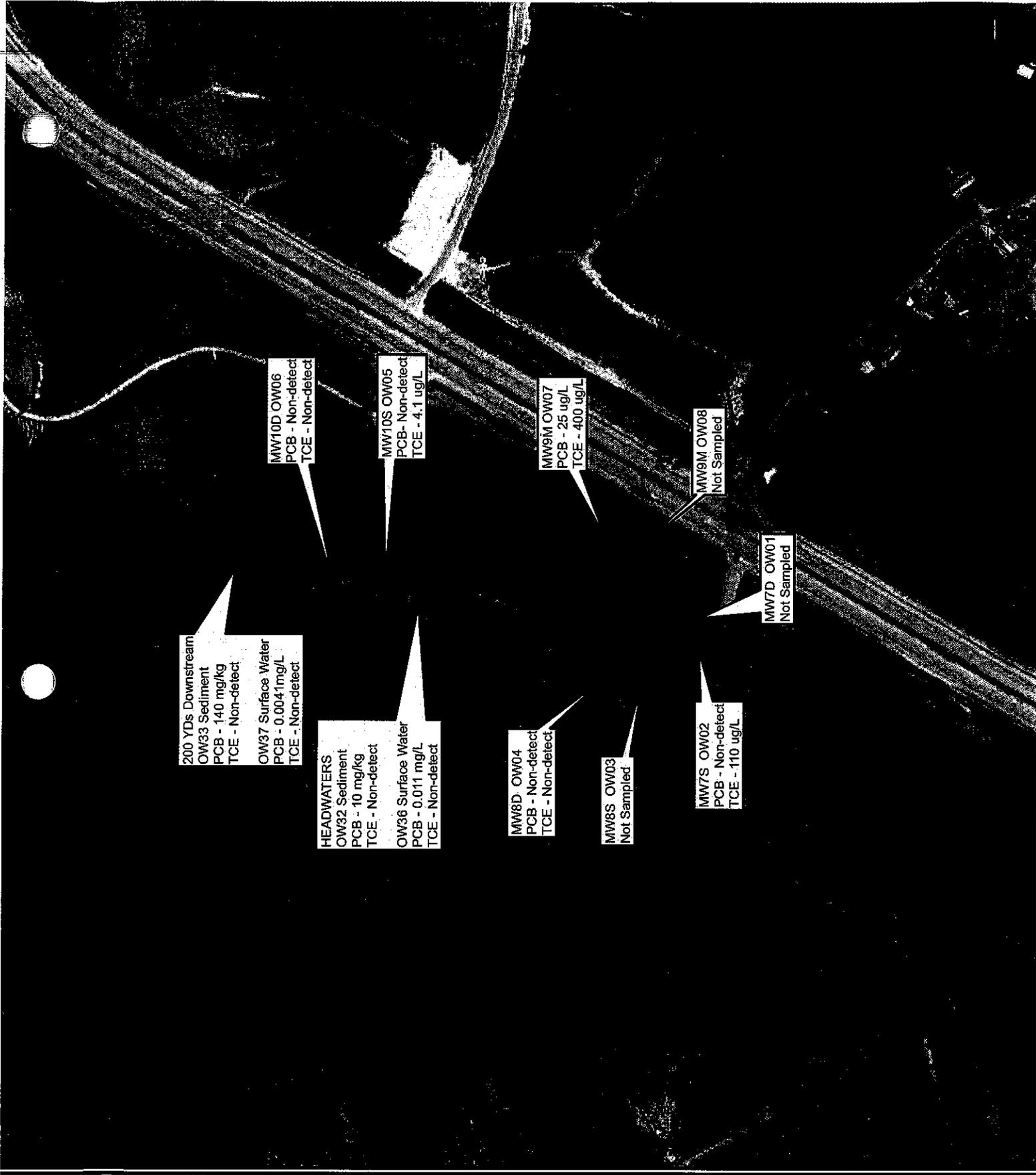
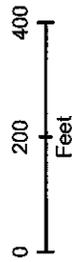
Figure - 1

Old Waynesboro City Dump Sample Locations

Waynesboro, TN

Legend

- SW/SD Samples
- GW Samples



D

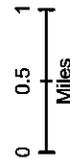
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Figure C

OWCD Sample Locations along Beech Creek

Waynesboro, TN





APPENDIX B
DATA TABLES



TABLE 1
GROUNDWATER PCB AROCLOR ANALYTICAL DATA (µg/L)

ANALYTE	MCL	OW02	OW04	OW04D	OW05	OW06	OW07	OW10	OW18	OW19	OW20	OW25	OW26	OW27	OW28	OW29
Aroclor 1016	0.0005	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor 1221	0.0005	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor 1232	0.0005	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor 1242	0.0005	U	U	U	U	U	25 J	U	U	U	U	U	U	U	U	U
Aroclor 1248	0.0005	U	U	U	U	U	I-5	U	U	U	U	U	U	U	U	U
Aroclor 1254	0.0005	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor 1260	0.0005	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor 1262	0.0005	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Aroclor 1268	0.0005	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U

Bolded values are greater than MCL.

J The identification of the analyte is acceptable; the reported value is an estimate.

I-5 Mixture of Aroclors in sample; predominant Aroclors reported.

MCL Maximum Contaminant Level



TABLE 2
GROUNDWATER VOC ANALYTICAL DATA (µg/L)

Analyte (m-and/or p)	MCL	OW02	OW04	OW04D	OW05	OW06	OW07	OW10	OW18	OW19	OW20	OW25	OW26	OW27	OW28	OW29
Xylene	1000	U	0.25 J, Q-2	0.28 J, Q-2	0.23 J, Q-2	U	U	U	U	U	U	U	U	U	U	U
1,2,4- Trimethylbenzene	NA	U	0.23 J, Q-2	0.31 J, Q-2	0.30 J, Q-2	U	U	U	U	U	U	U	U	U	U	U
Chloroform	80	0.60 J, Q-2	U	U	0.47 J, Q-2	U	U	U	U	U	U	U	U	U	U	U
Chloromethane	NA	U	U	U	U	0.27 J, Q-2	0.18 J, Q-2	0.31 J, Q-2	0.25 J, Q-2	U	U	U	U	U	U	U
Cis-1,2- Dichloroethene	NA	0.32 J, Q-2	U	U	0.24 J, Q-2	U	U	U	U	U	U	U	U	U	U	U
o-Xylene	NA	U	0.090 J, Q-2	0.12 J, Q-2	0.090 J, Q-2	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	5.0	U	U	U	U	3.9J Q-2	U	U	U	U	U	U	U	U	U	U
Trichloroethene	5.0	110	0.39 J, Q-2	0.45 J, Q-2	4.1J QM-3	U	400	U	U	U	U	U	U	U	U	U

Bolded values exceed the MCL

U The analyte was not detected at or above the reporting limit.

J The identification of the analyte is acceptable; the reported value is an estimate.

NA Not Applicable

Q-2 Results are greater than the MDL but less than the MRL.

QM-3 Matrix Spike Precision outside method control limits.

MCL Maximum Contaminant Level

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.



**TABLE 3
GROUNDWATER TOTAL METAL ANALYTICAL RESULTS (µg/L)**

ANALYTE	MCL	RSL	OW02	OW04	OW05	OW06	OW07	OW10	OW18	OW19	OW20	OW25	OW26	OW27	OW28	OW29
Arsenic	10	0.045	U	U	U	U	U	9.1J, Q-5	11 J, Q-5	9.7 J, Q-5	10 J, Q-5	U	9.4 J Q-5	10 J, Q-5	U	U
Chromium	100	NA	14	2.2	13	1.3 J, Q-2	34	0.18 J, Q-2	0.33 J, Q-2	0.17 J, Q-2	0.24 J,Q-2	2.0 U	0.16 J,Q-2	0.15 J,Q-5	0.091 J,Q-2	0.12 J,Q-2
Cobalt	NA	11	6.7	0.93 J, Q-2	5.9	1.3	63	U	U	U	U	0.029 J Q-2	U	U	0.082 J,Q-2	0.080 J,Q-2
Iron	NA	26000	250 J, Q-5	85 J, Q-2, Q-5	86 J, Q-2, Q-5	210 J, Q-5	1900 J,Q-5	U	U	U	U	5.9 J, Q-2, Q-5	U	U	23 J, Q-2, Q-5	61 J,Q-2 Q-5
Lead	15	NA	0.24 J, Q-2	0.11 J, Q-2	0.16 J,Q-2	U	3.7	0.22 J, Q-2	0.17 J, Q-2	0.20 J Q-2	0.18 J, Q-2	0.96 J Q-2	0.62 J, Q-2	0.28 J Q-2	0.25 J,Q-2	4.0
Manganese	NA	880	59	23	23	110	920	U	U	18	10	4.4	50	5.6	2.4	2.0

Bolded values exceed RSLs.

Shaded values exceed MCLs

U The analyte was not detected at or above the reporting limit.

J The identification of the analyte is acceptable; the reported value is an estimate.

NA Not Applicable

Q-2 Result is greater than the MDL but less than MRL.

Q-5 Serial dilution precision outside method control limits.

MCL Maximum Contaminant Level

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediment.

RSL Regional Screening Level for Tapwater



TABLE 4
SURFACE WATER PCB AROCLOR ANALYTICAL DATA (mg/L)

PARAMETER	MCL	OW36	OW37	OW38	OW39	OW40	OW40D
Aroclor 1016	0.0005	U	U	U	U	U	U
Aroclor 1221	0.0005	U	U	U	U	U	U
Aroclor 1232	0.0005	U	U	U	U	U	U
Aroclor 1242	0.0005	0.011 J,I-5	0.0041 J,I-5	U	U	U	U
Aroclor 1248	0.0005	U	U	U	U	U	U
Aroclor 1254	0.0005	U	U	U	U	U	U
Aroclor 1260	0.0005	U	U	U	U	U	U
Aroclor 1262	0.0005	U	U	U	U	U	U
Aroclor 1268	0.0005	U	U	U	U	U	U

Bold values are greater than MCL

U The analyte was not detected at or above the reporting limit.

J The identification of the analyte is acceptable; the reported value is an estimate/

I-5 Mixture of Aroclors in sample; predominant Aroclors reported.

MCL Maximum Contaminant Level



TABLE 5
SURFACE WATER TOTAL METALS ANALYTICAL RESULTS($\mu\text{g/L}$)

ANALYTE	MCL	RSL	OW36	OW37	OW38	OW39	OW40	OW40D
Arsenic	10	0.045	U	U	10 J Q-5	10 J, Q-5	10 J, Q-5	11 J, Q-5

Bolded values exceed the RSL.

Shaded values exceed the MCL.

U The analyte was not detected at or above the reporting limit.

J The identification of the analyte is acceptable; the reported value is an estimate.

N/A Not applicable.

Q-2 Result greater than MDL but less than MRL.

Q-5 Serial dilution precision outside method control limits.

MCL Maximum Contaminant Level

MDL Method Detection Limit – The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL

Minimum Reporting Limit – Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediment.

RSL

Regional Screening Level



TABLE 6
SEDIMENT PCB AROCLOR ANALYTICAL DATA(mg/kg)

PARAMETER	RSL	OW21	OW22	OW23	OW30	OW31	OW32	OW33	OW34	OW34D
Aroclor 1016	3.9	U	U	U	U	U	U	U	U	U
Aroclor 1221	0.14	U	U	U	U	U	U	U	U	U
Aroclor 1232	0.14	U	U	U	U	U	U	U	U	U
Aroclor 1242	0.22	U	U	U	U	U	U	U	U	U
Aroclor 1248	0.22	0.190 J CR, I-5	0.160 J CR, I-5	U	16J , CR, I-5 Q-4	130 J, CR I-5	10.0 J, CR, I-5	140.0 J, CR, I-5	1.40 J, CR, I-5	1.70 J, CR, I-5
Aroclor 1254	0.22	U	U	U	U	U	U	U	U	U
Aroclor 1260	0.22	U	U	U	U	U	U	U	U	U
Aroclor 1262	NA	U	U	U	U	U	U	U	U	U
Aroclor 1268	NA	U	U	U	U	U	U	U	U	U

Bolded values are greater than RSL.

U The analyte was not detected at or above the reporting limit.

Cr Aroclor pattern shows alteration

I-5 Mixture of Aroclors in sample; predominant Aroclors reported.

J The identification of the analyte is acceptable; the reported value is an estimate.



TABLE 7
SEDIMENT VOC ANALYTICAL DATA (mg/kg)

Analyte	RSL	OW21	OW22	OW23	OW30	OW31	OW32	OW33	OW34	OW34D
1,2,3-Trichloropropane	0.005	U	0.0029	U	0.003	2.7	U	0.0043	0.00054	U
Acetone	61000	U	0.037	0.032	0.050	U	U	0.590 J QC-4	U	U
Chloroform	0.29	U	U	U	U	0.00021 J,Q-2	U	U	U	U
Methyl Acetate	78000	U	U	U	U	U	U	1.400 J QC-2	U	U
Methyl Ethyl Ketone	28000	U	U	U	0.0034	U	U	0.015 J QM-3, QM-6	U	U
Methyl Isobutyl Ketone	5300	U	U	U	U	U	U	0.00061 J, Q-2, QM-3 QM-6	U	U
Toluene	5000	U	U	U	U	U	U	0.0052	U	U

Bolded values exceed the Regional Screening Level for Residential Soil

U The analyte was not detected at or above the reporting limit.

J The identification of the analyte is acceptable; the reported value is an estimate.

QC-2 Analyte concentration high in continuing calibration verification standard

QC-4 Result greater than the highest point on the calibration curve

QM-3 Matrix Spike Precision outside method control limits

QM-6 Matrix Spike Recovery less than 10%

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.



TABLE 8
SEDIMENT TOTAL METAL ANALYTICAL DATA (mg/kg)

PARAMETER	RSL	OW30	OW31	OW32	OW33	OW34	OW34D
Arsenic	0.39	5.3 R, CLP36, CLP28	8.0 R, CLP28 CLP36	11 R, CLP28, CLP36	5.5 R, CLP28, CLP36	5.6 R, CLP28, CLP36	5.4 R, CLP28, CLP36
Cobalt	23	5.4 R, Q-2, Q-5, CLP28	11 R, CLP28, Q-5	25 R, CLP28, Q-5	9.3 R, CLP28, Q-5	7.1 R, CLP28, Q-5	4.7 R, CLP28, Q-5

Bolded values exceed the RSL

mg/kg
 milligram per kilogram

RSL
 Regional Screening Level

CLP28
 PE sample recovery scored as action high.

CLP36
 Identification/Concentration of analyte not confirmed by ICP-MS

Q-2
 Result greater than MDL but less than MRL

Q-5
 Serial dilution precision outside method control limits



APPENDIX C

FIELD NOTES



**TENNESSEE DIVISION OF REMEDIATION
FIELD SAMPLE COLLECTION SHEET
OLD WAYNESBORO DUMP (TDoR Site # 91-502)
MONITORING WELL SAMPLING**

Monitoring Well No.: MW-7 Date Installed: _____
 Latitude: _____ Longitude: _____
 Total Well Depth: 48' 7 Depth to Water: 42' 6"
 Well Diameter: 2 Water Column: 6.1
 Well Volume: 1.037 Screen Interval: _____

Time	Vol. Purged (Gallons)	pH (Std. Units)	Conductivity (mS/cm)	Temperature (°F)	D.O. (mg/L)	ORP (mV)	Turbidity (NTU)
13:35	1 gal	6.66	0.069	70.18	152.6	-12.2	201
14:31	3 gal	5.58	0.070	78.76	92.7	1.1	NR

Purge Start Time: 13:20 Purge End Time: 14:31
 Purged Dry (y/n)? Y
 Total Volume Purged: 3 gal How Measured: 5 gal. bucket
 Method of Purging: Pump Type: Grundfos Bailer Type: _____

Groundwater Sample(s):
 Station ID: MW-7 Sample ID(s): _____
 Date: 10-27-10
 Time: 14:33 Sampler: Cameron Swanson
 QA/QC Sample: Duplicate MS/MSD



**TENNESSEE DIVISION OF REMEDIATION
FIELD SAMPLE COLLECTION SHEET
OLD WAYNESBORO DUMP (TDoR Site # 91-502)
MONITORING WELL SAMPLING**

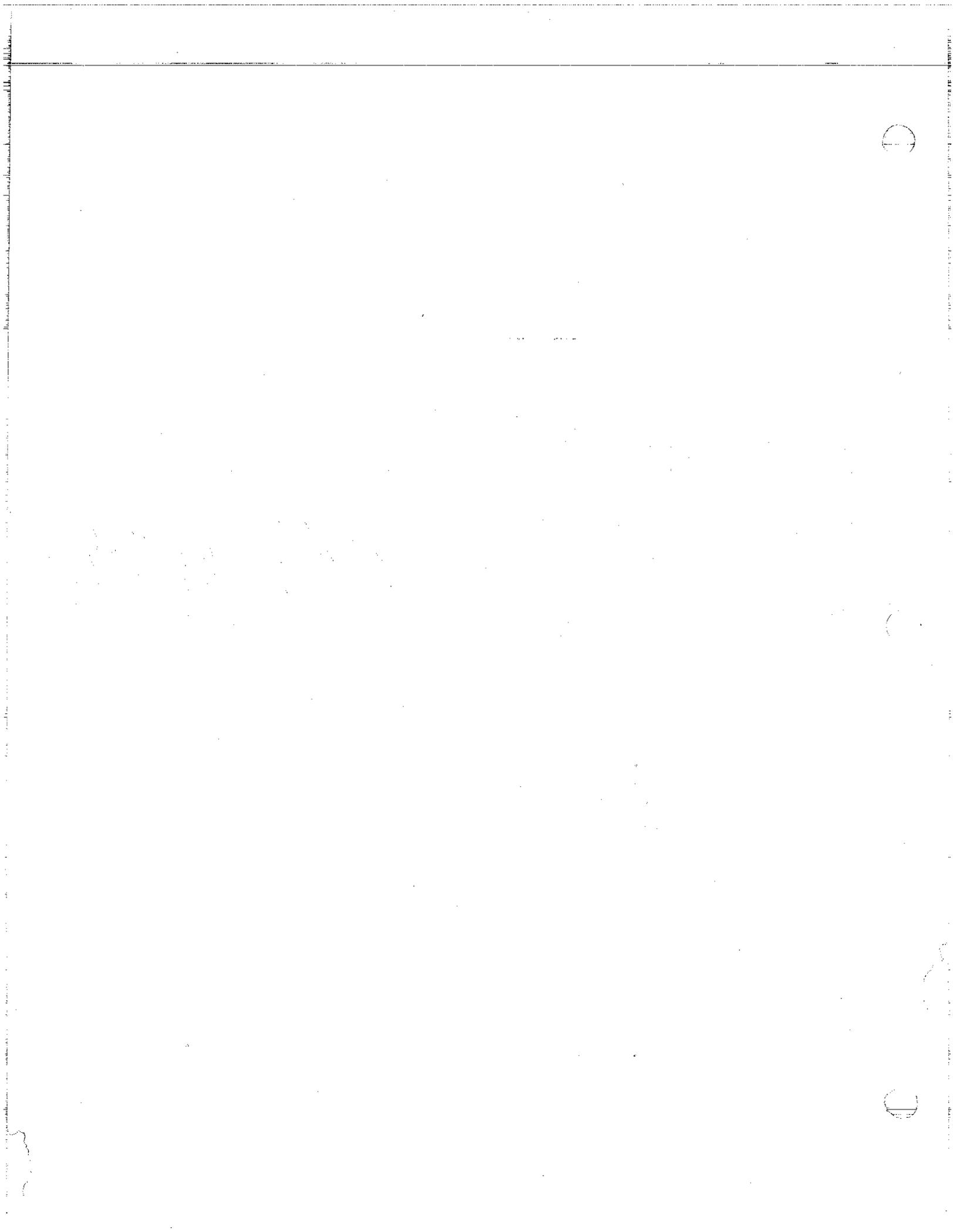
Monitoring Well No.: MW-6 Date Installed: _____
 Latitude: _____ Longitude: _____
 Total Well Depth: 126.15" Depth to Water: 41.32"
 Well Diameter: 2" Water Column: 84.83"
 Well Volume: 14.42 gal Screen Interval: _____

Time	Vol. Purged (Gallons)	pH (Std. Units)	Conductivity (mS/cm)	Temperature (°F)	D.O. (mg/L)	ORP (mV)	Turbidity (NTU)
10:10	7 gal	7.50	0.327	71.70	119.7	-31.6	6.04
10:32	11 gal	9.02	0.326	72.34	45.1	-97.1	6.26
13:19	16 gal	8.26	0.316	63.66	73.1	-46.2	4.1
13:54	27 gal	8.15	0.300	65.32	89.9	-57.4	1.64
14:15	32 gal	8.83	0.300	65.37	25.2	-31.9	0.89
14:34	37 gal	8.93	0.295	64.06	40.1	-78.6	0.68
14:48	42 gal	8.86	0.288	64.06	21.1	-78.0	0.73

Purge Start Time: 9:20 Purge End Time: 14:53
 Purged Dry (y/n)? N
 Total Volume Purged: 45 How Measured: 5 gal. bucket
 Method of Purging: Pump Type: Grundfos Bailer Type: _____

Groundwater Sample(s):

Station ID: MW-6 Sample ID(s): _____
 Date: 10-26-10
 Time: 14:53 Sampler: Mark Cleveland
 QA/QC Sample: Duplicate MS/MSD



**TENNESSEE DIVISION OF REMEDIATION
FIELD SAMPLE COLLECTION SHEET
OLD WAYNESBORO DUMP (TDoR Site # 91-502)
MONITORING WELL SAMPLING**

Monitoring Well No.: MW-5 Date Installed: _____
 Latitude: _____ Longitude: _____
 Total Well Depth: 47.45' Depth to Water: 42.8"
 Well Diameter: 2" Water Column: 4.65"
 Well Volume: .7905 gal. Screen Interval: _____

Time	Vol. Purged (Gallons)	pH (Std. Units)	Conductivity (mS/cm)	Temperature (°F)	D.O. (mg/L)	ORP (mV)	Turbidity (NTU)
11:22	1 gal	4.83	0.035	66.46	162.3	7.9	19.1
11:29	2 gal	4.65	0.033	66.09	111.9	24.2	19.0
11:33	3 gal	5.03	0.033	66.6	98.4	24.0	15.9

Purge Start Time: 11:11 Purge End Time: 11:33
 Purged Dry (y/n)? N
 Total Volume Purged: 3 gal How Measured: 5 gal bucket
 Method of Purging: Pump Type: Grundfos Bailer Type: _____

Groundwater Sample(s):

Station ID: MW-5 Sample ID(s): _____
 Date: 10-27-10
 Time: 11:34 Sampler: Cameron Swanson
 QA/QC Sample: Duplicate MS/MSD



**TENNESSEE DIVISION OF REMEDIATION
FIELD SAMPLE COLLECTION SHEET
OLD WAYNESBORO DUMP (TDoR Site # 91-502)
MONITORING WELL SAMPLING**

Monitoring Well No.: MW-4 Date Installed: _____
 Latitude: 35.32479 Longitude: 087.78441
 Total Well Depth: 31.2' Depth to Water: 14.2'
 Well Diameter: 2" Water Column: 17.0
 Well Volume: 2.89 gal Screen Interval: _____

Time	Vol. Purged (Gallons)	pH (Std. Units)	Conductivity (mS/cm)	Temperature (°F)	D.O. (mg/L)	ORP (mV)	Turbidity (NTU)
13:14	0 gal	3.26	0.026	72.6	85.4	33.8	708
13:33	10 gal	3.92	0.029	69.91	91.4	33.2	1000
13:57	18 gal	3.42	0.027	69.12	130.2	30.3	1000
14:07	21 gal	3.38	0.025	68.2	99.2	38.7	494
14:20	24 gal	3.25	0.028	71.03	93.2	41.1	131
14:30	27 gal	3.46	0.028	70.68	130.2	41.4	12.9
14:42	30 gal	3.59	0.028	70.48	97.7	42.2	4.92

Purge Start Time: 13:05 Purge End Time: 14:42
 Purged Dry (y/n)? N.
 Total Volume Purged: 30 gal How Measured: 5 gal. bucket
 Method of Purging: Pump Type: Grundfos Bailer Type: _____

Groundwater Sample(s):

Station ID: MW-4 Sample ID(s): _____
 Date: 10-25-2010
 Time: 14:45 Sampler: Cameron Swanson
 QA/QC Sample: Duplicate MS/MSD



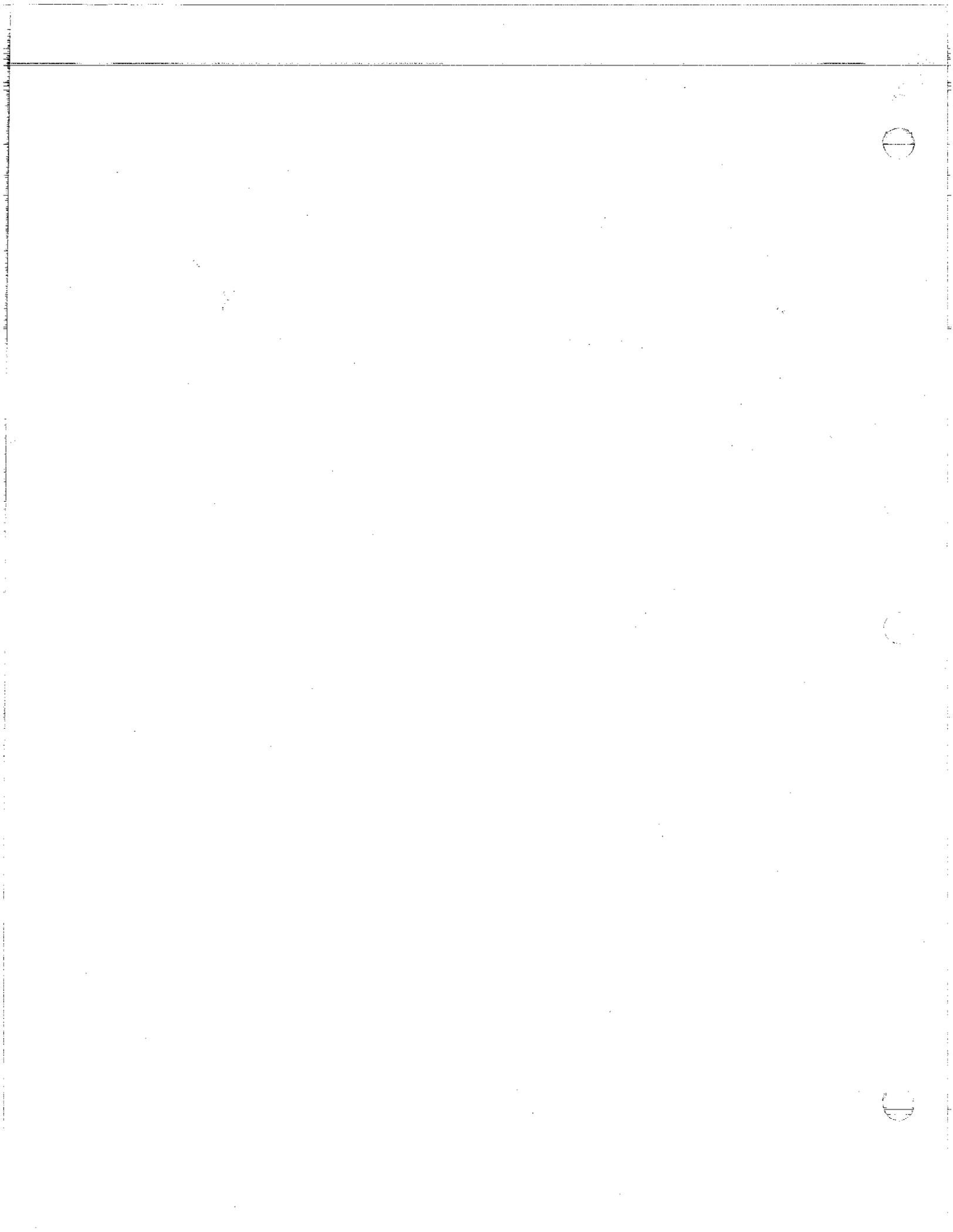
**TENNESSEE DIVISION OF REMEDIATION
FIELD SAMPLE COLLECTION SHEET
OLD WAYNESBORO DUMP (TDoR Site # 91-502)
MONITORING WELL SAMPLING**

Monitoring Well No.: MW-2 Date Installed: _____
 Latitude: 35.32409 Longitude: 087.78424
 Total Well Depth: 174.0 Depth to Water: 158.5"
 Well Diameter: 2" Water Column: 15.8"
 Well Volume: 2.686gal Screen Interval: _____

Time	Vol. Purged (Gallons)	pH (Std. Units)	Conductivity (mS/cm)	Temperature (°F)	D.O. (mg/L)	ORP (mV)	Turbidity (NTU)
9:29	2gal	4.42	0.042	75.30	98.5	23.5	1000
9:35	4gal	4.32	0.038	70.67	102.8	41.3	1000
9:41	7gal	3.30	0.041	73.01	103.3	54.4	1000

Purge Start Time: 9:00 Purge End Time: 9:43
 Purged Dry (y/n)? N
 Total Volume Purged: 8gal How Measured: 5gal. bucket
 Method of Purging: Pump Type: Grundfos Bailer Type: _____

Groundwater Sample(s):
 Station ID: MW-2 Sample ID(s): _____
 Date: 10-27-10
 Time: 9:45 Sampler: Cameron Swanson
 QA/QC Sample: Duplicate MS/MSD



10/28 Redwood Hill wells

Sammy 2 65"

Campton Libanisa

Rebecca Roston

MARIC HATT CREEK

00-25 (006)

FLUSH

STREET

END

10:14 AM

10:26 AM

10:26 AM

10:32 AM

SAMPLE

* SPIEGELT IN STORM CELLAR - BACK OF HOUSE

4 - 40ML AMBER - FINISH 10:29 AM

2 - 1L AMBER - FINISH SAMPLE 10:32 AM

1 - POLY - FINISH SAMPLE 10:30 AM

~~A 10:30 AM~~

GPS COORDINATES

N 35.360094

W 077.000000

ADDRESS:

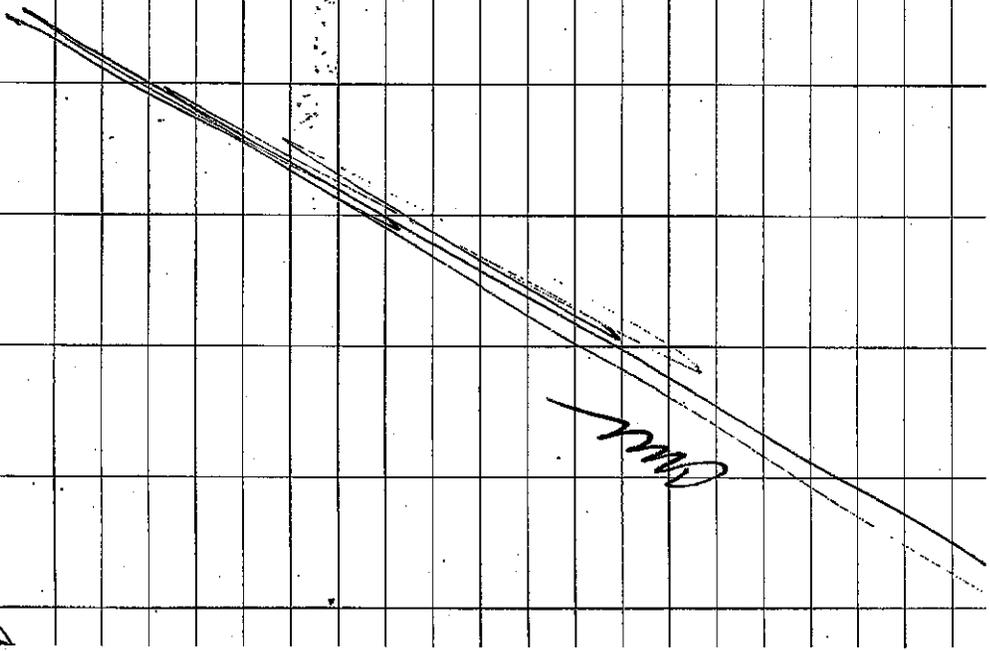
1440 OLD BEECH CREEK RD.

* NADINE PULLY OLD ADDRESS - NOW OWNED BY ROY STAGGS

1422 OLD BEECH CREEK RD.

01-29 - DWCD Residential Wells

Sunny ~65°F
 19/28 ENEL GOODMAN WELL
 Address: 1926 Goodman Rd
 GPS: N 35.40171
 W 087.87406
 *Spigot located @ NE corner of carpet
 Begins Purge: 11:34 AM
 End Purge: 11:44 AM
 SAMPLE BEGINS - 11:45 AM
 End Sample: 11:51 AM
 Purge amount:
 Collect:
 4 - 40ml amber
 1 - Poly
 2 - 1L amber jars



Sunny w/60°

010-28

1209 BANCROFT RD

• 028 Billman Well

GPS Coord:

N 35.39700

W 087.66191

begin purge: 12:10pm

End Purge: 12:20 pm

Begin Sampling: 12:21pm

END SAMPLE: 12:24 pm

APP - ADMIR AMBER

1 - POLY

2 - AMBER

Spigot located @ SE corner of house -

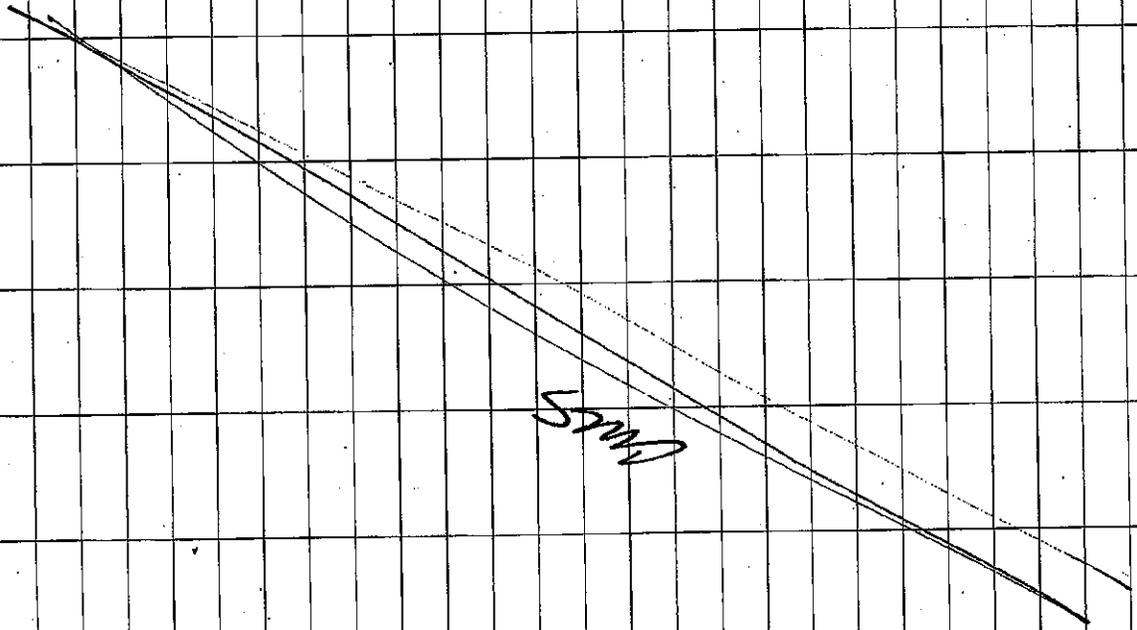
house located back of road -

gauge located @ Road

lg dugs

BEACH CREEK FLOWS THROUGH PROPERTY

AMBER



~~Blank~~

OW 36

SURFACE WATER SAMPLE

10/28

*near well in creek-pipe out put.

GPS Coordinates:

N 35.326391

W 087.78473

SAMPLE TIME: 11:00

SAMPLE END: 11:08

4-40 ml

2-1L Amber Jars

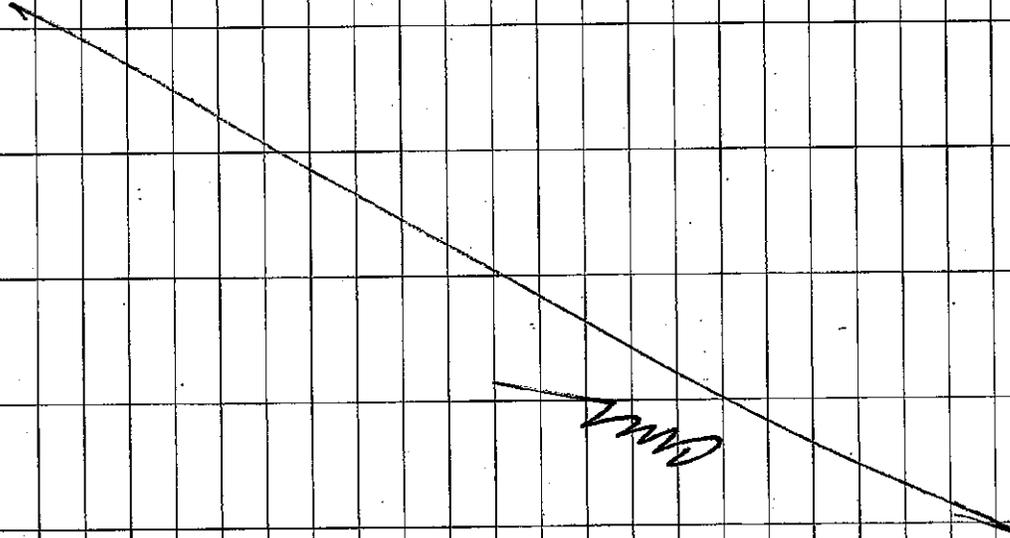
1- Poly

MS/mo

2- Amber 1L

4- 40ml

90



91

10/28

DID-27

Sunny ~15°F

SURFACE WATER

20yd down @ site

GPS Coord.: N 35.32784°

W 087.1881°

SAMPLE TIME: 14.33

SAMPLE 200: 14.41

4-40ml

1-Poly

2-AMBER 1L

✓ After split - at sheep herd in creek

CMV

SURFACE WATER

DUCD 11/01/10

SUMMIT MUD F

ONSITE: C. SWANSON

M. Hatcher

R. Boston

HEAD DESIGN -
GAVIN PULLY M.E.M. B.L.O.G.S.
(Jeter Rd)

SAMPLE: QW-38

SURFACE WATER IN BEECH CREEK

GPS COORDINATES:

N 35.42159

W 087.91217

SAMPLE Collected @ 10:14 AM

END SAMPLE @ 10:19 AM

4-40ml

2-1L Amber

1-Poly

94

OMV

95

11/10 OW-39

Sunny 260°

3.3 mi from site,

near residence of Larry Pulley @ Bridge
VES

SURFACE WATER OW-39

~~SEDIMENT~~ 25/11/01

EPS CODE

N 35.361004

W 087.80756

SAMPLE COLLECTED: 10:58 AM

SAMPLE END: 11:04 AM

4 - 40 ML

2 - 1L AMBER

1 - Poly

96

~~Blank grid with a diagonal line and the word 'over' written across it.~~

97

OW-40

11/10

Beith Residence

Low water bridge

SW SHANLEY (over)

Sunny day

GPS NO 35.35870

W 007.79913

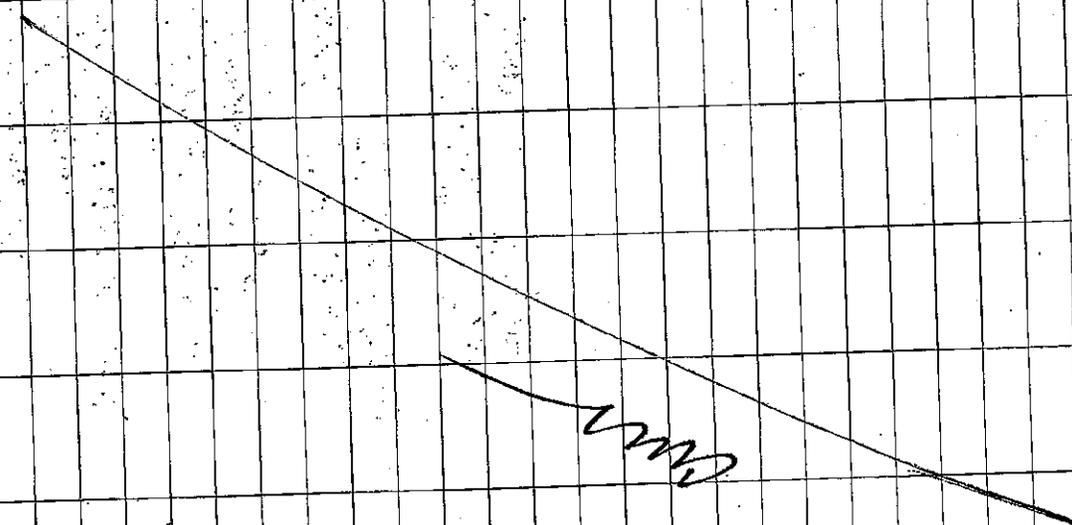
Sample time: 12:24 PM

OW-40 Duplicate

Sample Time: 12:27 PM

END SAMPLE: 12:34 PM

100



101

012-27

Residential Well @
Old Beech Creek Rd.

11/10

• Spring located on back of house

Begin Purge: 1312

Purge End: 1321

BEGIN SAMPLE: 1322

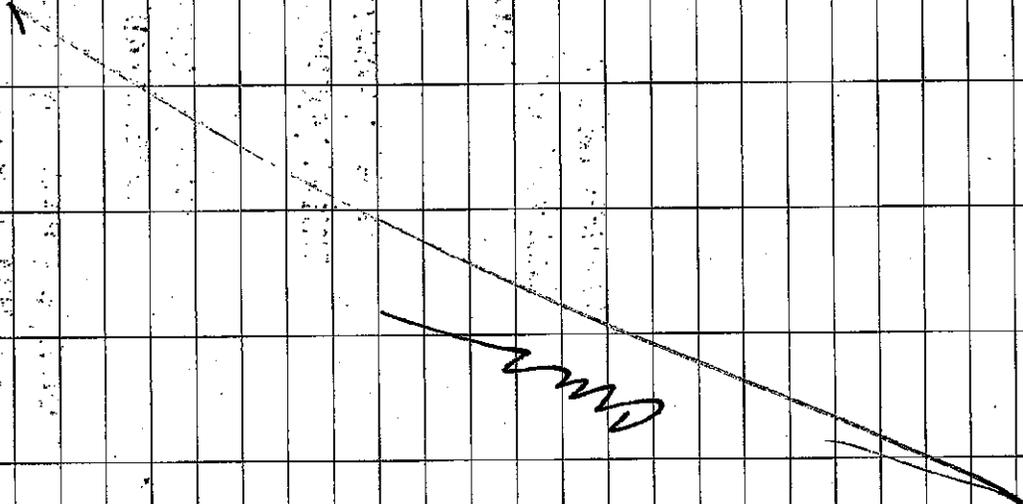
END SAMPLE: 1325

GPS Coord.

N 25.88557

W 0087.83430

107



00-20

11/10 Spring @ 1850 Old Beech Creek Rd

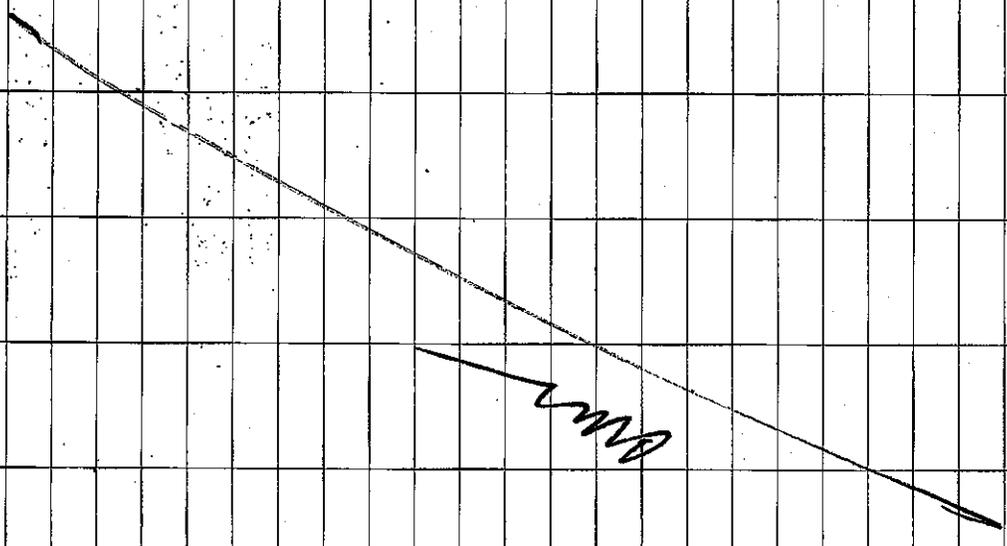
Sample Time: 1340

GPS Coordinates:

N 85.88054

W 087.82654

103



OW-18

Spring @ Pigg house
(Skeiff)

104 Pulley Rd.

GPS Coordinates

N 35.3485
W 087.80827

Begin Purge: 14:14^{11/10}
End Purge: 14:20

Begin Sample: 14:31
End Sample: 14:37

• need pavers for spigot or convenient access to inside water

• spigot located @ SE corner of house

106

~~OWN~~

107

11/10

1000

Big Hall Residence ¹⁰⁰⁰ Old Beech Creek Rd

Spigot located on back of house next to A/C

GPS Coordinates:

N 25.37377

W 007.81686

Begin Sample: 1448

End Sample: 1458

Begin Sample: 1459

End Sample: 1502

108

~~Blank~~

109

QUCD

11/2/10 Pkly Claydy #100°

Soil & Sediment Samples

Staff on site:

C. Swanson

M. Hatcher

R. Boston

010-20-500

Sediment Sample on Jerde Rd @

Harold Denton Gwinnett Valley Memorial Bridge

11/2/10

SAMPLE COLLECTED: 10:12 AM

END SAMPLE: 10:25 AM

GPS Coordinates:

N 35.42159

W 087.91272

DW-23

SED. SAMPLE

11/2/10

GPS Coordinates: N 35.38054
W 087.82654

Location: 1850 Old Beech Creek Road

Sample Time: 10:47 AM

112

Handwritten signature or initials

112

~~over~~

113

010-31

Sediment Sample

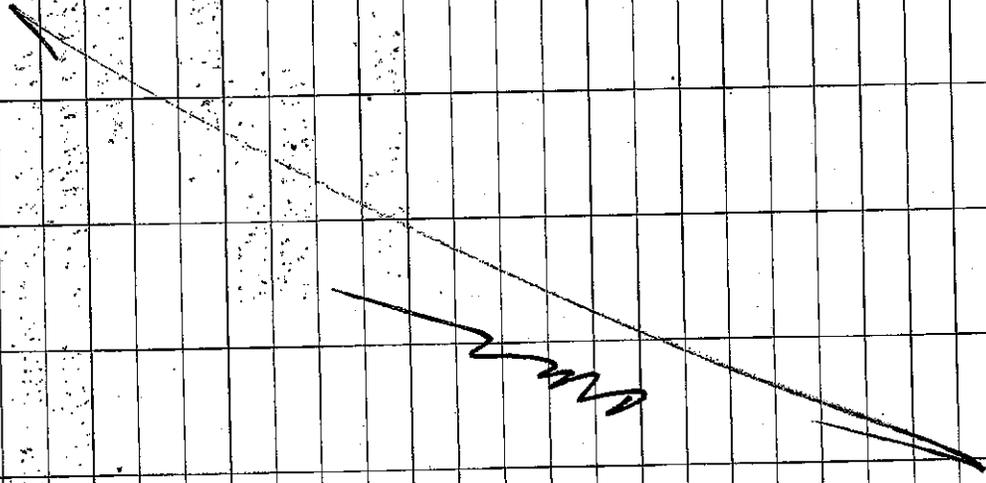
located: Lark Pulley Residents creek
Surface water from creek located
Near bridge

GPS Coordinates:

N 35.26573
W 087.80752

Sample Time: 11:56 AM

114



115

DN-22

Location: 1000 Old Bear Creek Rd.

GPS Coordinate: N 35.373602

W 087.81657

Time of Sample: 11:34 AM

- Taking sample from creek located across the road from resident's house, due to not being ~~totally~~ able to locate spring on property.
- Water sample was taken from tap located on residential property.

116

Om

010-21

117

Spring @ Pigg Residence

Spring located on far side of Pigg House

GPS Coordinates: N35 36483⁶³ W087.80823¹¹

Time Sampled: 13:30

0W-24 * Duplicate

New water bridge @ Britt residence

GPS Coordinates

N 35.35873

W 087.179993

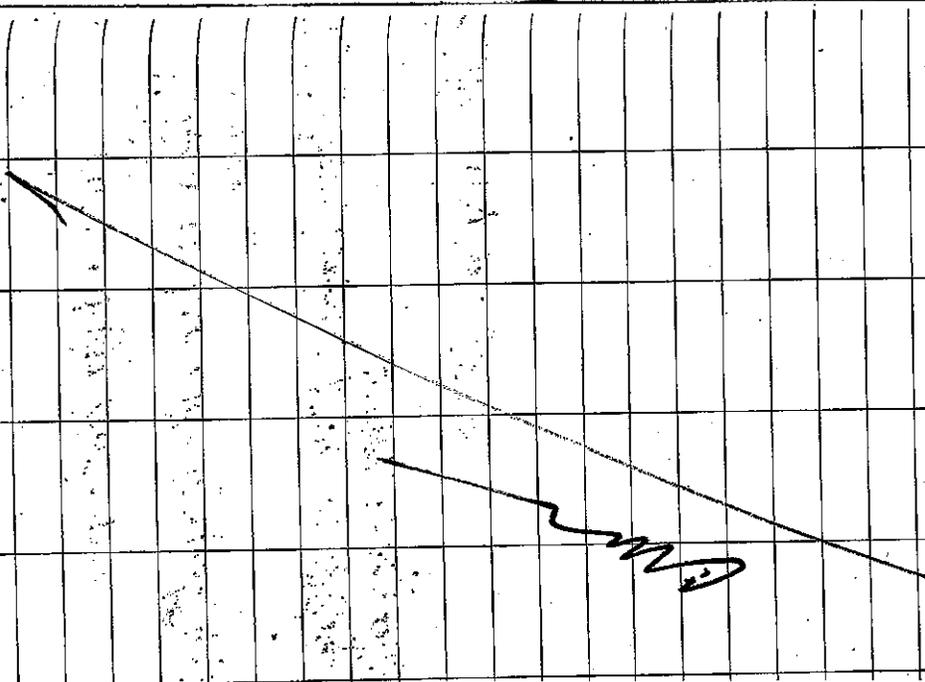
Sample Time 13:52

SED Sample

0W-24

Sample time: 13:54

119



119

010-34 * Duplicate

low water bridge @ Beth residence

GPS Coordinates

N 35.65873

W 087.79993

Sample Time: 13:52

SED Sample

010-34

Sample time: 13:54

118

~~010-34~~

120

OW-10

121

OW-10

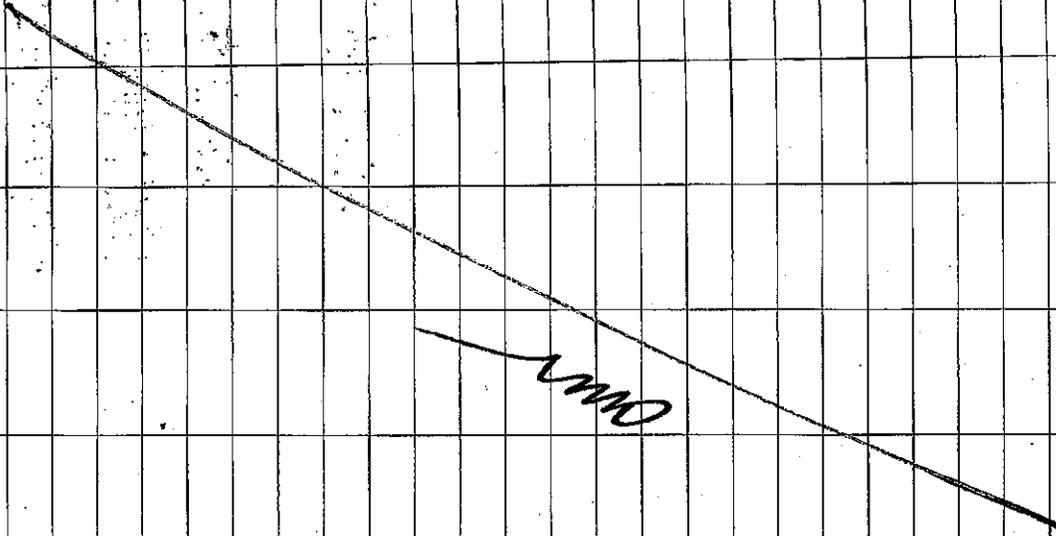
groundwater @
Belt Residence

Purge Begin: 1:51

Purge End: 2:01

Sample Time: 2:02

122



over

123

OW-33 ms/ms

Sediment Sample 200yd downstream of outcrop

Sample time 15:21

GPS Coordinates N 35.32734° W 087.78581°

OW-32

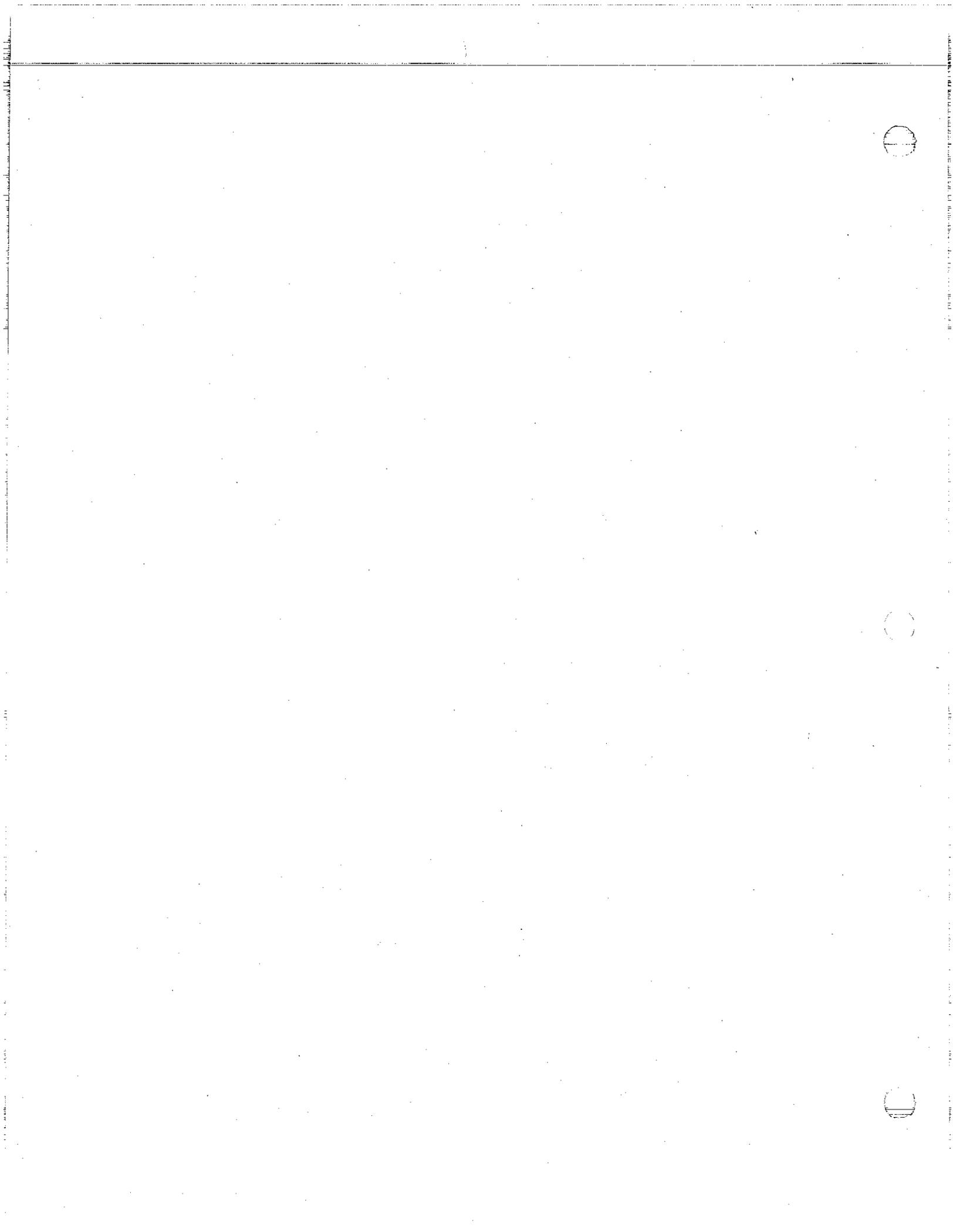
Sediment Sample

Crack Aqueduct near well on creek - pipe outlet

Sample time 15:49

GPS Coordinates N 35.32639° W 087.78432°

APPENDIX D
LAB ANALYSIS





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700
 D.A.R.T. Id: 11-0045
 Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

December 2, 2010

4SESD-MTSB

MEMORANDUM

SUBJECT: FINAL Analytical Report
 Project: 11-0055, Waynesboro City Ldfl
 Superfund Remedial

FROM: Denise Goddard
 Quality Assurance Section Chemist

THRU: Marilyn Maycock, Chief
 Quality Assurance Section

TO: John Nolen

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the associated contract Statement Of Work (SOW). In general, project data quality objectives have not been used to evaluate these data prior to release by the Quality Assurance Section. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report.

Analyses Included in this report:

Method Used:

Total Metals (TMTL)

Total Mercury

Total Metals

CLP Inorganics

CLP Inorganics



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Report Narrative for Project: 11-0055
Inorganic Data Review and Validation Report

Site Name: Waynesboro City Landfill, Waynesboro, TN

Case No.: 40730, Project No. 11-0055, Work Order Nos. C104606 & C104503

~~ELEMENT Sample IDs: C104606-01-22, C104503-01-13~~

Sampling Dates: 10/25 - 11/2/10

Laboratory Performing Inorganic Analysis: Sentinel, Inc., Huntsville, AL

Validated Time of Sample Receipt: 11/3/2010

Date Received from Lab: 11/16/10

Analyses conducted: Total Metals and mercury

The ESAT Work Team has reviewed the above-captioned CLP data package consisting of twenty-five water samples and ten soil samples for Total Metals analysis by ICP-AES and ICP-MS and mercury according to the contract Statement of Work ISM01.2 and EPA guidelines.

This package presents acceptable contractual and technical performance with qualifications. Additional details are provided below.

Examination of blank samples revealed apparent low-level contamination with several elements. Reported detection limits were adjusted as high as ten times blank levels to discount possible false positives due to contamination. In addition, it was noted that the Blind CLP Blank contained aluminum, arsenic, and sodium at levels greater than the CRQL. No qualifications to field samples were made, but the levels of these elements in some of the field samples were less than ten times those in the blank.

The Blind Blank was used as the quality control sample (MS/D/SD) in SDG MD6507 and it is for this reason that the Blind Blank contains qualifiers.

ICP-AES Analysis

PE Sample Results

The performance evaluation sample recoveries for metals in soil by ICP-AES were scored as action high for calcium, magnesium, arsenic, chromium, cobalt, lead, and nickel by the web-based SPS Web software. All positive results for calcium, magnesium, arsenic, chromium, cobalt, lead, and nickel in soil were considered rejected and "R" qualified.

Other QA/QC Results

Serial dilution percent differences for beryllium, chromium, cobalt, copper, manganese and sodium were 50%, 17%, 24%, 19%, 57%, and 241%, respectively, in SDG MD6505. The beryllium, chromium, cobalt, copper, manganese and sodium results in SDG MD6505 were considered estimated and "J" qualified.

Matrix spike recovery for antimony in soil was below control limits (34%). The post-digestion spike recovery was 106%. The antimony result for sample C104606-14 was considered estimated and "J" qualified.

ICP-MS Analysis

PE Sample Results

The performance evaluation sample recoveries for metals in water by ICP-MS were originally scored as action high for all metals by the



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web-based SPS Web software. Results indicated that improper dilution may have occurred using 20 ml instead of 5 ml. When all results were divided by 4, all were within limits with the exception of zinc, which was action high. All positive results for zinc in water were considered rejected and "R" qualified.

Other QA/QC Results

Serial dilution percent differences for iron and zinc were 17% and 55%, respectively, in SDG MD6503. The iron and zinc results in SDG MD6503 were considered estimated and "J" qualified.

Serial dilution percent differences for aluminum, arsenic, and sodium were each 100% in SDG MD6507. The aluminum, arsenic, and sodium results in SDG MD6507 were considered estimated and "J" qualified. As stated at the beginning of this narrative, the Blind Blank was used for quality control, including serial dilution, in SDG MD6507 and contained aluminum, arsenic, and sodium at elevated levels.

Matrix precision was out of control for zinc at 37 RPD in SDG MD6503 and aluminum at 27 RPD in SDG MD6507. The zinc result for sample C104503-04 and the aluminum result for sample C104606-01 were considered estimated and "J" qualified.

Mercury Analysis

PE Sample Results

The performance evaluation sample recovery for mercury in soil was scored as action high by the web-based SPS Web software. All positive results for mercury in soil were considered rejected and "R" qualified.

Other QA/QC Results

There were no other QA/QC problems observed for mercury analysis. Therefore, no data qualifiers were applied to the sample results for mercury based on these criteria.

A Stage 4 validation consisting of electronic and manual review was performed on the inorganic samples submitted for this case.

cc: Nardina Turner



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Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

SAMPLES INCLUDED IN THIS REPORT

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID	Laboratory ID	MD#	D#	Matrix	Date Collected
CM01-1010	C104606-01	6507		CLP Metals Blank	10/25/10 10:07
PB01-1010	C104606-02	6547		Preservative Blank	11/2/10 16:36
GW01-1010	C104606-03	6517		Groundwater	11/2/10 14:02
GW01-1010	C104606-04	6523		Groundwater	11/1/10 14:31
GW01-1010	C104606-05	6524		Groundwater	11/1/10 14:59
GW01-1010	C104606-06	6525		Groundwater	11/1/10 13:40
SD01-1010	C104606-07	6526		Sediment	11/2/10 13:30
SD01-1010	C104606-08	6527		Sediment	11/2/10 11:34
GW01-1010	C104606-09	6530		Groundwater	11/1/10 13:02
GW01-1010	C104606-10	6531		Groundwater	11/1/10 13:22
SD01-1010	C104606-11	6534		Sediment	11/2/10 10:12
SD01-1010	C104606-12	6535		Sediment	11/2/10 11:56
SD01-1010	C104606-13	6536		Sediment	11/2/10 15:49
SD01-1010	C104606-14	6537		Sediment	11/2/10 15:21
SD01-1010	C104606-15	6538		Sediment	11/2/10 13:54
SD02-1010	C104606-16	6539		Sediment	1/1/80 00:00
SW01-1010	C104606-17	6542		Surface Water	11/1/10 10:14
SW01-1010	C104606-18	6543		Surface Water	11/1/10 10:58
SW01-1010	C104606-19	6544		Surface Water	11/1/10 12:24
SW02-1010	C104606-20	6545		Surface Water	11/1/10 12:27



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DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
B-4	Level in blank impacts MRLs.
CLP28	PE sample recovery scored as action high.
CLP36	Identification/Concentration of analyte not confirmed by ICP-MS.
J	The identification of the analyte is acceptable; the reported value is an estimate.
O-2	Result greater than MDL but less than MRL.
O-5	Serial dilution precision outside method control limits
OM-1	Matrix Spike Recovery less than method control limits
OM-4	Matrix Precision outside method control limits
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.

ACRONYMS AND ABBREVIATIONS

CAS Chemical Abstracts Service

Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.

MDL Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.

MRL Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.

TIC Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.



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D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract-Lab Case: 40730

Sample ID: CM01-1010

Lab ID: C104606-01

MD No: 6507 SENTIN

Station ID:

Matrix: CLP Metals Blank

D No:

Date Collected: 10/25/10 10:07

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.052	J, Q-2	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	160	J, Q-5, QM-4	ug/L	20	11/05/10	11/10/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
* 7440-38-2	Arsenic	11	J, Q-5	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-39-3	Barium	0.35	J, Q-2	ug/L	10	11/05/10	11/10/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-70-2	Calcium	100	J, Q-2	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.12	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-50-8	Copper	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7439-89-6	Iron	2.0	J, Q-2	ug/L	200	11/05/10	11/10/10	CLP ISM01.2 MS
7439-92-1	Lead	0.16	J, Q-2	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7439-95-4	Magnesium	500	U	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7439-96-5	Manganese	0.43	J, Q-2	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-09-7	Potassium	500	U	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-23-5	Sodium	740	J, Q-5	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7440-62-2	Vanadium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-66-6	Zinc	0.49	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS



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Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: PB01-1010

Lab ID: C104606-02

MD No: 6547 SENTIN

Station ID:

Matrix: Preservative Blank

D No:

Date Collected: 11/2/10 16:36

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	140	J, Q-5	ug/L	20	11/05/10	11/10/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-38-2	Arsenic	9.4	J, Q-5	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-39-3	Barium	0.29	J, Q-2	ug/L	10	11/05/10	11/10/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-43-0	Cadmium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-70-2	Calcium	77	J, Q-2	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.17	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-50-8	Copper	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7439-89-6	Iron	200	U	ug/L	200	11/05/10	11/10/10	CLP ISM01.2 MS
7439-92-1	Lead	0.11	J, Q-2	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7439-95-4	Magnesium	500	U	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7439-96-5	Manganese	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-09-7	Potassium	500	U	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-23-5	Sodium	640	J, Q-5	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7440-62-2	Vanadium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-66-6	Zinc	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS



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Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: GW01-1010

Lab ID: C104606-03

MD No: 6517 SENTIN

Station ID: OW10

Matrix: Groundwater

D No:

Date Collected: 11/2/10 14:02

Table with 8 columns: CAS Number, Analyte, Results, Qualifiers, Units, MRL, Prepared, Analyzed, Method. Rows list various metals like Mercury, Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, and Zinc with their respective values and units.



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Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: GW01-1010

Lab ID: C104606-04

MD No: 6523 SENTIN

Station ID: OW18

Matrix: Groundwater

D No:

Date Collected: 11/1/10 14:31

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	170	J, Q-5	ug/L	20	11/05/10	11/10/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-38-2	Arsenic	11	J, Q-5	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-39-3	Barium	9.4	J, Q-2	ug/L	10	11/05/10	11/10/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-70-2	Calcium	29000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.33	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-50-8	Copper	1.6	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7439-89-6	Iron	200	U	ug/L	200	11/05/10	11/10/10	CLP ISM01.2 MS
7439-92-1	Lead	0.17	J, Q-2	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7439-95-4	Magnesium	2100		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7439-96-5	Manganese	1.1	U, B-4	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-09-7	Potassium	670		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-23-5	Sodium	2400	J, Q-5	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.10	J, Q-2	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-66-6	Zinc	3.3	U, B-4	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS



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Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract-Lab Case: 40730

Sample ID: GW01-1010

Lab ID: C104606-05

MD No: 6524 SENTIN

Station ID: QW19

Matrix: Groundwater

D No:

Date Collected: 11/1/10 14:59

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	130	U, J, B-4, Q-5	ug/L	20	11/05/10	11/10/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-38-2	Arsenic	9.7	J, Q-5	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-39-3	Barium	74		ug/L	10	11/05/10	11/10/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-70-2	Calcium	55000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.17	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-50-8	Copper	1.1	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7439-89-6	Iron	200	U	ug/L	200	11/05/10	11/10/10	CLP ISM01.2 MS
7439-92-1	Lead	0.20	J, Q-2	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7439-95-4	Magnesium	7000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7439-96-5	Manganese	18		ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-09-7	Potassium	880		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-23-5	Sodium	4000	J, Q-5	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7440-62-2	Vanadium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-66-6	Zinc	11	R, CLP28	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700
 D.A.R.T. Id: 11-0045
 Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: GW01-1010

Lab ID: C104606-06

MD No: 6525 SENTIN

Station ID: QW20

Matrix: Groundwater

D No:

Date Collected: 11/1/10 13:40

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	200	J, Q-5	ug/L	20	11/05/10	11/10/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-38-2	Arsenic	10	J, Q-5	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-39-3	Barium	21		ug/L	10	11/05/10	11/10/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-70-2	Calcium	24000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.24	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-50-8	Copper	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7439-89-6	Iron	200	U	ug/L	200	11/05/10	11/10/10	CLP ISM01.2 MS
7439-92-1	Lead	0.18	J, Q-2	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7439-95-4	Magnesium	2000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7439-96-5	Manganese	10		ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-09-7	Potassium	960		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-23-5	Sodium	2000	J, Q-5	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.24	J, Q-2	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-66-6	Zinc	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS



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 Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: SD01-1010

Lab ID: C104606-07

MD No: 6526 SENTIN

Station ID: OW21

Matrix: Sediment

D No:

Date Collected: 11/2/10 13:30

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.0084	R, CLP28, Q-2	mg/kg dry	0.14	11/09/10	11/09/10	CLP ISM01.2 CV
E1642941	% Solids	69		%		11/06/10	11/08/10	CLP Inorganics
7429-90-5	Aluminum	4700		mg/kg dry	29	11/06/10	11/08/10	CLP ISM01.2 P
7440-36-0	Antimony	8.7	U	mg/kg dry	8.7	11/06/10	11/08/10	CLP ISM01.2 P
7440-38-2	Arsenic	21	R, CLP36, CLP28	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7440-39-3	Barium	56		mg/kg dry	29	11/06/10	11/08/10	CLP ISM01.2 P
7440-41-7	Beryllium	1.9	J, Q-5	mg/kg dry	0.72	11/06/10	11/08/10	CLP ISM01.2 P
7440-43-9	Cadmium	1.3		mg/kg dry	0.72	11/06/10	11/08/10	CLP ISM01.2 P
7440-70-2	Calcium	5100	R, CLP28	mg/kg dry	720	11/06/10	11/08/10	CLP ISM01.2 P
7440-47-3	Chromium	14	R, Q-5, CLP28	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7440-48-4	Cobalt	16	R, Q-5, CLP28	mg/kg dry	7.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-50-8	Copper	12	J, Q-5	mg/kg dry	3.6	11/06/10	11/08/10	CLP ISM01.2 P
7439-89-6	Iron	20000		mg/kg dry	14	11/06/10	11/08/10	CLP ISM01.2 P
7439-92-1	Lead	21	R, CLP28	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7439-95-4	Magnesium	720	U	mg/kg dry	720	11/06/10	11/08/10	CLP ISM01.2 P
7439-96-5	Manganese	910	J, Q-5	mg/kg dry	4.3	11/06/10	11/09/10	CLP ISM01.2 P
7440-02-0	Nickel	61	R, CLP28	mg/kg dry	5.8	11/06/10	11/08/10	CLP ISM01.2 P
7440-09-7	Potassium	740		mg/kg dry	720	11/06/10	11/08/10	CLP ISM01.2 P
7782-49-2	Selenium	1.6	J, CLP36, Q-2	mg/kg dry	5.1	11/06/10	11/08/10	CLP ISM01.2 P
7440-22-4	Silver	1.4	U	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7440-23-5	Sodium	180	J, Q-2, Q-5	mg/kg dry	720	11/06/10	11/08/10	CLP ISM01.2 P
7440-28-0	Thallium	3.6	U	mg/kg dry	3.6	11/06/10	11/08/10	CLP ISM01.2 P
7440-62-2	Vanadium	12		mg/kg dry	7.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-66-6	Zinc	150		mg/kg dry	8.7	11/06/10	11/08/10	CLP ISM01.2 P



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D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: SD01-1010

Lab ID: C104606-08

MD No: 6527 SENTIN

Station ID: OW22

Matrix: Sediment

D No:

Date Collected: 11/2/10 11:34

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.010	R, CLP28, Q-2	mg/kg dry	0.10	11/09/10	11/09/10	CLP ISM01.2 CV
E1642941	% Solids	99		%		11/06/10	11/08/10	CLP Inorganics
7429-90-5	Aluminum	2800		mg/kg dry	20	11/06/10	11/08/10	CLP ISM01.2 P
7440-36-0	Antimony	6.1	U	mg/kg dry	6.1	11/06/10	11/08/10	CLP ISM01.2 P
7440-38-2	Arsenic	8.5	R, CLP36, CLP28	mg/kg dry	1.0	11/06/10	11/08/10	CLP ISM01.2 P
7440-39-3	Barium	26		mg/kg dry	20	11/06/10	11/08/10	CLP ISM01.2 P
7440-41-7	Beryllium	1.0	J, Q-5	mg/kg dry	0.51	11/06/10	11/08/10	CLP ISM01.2 P
7440-43-9	Cadmium	0.21	J, Q-2	mg/kg dry	0.51	11/06/10	11/08/10	CLP ISM01.2 P
7440-70-2	Calcium	2000	R, CLP28	mg/kg dry	510	11/06/10	11/08/10	CLP ISM01.2 P
7440-47-3	Chromium	16	R, CLP28, Q-5	mg/kg dry	1.0	11/06/10	11/08/10	CLP ISM01.2 P
7440-48-4	Cobalt	4.8	R, CLP28, Q-2, Q-5	mg/kg dry	5.1	11/06/10	11/08/10	CLP ISM01.2 P
7440-50-8	Copper	6.5	J, Q-5	mg/kg dry	2.5	11/06/10	11/08/10	CLP ISM01.2 P
7439-89-6	Iron	36000		mg/kg dry	410	11/06/10	11/09/10	CLP ISM01.2 P
7439-92-1	Lead	3.8	R, CLP28	mg/kg dry	1.0	11/06/10	11/08/10	CLP ISM01.2 P
7439-95-4	Magnesium	510	U	mg/kg dry	510	11/06/10	11/08/10	CLP ISM01.2 P
7439-96-5	Manganese	320	J, Q-5	mg/kg dry	1.5	11/06/10	11/08/10	CLP ISM01.2 P
7440-02-0	Nickel	24	R, CLP28	mg/kg dry	4.1	11/06/10	11/08/10	CLP ISM01.2 P
7440-09-7	Potassium	180	J, Q-2	mg/kg dry	510	11/06/10	11/08/10	CLP ISM01.2 P
7782-49-2	Selenium	1.1	J, CLP36, Q-2	mg/kg dry	3.5	11/06/10	11/08/10	CLP ISM01.2 P
7440-22-4	Silver	1.0	U	mg/kg dry	1.0	11/06/10	11/08/10	CLP ISM01.2 P
7440-23-5	Sodium	120	J, Q-2, Q-5	mg/kg dry	510	11/06/10	11/08/10	CLP ISM01.2 P
7440-28-0	Thallium	2.5	U	mg/kg dry	2.5	11/06/10	11/08/10	CLP ISM01.2 P
7440-62-2	Vanadium	16		mg/kg dry	5.1	11/06/10	11/08/10	CLP ISM01.2 P
7440-66-6	Zinc	67		mg/kg dry	6.1	11/06/10	11/08/10	CLP ISM01.2 P



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 D.A.R.T. Id: 11-0045
 Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract-Lab-Case: 40730

Sample ID: GW01-1010

Lab ID: C104606-09

MD No: 6530 SENTIN

Station ID: OW26

Matrix: Groundwater

D No:

Date Collected: 11/1/10 13:02

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	160	J, Q-5	ug/L	20	11/05/10	11/10/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-38-2	Arsenic	9.4	J, Q-5	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-39-3	Barium	24		ug/L	10	11/05/10	11/10/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-70-2	Calcium	57000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.16	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-50-8	Copper	3.6		ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7439-89-6	Iron	200	U	ug/L	200	11/05/10	11/10/10	CLP ISM01.2 MS
7439-92-1	Lead	0.62	J, Q-2	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7439-95-4	Magnesium	3300		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7439-96-5	Manganese	50		ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-09-7	Potassium	1000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-23-5	Sodium	2700	J, Q-5	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.36	J, Q-2	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-66-6	Zinc	88	R, CLP28	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS



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 D.A.R.T. Id: 11-0045
 Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: GW01-1010

Lab ID: C104606-10

MD No: 6531 SENTIN

Station ID: QW27

Matrix: Groundwater

D No:

Date Collected: 11/1/10 13:22

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	140	J, Q-5	ug/L	20	11/05/10	11/10/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-38-2	Arsenic	10	J, Q-5	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-39-3	Barium	26		ug/L	10	11/05/10	11/10/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-70-2	Calcium	53000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.15	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-50-8	Copper	2.7		ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7439-89-6	Iron	200	U	ug/L	200	11/05/10	11/10/10	CLP ISM01.2 MS
7439-92-1	Lead	0.28	J, Q-2	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7439-95-4	Magnesium	3100		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7439-96-5	Manganese	5.6		ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-09-7	Potassium	600		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-23-5	Sodium	2300	J, Q-5	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.17	J, Q-2	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-66-6	Zinc	4.7	U, B-4	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS



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D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: SD01-1010

Lab ID: C104606-11

MD No: 6534 SENTIN

Station ID: OW30

Matrix: Sediment

D No:

Date Collected: 11/2/10 10:12

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.023	R, Q-2, CLP28	mg/kg dry	0.12	11/09/10	11/09/10	CLP ISM01.2 CV
E1642941	% Solids	81		%		11/06/10	11/08/10	CLP Inorganics
7429-90-5	Aluminum	6200		mg/kg dry	25	11/06/10	11/08/10	CLP ISM01.2 P
7440-36-0	Antimony	7.4	U	mg/kg dry	7.4	11/06/10	11/08/10	CLP ISM01.2 P
7440-38-2	Arsenic	5.3	R, CLP36, CLP28	mg/kg dry	1.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-39-3	Barium	53		mg/kg dry	25	11/06/10	11/08/10	CLP ISM01.2 P
7440-41-7	Beryllium	0.48	J, Q-2, Q-5	mg/kg dry	0.62	11/06/10	11/08/10	CLP ISM01.2 P
7440-43-9	Cadmium	0.12	J, Q-2	mg/kg dry	0.62	11/06/10	11/08/10	CLP ISM01.2 P
7440-70-2	Calcium	2500	R, CLP28	mg/kg dry	620	11/06/10	11/08/10	CLP ISM01.2 P
7440-47-3	Chromium	11	R, Q-5, CLP28	mg/kg dry	1.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-48-4	Cobalt	5.4	R, Q-2, Q-5, CLP28	mg/kg dry	6.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-50-8	Copper	4.3	J, Q-5	mg/kg dry	3.1	11/06/10	11/08/10	CLP ISM01.2 P
7439-89-6	Iron	9800		mg/kg dry	12	11/06/10	11/08/10	CLP ISM01.2 P
7439-92-1	Lead	7.5	R, CLP28	mg/kg dry	1.2	11/06/10	11/08/10	CLP ISM01.2 P
7439-95-4	Magnesium	620	U	mg/kg dry	620	11/06/10	11/08/10	CLP ISM01.2 P
7439-96-5	Manganese	290	J, Q-5	mg/kg dry	1.9	11/06/10	11/08/10	CLP ISM01.2 P
7440-02-0	Nickel	13	R, CLP28	mg/kg dry	5.0	11/06/10	11/08/10	CLP ISM01.2 P
7440-09-7	Potassium	570	J, Q-2	mg/kg dry	620	11/06/10	11/08/10	CLP ISM01.2 P
7782-49-2	Seelenium	0.64	J, CLP36, Q-2	mg/kg dry	4.3	11/06/10	11/08/10	CLP ISM01.2 P
7440-22-4	Silver	1.2	U	mg/kg dry	1.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-23-5	Sodium	150	J, Q-2, Q-5	mg/kg dry	620	11/06/10	11/08/10	CLP ISM01.2 P
7440-28-0	Thallium	3.1	U	mg/kg dry	3.1	11/06/10	11/08/10	CLP ISM01.2 P
7440-62-2	Vanadium	12		mg/kg dry	6.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-66-6	Zinc	30		mg/kg dry	7.4	11/06/10	11/08/10	CLP ISM01.2 P



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700
 D.A.R.T. Id: 11-0045
 Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

~~Project: 11-0055, Waynesboro City Ldfl~~

~~Contract Lab Case: 40730~~

Sample ID: SD01-1010

Lab ID: C104606-12

MD No: 6535 SENTIN

Station ID: OW31

Matrix: Sediment

D No:

Date Collected: 11/2/10 11:56

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.11	R, CLP28, Q-2	mg/kg dry	0.13	11/09/10	11/09/10	CLP ISM01.2 CV
E1642941	% Solids	76		%		11/06/10	11/08/10	CLP Inorganics
7429-90-5	Aluminum	5300		mg/kg dry	26	11/06/10	11/08/10	CLP ISM01.2 P
7440-36-0	Antimony	7.9	U	mg/kg dry	7.9	11/06/10	11/08/10	CLP ISM01.2 P
7440-38-2	Arsenic	8.0	R, CLP28, CLP36	mg/kg dry	1.3	11/06/10	11/08/10	CLP ISM01.2 P
7440-39-3	Barium	59		mg/kg dry	26	11/06/10	11/08/10	CLP ISM01.2 P
7440-41-7	Beryllium	0.70	J, Q-5	mg/kg dry	0.65	11/06/10	11/08/10	CLP ISM01.2 P
7440-43-9	Cadmium	0.38	J, Q-2	mg/kg dry	0.65	11/06/10	11/08/10	CLP ISM01.2 P
7440-70-2	Calcium	9200	R, CLP28	mg/kg dry	650	11/06/10	11/08/10	CLP ISM01.2 P
7440-47-3	Chromium	15	R, CLP28, Q-5	mg/kg dry	1.3	11/06/10	11/08/10	CLP ISM01.2 P
7440-48-4	Cobalt	11	R, CLP28, Q-5	mg/kg dry	6.5	11/06/10	11/08/10	CLP ISM01.2 P
7440-50-8	Copper	7.7	J, Q-5	mg/kg dry	3.3	11/06/10	11/08/10	CLP ISM01.2 P
7439-89-6	Iron	14000		mg/kg dry	13	11/06/10	11/08/10	CLP ISM01.2 P
7439-92-1	Lead	9.1	R, CLP28	mg/kg dry	1.3	11/06/10	11/08/10	CLP ISM01.2 P
7439-95-4	Magnesium	650	U	mg/kg dry	650	11/06/10	11/08/10	CLP ISM01.2 P
7439-96-5	Manganese	960	J, Q-5	mg/kg dry	3.9	11/06/10	11/09/10	CLP ISM01.2 P
7440-02-0	Nickel	28	R, CLP28	mg/kg dry	5.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-09-7	Potassium	460	J, Q-2	mg/kg dry	650	11/06/10	11/08/10	CLP ISM01.2 P
7782-49-2	Selenium	1.1	J, CLP36, Q-2	mg/kg dry	4.6	11/06/10	11/08/10	CLP ISM01.2 P
7440-22-4	Silver	1.3	U	mg/kg dry	1.3	11/06/10	11/08/10	CLP ISM01.2 P
7440-23-5	Sodium	140	J, Q-2, Q-5	mg/kg dry	650	11/06/10	11/08/10	CLP ISM01.2 P
7440-28-0	Thallium	3.3	U	mg/kg dry	3.3	11/06/10	11/08/10	CLP ISM01.2 P
7440-62-2	Vanadium	16		mg/kg dry	6.5	11/06/10	11/08/10	CLP ISM01.2 P
7440-66-6	Zinc	55		mg/kg dry	7.9	11/06/10	11/08/10	CLP ISM01.2 P



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: SD01-1010

Lab ID: C104606-13

MD No: 6536 SENTIN

Station ID: OW32

Matrix: Sediment

D No:

Date Collected: 11/2/10 15:49

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.026	R, CLP28, Q-2	mg/kg dry	0.12	11/09/10	11/09/10	CLP ISM01.2 CV
E1642941	% Solids	82		%		11/06/10	11/08/10	CLP Inorganics
7429-90-5	Aluminum	7500		mg/kg dry	24	11/06/10	11/08/10	CLP ISM01.2 P
7440-36-0	Antimony	7.3	U	mg/kg dry	7.3	11/06/10	11/08/10	CLP ISM01.2 P
7440-38-2	Arsenic	11	R, CLP28, CLP36	mg/kg dry	1.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-39-3	Barium	83		mg/kg dry	24	11/06/10	11/08/10	CLP ISM01.2 P
7440-41-7	Beryllium	0.78	J, Q-5	mg/kg dry	0.61	11/06/10	11/08/10	CLP ISM01.2 P
7440-43-9	Cadmium	0.58	J, Q-2	mg/kg dry	0.61	11/06/10	11/08/10	CLP ISM01.2 P
7440-70-2	Calcium	1200	R, CLP28	mg/kg dry	610	11/06/10	11/08/10	CLP ISM01.2 P
7440-47-3	Chromium	90	R, CLP28, Q-5	mg/kg dry	1.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-48-4	Cobalt	25	R, CLP28, Q-5	mg/kg dry	6.1	11/06/10	11/08/10	CLP ISM01.2 P
7440-50-8	Copper	15	J, Q-5	mg/kg dry	3.0	11/06/10	11/08/10	CLP ISM01.2 P
7439-89-6	Iron	54000		mg/kg dry	120	11/06/10	11/09/10	CLP ISM01.2 P
7439-92-1	Lead	18	R, CLP28	mg/kg dry	1.2	11/06/10	11/08/10	CLP ISM01.2 P
7439-95-4	Magnesium	610	U	mg/kg dry	610	11/06/10	11/08/10	CLP ISM01.2 P
7439-96-5	Manganese	3600	J, Q-5	mg/kg dry	18	11/06/10	11/09/10	CLP ISM01.2 P
7440-02-0	Nickel	64	R, CLP28	mg/kg dry	4.9	11/06/10	11/08/10	CLP ISM01.2 P
7440-09-7	Potassium	220	J, Q-2	mg/kg dry	610	11/06/10	11/08/10	CLP ISM01.2 P
7782-49-2	Selenium	2.9	J, CLP36, Q-2	mg/kg dry	4.3	11/06/10	11/08/10	CLP ISM01.2 P
7440-22-4	Silver	1.2	U	mg/kg dry	1.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-23-5	Sodium	140	J, Q-2, Q-5	mg/kg dry	610	11/06/10	11/08/10	CLP ISM01.2 P
7440-28-0	Thallium	3.0	U	mg/kg dry	3.0	11/06/10	11/08/10	CLP ISM01.2 P
7440-62-2	Vanadium	86		mg/kg dry	6.1	11/06/10	11/08/10	CLP ISM01.2 P
7440-66-6	Zinc	110		mg/kg dry	7.3	11/06/10	11/08/10	CLP ISM01.2 P



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Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

~~Project: 11-0055, Waynesboro City Ldfl~~

~~Contract Lab Case: 40730~~

Sample ID: SD01-1010

Lab ID: C104606-14

MD No: 6537 SENTIN

Station ID: OW33

Matrix: Sediment

D No:

Date Collected: 11/2/10 15:21

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.059	R, CLP28, Q-2	mg/kg dry	0.17	11/09/10	11/09/10	CLP ISM01.2 CV
E1642941	% Solids	59		%		11/06/10	11/08/10	CLP Inorganics
7429-90-5	Aluminum	9700		mg/kg dry	34	11/06/10	11/08/10	CLP ISM01.2 P
7440-36-0	Antimony	10	U, J, QM-1	mg/kg dry	10	11/06/10	11/08/10	CLP ISM01.2 P
7440-38-2	Arsenic	5.5	R, CLP28, CLP36	mg/kg dry	1.7	11/06/10	11/08/10	CLP ISM01.2 P
7440-39-3	Barium	170		mg/kg dry	34	11/06/10	11/08/10	CLP ISM01.2 P
7440-41-7	Beryllium	1.1	J, Q-5	mg/kg dry	0.85	11/06/10	11/08/10	CLP ISM01.2 P
7440-43-9	Cadmium	0.72	J, Q-2	mg/kg dry	0.85	11/06/10	11/08/10	CLP ISM01.2 P
7440-70-2	Calcium	2100	R, CLP28	mg/kg dry	850	11/06/10	11/08/10	CLP ISM01.2 P
7440-47-3	Chromium	14	R, CLP28, Q-5	mg/kg dry	1.7	11/06/10	11/08/10	CLP ISM01.2 P
7440-48-4	Cobalt	9.3	R, CLP28, Q-5	mg/kg dry	8.5	11/06/10	11/08/10	CLP ISM01.2 P
7440-50-8	Copper	14	J, Q-5	mg/kg dry	4.3	11/06/10	11/08/10	CLP ISM01.2 P
7439-89-6	Iron	11000		mg/kg dry	17	11/06/10	11/08/10	CLP ISM01.2 P
7439-92-1	Lead	13	R, CLP28	mg/kg dry	1.7	11/06/10	11/08/10	CLP ISM01.2 P
7439-95-4	Magnesium	850	U	mg/kg dry	850	11/06/10	11/08/10	CLP ISM01.2 P
7439-96-5	Manganese	1100	J, Q-5	mg/kg dry	5.1	11/06/10	11/09/10	CLP ISM01.2 P
7440-02-0	Nickel	18	R, CLP28	mg/kg dry	6.8	11/06/10	11/08/10	CLP ISM01.2 P
7440-09-7	Potassium	300	J, Q-2	mg/kg dry	850	11/06/10	11/08/10	CLP ISM01.2 P
7782-49-2	Selenium	1.2	J, CLP36, Q-2	mg/kg dry	6.0	11/06/10	11/08/10	CLP ISM01.2 P
7440-22-4	Silver	1.7	U	mg/kg dry	1.7	11/06/10	11/08/10	CLP ISM01.2 P
7440-23-5	Sodium	180	J, Q-2, Q-5	mg/kg dry	850	11/06/10	11/08/10	CLP ISM01.2 P
7440-28-0	Thallium	4.3	U	mg/kg dry	4.3	11/06/10	11/08/10	CLP ISM01.2 P
7440-62-2	Vanadium	25		mg/kg dry	8.5	11/06/10	11/08/10	CLP ISM01.2 P
7440-66-6	Zinc	110		mg/kg dry	10	11/06/10	11/08/10	CLP ISM01.2 P



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: SD01-1010

Lab ID: C104606-15

MD No: 6538 SENTIN

Station ID: OW34

Matrix: Sediment

D No:

Date Collected: 11/2/10 13:54

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.029	R, CLP28, Q-2	mg/kg dry	0.14	11/09/10	11/09/10	CLP ISM01.2 CV
E1642941	% Solids	73		%		11/06/10	11/08/10	CLP Inorganics
7429-90-5	Aluminum	6900		mg/kg dry	27	11/06/10	11/08/10	CLP ISM01.2 P
7440-36-0	Antimony	8.2	U	mg/kg dry	8.2	11/06/10	11/08/10	CLP ISM01.2 P
7440-38-2	Arsenic	5.6	R, CLP36, CLP28	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7440-39-3	Barium	94		mg/kg dry	27	11/06/10	11/08/10	CLP ISM01.2 P
7440-41-7	Beryllium	0.94	J, Q-5	mg/kg dry	0.68	11/06/10	11/08/10	CLP ISM01.2 P
7440-43-9	Cadmium	0.41	J, Q-2	mg/kg dry	0.68	11/06/10	11/08/10	CLP ISM01.2 P
7440-70-2	Calcium	3500	R, CLP28	mg/kg dry	680	11/06/10	11/08/10	CLP ISM01.2 P
7440-47-3	Chromium	11	R, CLP28, Q-5	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7440-48-4	Cobalt	7.1	R, CLP28, Q-5	mg/kg dry	6.8	11/06/10	11/08/10	CLP ISM01.2 P
7440-50-8	Copper	8.1	J, Q-5	mg/kg dry	3.4	11/06/10	11/08/10	CLP ISM01.2 P
7439-89-6	Iron	10000		mg/kg dry	14	11/06/10	11/08/10	CLP ISM01.2 P
7439-92-1	Lead	12	R, CLP28	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7439-95-4	Magnesium	680	U	mg/kg dry	680	11/06/10	11/08/10	CLP ISM01.2 P
7439-96-5	Manganese	780	J, Q-5	mg/kg dry	4.1	11/06/10	11/09/10	CLP ISM01.2 P
7440-02-0	Nickel	20	R, CLP28	mg/kg dry	5.5	11/06/10	11/08/10	CLP ISM01.2 P
7440-09-7	Potassium	480	J, Q-2	mg/kg dry	680	11/06/10	11/08/10	CLP ISM01.2 P
7782-49-2	Selenium	1.3	J, CLP36, Q-2	mg/kg dry	4.8	11/06/10	11/08/10	CLP ISM01.2 P
7440-22-4	Silver	1.4	U	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7440-23-5	Sodium	150	J, Q-2, Q-5	mg/kg dry	680	11/06/10	11/08/10	CLP ISM01.2 P
7440-28-0	Thallium	3.4	U	mg/kg dry	3.4	11/06/10	11/08/10	CLP ISM01.2 P
7440-62-2	Vanadium	15		mg/kg dry	6.8	11/06/10	11/08/10	CLP ISM01.2 P
7440-66-6	Zinc	65		mg/kg dry	8.2	11/06/10	11/08/10	CLP ISM01.2 P



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 980 College Station Road, Athens, Georgia 30605-2700
 D.A.R.T. Id: 11-0045
 Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: SD02-1010

Lab ID: C104606-16

MD No: 6539 SENTIN

Station ID: OW34

Matrix: Sediment

D No:

Date Collected: 1/1/80 0:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.034	R, CLP28, Q-2	mg/kg dry	0.14	11/09/10	11/09/10	CLP ISM01.2 CV
E1642941	% Solids	71		%		11/06/10	11/08/10	CLP Inorganics
7429-90-5	Aluminum	4100		mg/kg dry	28	11/06/10	11/08/10	CLP ISM01.2 P
7440-36-0	Antimony	8.5	U	mg/kg dry	8.5	11/06/10	11/08/10	CLP ISM01.2 P
7440-38-2	Arsenic	5.4	R, CLP28, CLP36	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7440-39-3	Barium	48		mg/kg dry	28	11/06/10	11/08/10	CLP ISM01.2 P
7440-41-7	Beryllium	0.59	J, Q-2, Q-5	mg/kg dry	0.71	11/06/10	11/08/10	CLP ISM01.2 P
7440-43-9	Cadmium	0.24	J, Q-2	mg/kg dry	0.71	11/06/10	11/08/10	CLP ISM01.2 P
7440-70-2	Calcium	2000	R, CLP28	mg/kg dry	710	11/06/10	11/08/10	CLP ISM01.2 P
7440-47-3	Chromium	13	R, CLP28, Q-5	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7440-48-4	Cobalt	4.7	R, CLP28, Q-2, Q-5	mg/kg dry	7.1	11/06/10	11/08/10	CLP ISM01.2 P
7440-50-8	Copper	16	J, Q-5	mg/kg dry	3.5	11/06/10	11/08/10	CLP ISM01.2 P
7439-89-6	Iron	12000		mg/kg dry	14	11/06/10	11/08/10	CLP ISM01.2 P
7439-92-1	Lead	6.8	R, CLP28	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7439-95-4	Magnesium	710	U	mg/kg dry	710	11/06/10	11/08/10	CLP ISM01.2 P
7439-96-5	Manganese	390	J, Q-5	mg/kg dry	2.1	11/06/10	11/08/10	CLP ISM01.2 P
7440-02-0	Nickel	14	R, CLP28	mg/kg dry	5.7	11/06/10	11/08/10	CLP ISM01.2 P
7440-09-7	Potassium	320	J, Q-2	mg/kg dry	710	11/06/10	11/08/10	CLP ISM01.2 P
7782-49-2	Selenium	0.87	J, CLP36, Q-2	mg/kg dry	5.0	11/06/10	11/08/10	CLP ISM01.2 P
7440-22-4	Silver	1.4	U	mg/kg dry	1.4	11/06/10	11/08/10	CLP ISM01.2 P
7440-23-5	Sodium	170	J, Q-2, Q-5	mg/kg dry	710	11/06/10	11/08/10	CLP ISM01.2 P
7440-28-0	Thallium	3.5	U	mg/kg dry	3.5	11/06/10	11/08/10	CLP ISM01.2 P
7440-62-2	Vanadium	13		mg/kg dry	7.1	11/06/10	11/08/10	CLP ISM01.2 P
7440-66-6	Zinc	51		mg/kg dry	8.5	11/06/10	11/08/10	CLP ISM01.2 P



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700
 D.A.R.T. Id: 11-0045
 Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract-Lab Case: 40730

Sample ID: SW01-1010

Lab ID: C104606-17

MD No: 6542 SENTIN

Station ID: OW38

Matrix: Surface Water

D No:

Date Collected: 11/1/10 10:14

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	150	J, Q-5	ug/L	20	11/05/10	11/10/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-38-2	Arsenic	10	J, Q-5	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-39-3	Barium	14		ug/L	10	11/05/10	11/10/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-70-2	Calcium	26000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.16	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-50-8	Copper	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7439-89-6	Iron	200	U	ug/L	200	11/05/10	11/10/10	CLP ISM01.2 MS
7439-92-1	Lead	0.12	J, Q-2	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7439-95-4	Magnesium	1900		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7439-96-5	Manganese	2.8	U, B-4	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-09-7	Potassium	690		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-23-5	Sodium	2200	J, Q-5	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.21	J, Q-2	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-66-6	Zinc	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

~~Project: 11-0055, Waynesboro City Ldfl~~

~~Contract Lab Case: 40730~~

Sample ID: SW01-1010

Lab ID: C104606-18

MD No: 6543 SENTIN

Station ID: OW39

Matrix: Surface Water

D No:

Date Collected: 11/1/10 10:58

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	160	J, Q-5	ug/L	20	11/05/10	11/10/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-38-2	Arsenic	10	J, Q-5	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-39-3	Barium	20		ug/L	10	11/05/10	11/10/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-70-2	Calcium	25000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.21	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-50-8	Copper	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7439-89-6	Iron	200	U	ug/L	200	11/05/10	11/10/10	CLP ISM01.2 MS
7439-92-1	Lead	0.17	J, Q-2	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7439-95-4	Magnesium	1800		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7439-96-5	Manganese	8.9		ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-09-7	Potassium	680		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-23-5	Sodium	2100	J, Q-5	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.18	J, Q-2	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-66-6	Zinc	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS



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Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: SW01-1010

Lab ID: C104606-19

MD No: 6544 SENTIN

Station ID: OW40

Matrix: Surface Water

D No:

Date Collected: 11/1/10 12:24

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	170	J, Q-5	ug/L	20	11/05/10	11/10/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-38-2	Arsenic	10	J, Q-5	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-39-3	Barium	14		ug/L	10	11/05/10	11/10/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-70-2	Calcium	15000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.18	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-50-8	Copper	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7439-89-6	Iron	200	U	ug/L	200	11/05/10	11/10/10	CLP ISM01.2 MS
7439-92-1	Lead	0.14	J, Q-2	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7439-95-4	Magnesium	1600		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7439-96-5	Manganese	4.2		ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-09-7	Potassium	470	J, Q-2	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-23-5	Sodium	2200	J, Q-5	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.16	J, Q-2	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-66-6	Zinc	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS



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D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: SW02-1010

Lab ID: C104606-20

MD No: 6545 SENTIN

Station ID: QW40

Matrix: Surface Water

D No:

Date Collected: 11/1/10 12:27

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	170	J, Q-5	ug/L	20	11/05/10	11/10/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-38-2	Arsenic	11	J, Q-5	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-39-3	Barium	14		ug/L	10	11/05/10	11/10/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-70-2	Calcium	15000		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.21	J, Q-2	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-50-8	Copper	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS
7439-89-6	Iron	200	U	ug/L	200	11/05/10	11/10/10	CLP ISM01.2 MS
7439-92-1	Lead	0.12	J, Q-2	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7439-95-4	Magnesium	1600		ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7439-96-5	Manganese	2.8	U, B-4	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-09-7	Potassium	480	J, Q-2	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-23-5	Sodium	2300	J, Q-5	ug/L	500	11/05/10	11/10/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/05/10	11/13/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.14	J, Q-2	ug/L	5.0	11/05/10	11/10/10	CLP ISM01.2 MS
7440-66-6	Zinc	2.0	U	ug/L	2.0	11/05/10	11/10/10	CLP ISM01.2 MS





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D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

December 2, 2010

4SESD-MTSB

MEMORANDUM

SUBJECT: FINAL Analytical Report
Project: 11-0055, Waynesboro City Ldfl
Superfund Remedial

FROM: Denise Goddard
Quality Assurance Section Chemist

THRU: Marilyn Maycock, Chief
Quality Assurance Section

TO: John Nolen

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the associated contract Statement Of Work (SOW). In general, project data quality objectives have not been used to evaluate these data prior to release by the Quality Assurance Section. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report.

Analyses Included in this report:

Method Used:

Total Metals (TMTL)

Total Mercury

CLP Inorganics

Total Metals

CLP Inorganics



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D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Report Narrative for Project: 11-0055

Inorganic Data Review and Validation Report

Site Name: Waynesboro City Landfill, Waynesboro, TN

Case No.: 40730, Project No. 11-0055, Work Order Nos. C104606 & C104503

ELEMENT Sample IDs.: C104606-01 = 22; C104503-01 = 13

Sampling Dates: 10/25 - 11/2/10

Laboratory Performing Inorganic Analysis: Sentinel, Inc., Huntsville, AL

Validated Time of Sample Receipt: 11/3/2010

Date Received from Lab: 11/16/10

Analyses conducted: Total Metals and mercury

The ESAT Work Team has reviewed the above-captioned CLP data package consisting of twenty-five water samples and ten soil samples for Total Metals analysis by ICP-AES and ICP-MS and mercury according to the contract Statement of Work ISM01.2 and EPA guidelines.

This package presents acceptable contractual and technical performance with qualifications. Additional details are provided below.

Examination of blank samples revealed apparent low-level contamination with several elements. Reported detection limits were adjusted as high as ten times blank levels to discount possible false positives due to contamination. In addition, it was noted that the Blind CLP Blank contained aluminum, arsenic, and sodium at levels greater than the CRQL. No qualifications to field samples were made, but the levels of these elements in some of the field samples were less than ten times those in the blank.

The Blind Blank was used as the quality control sample (MS/D/SD) in SDG MD6507 and it is for this reason that the Blind Blank contains qualifiers.

ICP-AES Analysis

PE Sample Results

The performance evaluation sample recoveries for metals in soil by ICP-AES were scored as action high for calcium, magnesium, arsenic, chromium, cobalt, lead, and nickel by the web-based SPS Web software. All positive results for calcium, magnesium, arsenic, chromium, cobalt, lead, and nickel in soil were considered rejected and "R" qualified.

Other QA/QC Results

Serial dilution percent differences for beryllium, chromium, cobalt, copper, manganese and sodium were 50%, 17%, 24%, 19%, 57%, and 241%, respectively, in SDG MD6505. The beryllium, chromium, cobalt, copper, manganese and sodium results in SDG MD6505 were considered estimated and "J" qualified.

Matrix spike recovery for antimony in soil was below control limits (34%). The post-digestion spike recovery was 106%. The antimony result for sample C104606-14 was considered estimated and "J" qualified.

ICP-MS Analysis

PE Sample Results

The performance evaluation sample recoveries for metals in water by ICP-MS were originally scored as action high for all metals by the



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web-based SPS Web software. Results indicated that improper dilution may have occurred using 20 ml instead of 5 ml. When all results were divided by 4, all were within limits with the exception of zinc, which was action high. All positive results for zinc in water were considered rejected and "R" qualified.

Other QA/QC Results

Serial dilution percent differences for iron and zinc were 17% and 55%, respectively, in SDG MD6503. The iron and zinc results in SDG MD6503 were considered estimated and "J" qualified.

Serial dilution percent differences for aluminum, arsenic, and sodium were each 100% in SDG MD6507. The aluminum, arsenic, and sodium results in SDG MD6507 were considered estimated and "J" qualified. As stated at the beginning of this narrative, the Blind Blank was used for quality control, including serial dilution, in SDG MD6507 and contained aluminum, arsenic, and sodium at elevated levels.

Matrix precision was out of control for zinc at 37 RPD in SDG MD6503 and aluminum at 27 RPD in SDG MD6507. The zinc result for sample C104503-04 and the aluminum result for sample C104606-01 were considered estimated and "J" qualified.

Mercury Analysis

PE Sample Results

The performance evaluation sample recovery for mercury in soil was scored as action high by the web-based SPS Web software. All positive results for mercury in soil were considered rejected and "R" qualified.

Other QA/QC Results

There were no other QA/QC problems observed for mercury analysis. Therefore, no data qualifiers were applied to the sample results for mercury based on these criteria.

A Stage 4 validation consisting of electronic and manual review was performed on the inorganic samples submitted for this case.

cc: Nardina Turner



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Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

SAMPLES INCLUDED IN THIS REPORT

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID	Laboratory ID	MD#	D#	Matrix	Date Collected
GW01-1010	C104503-01	6509		Groundwater	10/27/10 09:45
GW01-1010	C104503-02	6511		Groundwater	10/25/10 14:45
GW02-1010	C104503-03	6512		Groundwater	10/25/10 10:00
GW01-1010	C104503-04	6513		Groundwater	10/27/10 11:34
GW01-1010	C104503-05	6514		Groundwater	10/26/10 14:53
GW01-1010	C104503-06	6515		Groundwater	10/27/10 14:33
GW01-1010	C104503-07	6529		Groundwater	10/28/10 10:29
GW01-1010	C104503-08	6532		Groundwater	10/28/10 12:21
GW01-1010	C104503-09	6533		Groundwater	10/28/10 11:45
SW01-1010	C104503-10	6540		Surface Water	10/28/10 14:00
SW01-1010	C104503-11	6541		Surface Water	10/28/10 14:33



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DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
B-4	Level in blank impacts MRLs.
CLP28	PE sample recovery scored as action high.
J	The identification of the analyte is acceptable; the reported value is an estimate.
O-2	Result greater than MDL but less than MRL.
O-5	Serial dilution precision outside method control limits
OM-4	Matrix Precision outside method control limits
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.

ACRONYMS AND ABBREVIATIONS

CAS	Chemical Abstracts Service Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System (www.epa.gov/srs), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
MDL	Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
MRL	Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
TIC	Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.



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Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: GW01-1010

Lab ID: C104503-01

MD No: 6509 SENTIN

Station ID: QW02

Matrix: Groundwater

D No:

Date Collected: 10/27/10 9:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	130		ug/L	20	11/01/10	11/03/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-38-2	Arsenic	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-39-3	Barium	13		ug/L	10	11/01/10	11/03/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-43-9	Cadmium	0.050	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-70-2	Calcium	930		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-47-3	Chromium	14		ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-48-4	Cobalt	6.7		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-50-8	Copper	2.5		ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-89-6	Iron	250	J, Q-5	ug/L	200	11/01/10	11/03/10	CLP ISM01.2 MS
7439-92-1	Lead	0.24	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-95-4	Magnesium	640		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7439-96-5	Manganese	59		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-02-0	Nickel	28		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-09-7	Potassium	500	U	ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-22-4	Silver	0.046	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-23-5	Sodium	3200		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.52	J, Q-2	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-66-6	Zinc	12	R, CLP28, Q-5	ug/L	2.0	11/01/10	11/04/10	CLP ISM01.2 MS



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D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

~~Project: 11-0055, Waynesboro City Ldfl~~

~~Contract Lab Case: 40730~~

Sample ID: GW01-1010

Lab ID: C104503-02

MD No: 6511 SENTIN

Station ID: OW04

Matrix: Groundwater

D No:

Date Collected: 10/25/10 14:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	51		ug/L	20	11/01/10	11/03/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-38-2	Arsenic	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-39-3	Barium	7.7	J, Q-2	ug/L	10	11/01/10	11/03/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-70-2	Calcium	850		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-47-3	Chromium	2.2		ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-48-4	Cobalt	0.93	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-50-8	Copper	0.59	J, Q-2	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-89-6	Iron	85	J, Q-2, Q-5	ug/L	200	11/01/10	11/03/10	CLP ISM01.2 MS
7439-92-1	Lead	0.11	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-95-4	Magnesium	510		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7439-96-5	Manganese	23		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-02-0	Nickel	4.9		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-09-7	Potassium	500	U	ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-23-5	Sodium	3300		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.39	J, Q-2	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-66-6	Zinc	11	R, CLP28, Q-5	ug/L	2.0	11/01/10	11/04/10	CLP ISM01.2 MS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
 Region 4 Science and Ecosystem Support Division
 980 College Station Road, Athens, Georgia 30605-2700
 D.A.R.T. Id: 11-0045
 Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract-Lab-Case: 40730

Sample ID: GW02-1010

Lab ID: C104503-03

MD No: 6512 SENTIN

Station ID: OW04

Matrix: Groundwater

D No:

Date Collected: 10/25/10 10:00

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	56		ug/L	20	11/01/10	11/03/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-38-2	Arsenic	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-39-3	Barium	7.9	J, Q-2	ug/L	10	11/01/10	11/03/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-70-2	Calcium	850		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-47-3	Chromium	2.2		ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-48-4	Cobalt	0.91	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-50-8	Copper	0.83	J, Q-2	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-89-6	Iron	90	J, Q-2, Q-5	ug/L	200	11/01/10	11/03/10	CLP ISM01.2 MS
7439-92-1	Lead	0.12	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-95-4	Magnesium	500		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7439-96-5	Manganese	23		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-02-0	Nickel	4.9		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-09-7	Potassium	500	U	ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-23-5	Sodium	3300		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.17	J, Q-2	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-66-6	Zinc	9.6	R, CLP28, Q-5	ug/L	2.0	11/01/10	11/04/10	CLP ISM01.2 MS



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D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

~~Project: 11-0055, Waynesboro City Ldfl~~

~~Contract Lab Case: 40730~~

Sample ID: GW01-1010

Lab ID: C104503-04

MD No: 6513 SENTIN

Station ID: OW05

Matrix: Groundwater

D No:

Date Collected: 10/27/10 11:34

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	27	U, B-4	ug/L	20	11/01/10	11/03/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-38-2	Arsenic	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-39-3	Barium	8.8	J, Q-2	ug/L	10	11/01/10	11/03/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-43-9	Cadmium	0.064	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-70-2	Calcium	2000		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-47-3	Chromium	13		ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-48-4	Cobalt	5.9		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-50-8	Copper	0.58	J, Q-2	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-89-6	Iron	86	J, Q-2, Q-5	ug/L	200	11/01/10	11/03/10	CLP ISM01.2 MS
7439-92-1	Lead	0.16	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-95-4	Magnesium	760		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7439-96-5	Manganese	6.2		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-02-0	Nickel	10		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-09-7	Potassium	700		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-22-4	Silver	0.19	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-23-5	Sodium	2600		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.19	J, Q-2	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-66-6	Zinc	18	R, CLP28, Q-5, QM-4	ug/L	2.0	11/01/10	11/04/10	CLP ISM01.2 MS



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Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: GW01-1010

Lab ID: C104503-05

MD No: 6514 SENTIN

Station ID: QW06

Matrix: Groundwater

D No:

Date Collected: 10/26/10 14:53

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	20	U	ug/L	20	11/01/10	11/03/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-38-2	Arsenic	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-39-3	Barium	47		ug/L	10	11/01/10	11/03/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-70-2	Calcium	48000		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-47-3	Chromium	1.3	J, Q-2	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-48-4	Cobalt	1.3		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-50-8	Copper	2.0	U	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-89-6	Iron	210	J, Q-5	ug/L	200	11/01/10	11/03/10	CLP ISM01.2 MS
7439-92-1	Lead	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-95-4	Magnesium	14000		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7439-96-5	Manganese	110		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.8		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-09-7	Potassium	1300		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-22-4	Silver	1.8		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-23-5	Sodium	2200		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-62-2	Vanadium	5.0	U	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-66-6	Zinc	6.6	R, CLP28, Q-5	ug/L	2.0	11/01/10	11/04/10	CLP ISM01.2 MS



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Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

~~Project: 11-0055, Waynesboro City Ldfl~~

~~Contract Lab Case: 40730~~

Sample ID: GW01-1010

Lab ID: C104503-06

MD No: 6515 SENTIN

Station ID: OW07

Matrix: Groundwater

D No:

Date Collected: 10/27/10 14:33

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	3200		ug/L	20	11/01/10	11/03/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-38-2	Arsenic	1.1	U, B-4	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-39-3	Barium	34		ug/L	10	11/01/10	11/03/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-70-2	Calcium	2800		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-47-3	Chromium	34		ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-48-4	Cobalt	63		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-50-8	Copper	30		ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-89-6	Iron	1900	J, Q-5	ug/L	200	11/01/10	11/03/10	CLP ISM01.2 MS
7439-92-1	Lead	3.7		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-95-4	Magnesium	2500		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7439-96-5	Manganese	920		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-02-0	Nickel	72		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-09-7	Potassium	810		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-22-4	Silver	0.83	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-23-5	Sodium	4900		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-62-2	Vanadium	5.8		ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-66-6	Zinc	130	R, CLP28, Q-5	ug/L	2.0	11/01/10	11/04/10	CLP ISM01.2 MS



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D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: GW01-1010

Lab ID: C104503-07

MD No: 6529 SENTIN

Station ID: OW25

Matrix: Groundwater

D No:

Date Collected: 10/28/10 10:29

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	20	U	ug/L	20	11/01/10	11/03/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-38-2	Arsenic	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-39-3	Barium	3.2	J, Q-2	ug/L	10	11/01/10	11/03/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-70-2	Calcium	21000		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-47-3	Chromium	2.0	U	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-48-4	Cobalt	0.029	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-50-8	Copper	3.4		ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-89-6	Iron	5.9	J, Q-2, Q-5	ug/L	200	11/01/10	11/03/10	CLP ISM01.2 MS
7439-92-1	Lead	0.96	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-95-4	Magnesium	8700		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7439-96-5	Manganese	4.4		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-02-0	Nickel	0.36	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-09-7	Potassium	1400		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-23-5	Sodium	26000		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-62-2	Vanadium	5.0	U	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-66-6	Zinc	14	R, CLP28, Q-5	ug/L	2.0	11/01/10	11/04/10	CLP ISM01.2 MS



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 Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract Lab Case: 40730

Sample ID: GW01-1010

Lab ID: C104503-09

MD No: 6533 SENTIN

Station ID: OW29

Matrix: Groundwater

D No:

Date Collected: 10/28/10 11:45

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	20	U	ug/L	20	11/01/10	11/03/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-38-2	Arsenic	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-39-3	Barium	25		ug/L	10	11/01/10	11/03/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-43-9	Cadmium	0.39	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-70-2	Calcium	53000		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.12	J, Q-2	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-48-4	Cobalt	0.080	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-50-8	Copper	30		ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-89-6	Iron	61	J, Q-2, Q-5	ug/L	200	11/01/10	11/03/10	CLP ISM01.2 MS
7439-92-1	Lead	4.0		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-95-4	Magnesium	3200		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7439-96-5	Manganese	2.0		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.2		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-09-7	Potassium	1700		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-23-5	Sodium	2400		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.35	J, Q-2	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-66-6	Zinc	130	R, Q-5, CLP28	ug/L	2.0	11/01/10	11/04/10	CLP ISM01.2 MS



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division

980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 11-0045

Project: 11-0055, Waynesboro City Ldfl - Reported by Denise Goddard

Total Metals

Project: 11-0055, Waynesboro City Ldfl

Contract-Lab-Case: 40730

Sample ID: GW01-1010

Lab ID: C104503-08

MD No: 6532 SENTIN

Station ID: QW28

Matrix: Groundwater

D No:

Date Collected: 10/28/10 12:21

CAS Number	Analyte	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
7439-97-6	Mercury	0.20	U	ug/L	0.20	11/05/10	11/05/10	CLP ISM01.2 CV
7429-90-5	Aluminum	20	U	ug/L	20	11/01/10	11/03/10	CLP ISM01.2 MS
7440-36-0	Antimony	2.0	U	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-38-2	Arsenic	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-39-3	Barium	20		ug/L	10	11/01/10	11/03/10	CLP ISM01.2 MS
7440-41-7	Beryllium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-43-9	Cadmium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-70-2	Calcium	63000		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-47-3	Chromium	0.091	J, Q-2	ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-48-4	Cobalt	0.082	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-50-8	Copper	5.0		ug/L	2.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-89-6	Iron	23	J, Q-2, Q-5	ug/L	200	11/01/10	11/03/10	CLP ISM01.2 MS
7439-92-1	Lead	0.25	J, Q-2	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7439-95-4	Magnesium	5700		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7439-96-5	Manganese	2.4		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-02-0	Nickel	1.3		ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-09-7	Potassium	1700		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7782-49-2	Selenium	5.0	U	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-22-4	Silver	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-23-5	Sodium	2800		ug/L	500	11/01/10	11/03/10	CLP ISM01.2 MS
7440-28-0	Thallium	1.0	U	ug/L	1.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-62-2	Vanadium	0.37	J, Q-2	ug/L	5.0	11/01/10	11/03/10	CLP ISM01.2 MS
7440-66-6	Zinc	27	R, CLP28, Q-5	ug/L	2.0	11/01/10	11/04/10	CLP ISM01.2 MS