Triad Engineering, Inc.

SITE INSPECTION REASSESSMENT
FINAL REPORT

Brooke County Glass Dump

Wellsburg, Brooke County, West Virginia
CERCLIS (WV0002456275)

TRIAD Project 01-05-0210

Submitted to:

West Virginia Department of Environmental Protection
Office of Environmental Remediation
601 57th Street
Charleston, West Virginia 25304

Submitted by:

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May 29, 2007

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May 29, 2007

Ms. Pamela Hayes
Office of Environmental Remediation
West Virginia Department of Environmental Protection
601 57th Street, SE
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SUBJECT: ***SITE INSPECTION REASSESSMENT FINAL REPORT***
Brooke County Glass Dump CERCLIS Site
TRIAD Project No. 01-05-0210

Dear Ms. Hayes,

TRIAD ENGINEERING, INC. is pleased to submit the *Final Report* for the *Site Inspection Reassessment* of the Brooke County Glass Dump CERCLIS Site, prepared under Task 4 of the approved Work Plan.

If you have any questions or desire additional information, please feel free to contact us.

Sincerely,
TRIAD ENGINEERING, INC.

Lydia M. Work, LRS
Environmental Services Manager/Senior Chemist

Gary M. Hilgar, PG, LRS
Senior Environmental Scientist

attachment

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ACRONYM GLOSSARY

Bgs	Below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CFS	cubic feet per second
CLP	Contract Laboratory Program
COC	Contaminant of Concern
COPC	Contaminant of Potential Concern
CRDL	contract required detection limit
DQO	Data Quality Objective
DWM	Division of Waste Management
EDR	Environmental Data Resources, Inc.
FSP	Field Sampling Plan
HASP	Health and Safety Plan
HRS	Hazard Ranking System
MS/DUP	Inorganic Matrix Spike/Matrix Duplicate
msl	mean seal level
NOV	Notice of Violation
OER	Office of Environmental Remediation
OWM	Office of Waste Management
PA	Preliminary Assessment
POLREP	Pollution Report
RBC	Risk-Based Concentration
PRP	Potentially responsible party
QAPP	Quality Assurance Project Plan
QC	Quality Control
RAS	Routine Analytical Services

ACRONYM GLOSSARY

RCRA	Resource Conservation and Recovery Act
SAP	Sampling and Analysis Plan
SARA	Superfund Amendments and Reauthorization Act
SATA	Site Assessment Technical Assistance
SDWIS	Safe Drinking Water Information System
SIR	Site Inspection Reassessment
SOW	Statement of Work
TAL	Target Analyte List
TCLP	Toxicity Characteristics Leaching Procedure
TDL	Target distance limit
TRIAD	TRIAD ENGINEERING, INC.
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WVDEP	West Virginia Department of Environmental Protection
WVDNR	West Virginia Department of Natural Resources
WVGIS	West Virginia Geographic Information System

1.0 INTRODUCTION

TRIAD ENGINEERING, INC. (TRIAD) has prepared this *Site Inspection Reassessment Report* for the United States Environmental Protection Agency, Region III (USEPA) and the West Virginia Department of Environmental Protection (WVDEP), Office of Environmental Remediation (OER). This report has been prepared under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) under a Pre-Remedial Cooperative Agreement between the USEPA and the WVDEP.

The Brooke County Glass Dump CERCLIS Site (the Site) has Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) site designation WV0002456275. The Brooke County Glass Dump Site is also referred to as the Diserio (sometimes spelled Deserio) Landfill, Brooke Glass Cullet Pile, and the Washington Pike Glass Dump.

Environmental contamination at the Site is due to historical cullet (waste glass) disposal at the Site with potential impacts to soil, surface water, and groundwater. The USEPA and WVDEP, OER determined a Site Inspection Reassessment (SIR) was warranted to assess potential risk associated with the Site and determine if the Site should undergo further action under CERCLA. This *SIR Report* has been prepared under Tasks 3 of the approved Work Plan, WVDEP, OER Contract DEP12773.

Based on available WVDEP project files, there is currently no regulatory oversight at the property. The last inspection, performed by the WVDEP, Office of Waste Management (OWM), occurred in 2000.

Prior to preparing this *SIR Report*, TRIAD performed various work tasks relative to the Brooke County Glass Dump CERCLIS Site, including preparing the following deliverables for the USEPA and WVDEP, OER:

- *Conflict of Interest* disclosure as per the requirements of 40 CFR Part 35.6550 (Subpart O), submitted August 22, 2003 under contract number DEP12773.
- *Sampling and Analysis Plan* (*SAP*), which included a *Field Sampling Plan* (*FSP*), *Quality Assurance Project Plan* (*QAPP*), and *Health and Safety Plan* (*HASP*) submitted September 5, 2006 under contract number DEP12773.
- *Field Sampling Report* at the conclusion of the field investigations, submitted May 3, 2007 under contract number DEP12773.

In addition to these deliverables, OER requested that TRIAD perform a preliminary screening level risk assessment to assess potential risk associated with the Brooke County Glass Dump CERCLIS Site. This "preliminary" screening-level assessment includes the following work tasks:

- Identifying contaminants of potential concern (COPCs) and then selecting contaminants of concern (COCs).
- Identifying areas of potential environmental concern, contaminant migration pathways, exposure pathways, and potential human health and ecological receptors.
- Preparing this *SIR Report* which includes performing a preliminary Hazard Ranking System (HRS) evaluation using the USEPA QuickScore computer model, and providing recommendations.

2.0 SITE DESCRIPTION AND HISTORY

2.1 Site Location

The Brooke County Glass Dump CERCLIS Site is located in Brooke County, West Virginia approximately 1.5-miles east of the city of Wellsburg, West Virginia and is adjacent to mailing address 560-D Washington Pike (State Route 27). The Site location is depicted on the *Steubenville East-W. Va.* 7.5-minute United States Geological Survey (USGS) topographic quadrangle map, revised in 1981, and is presented below in **Figure 1, *Site Location Map***. Coordinates for the Site are 40°16'5" north latitude and 80°35'18" west longitude.

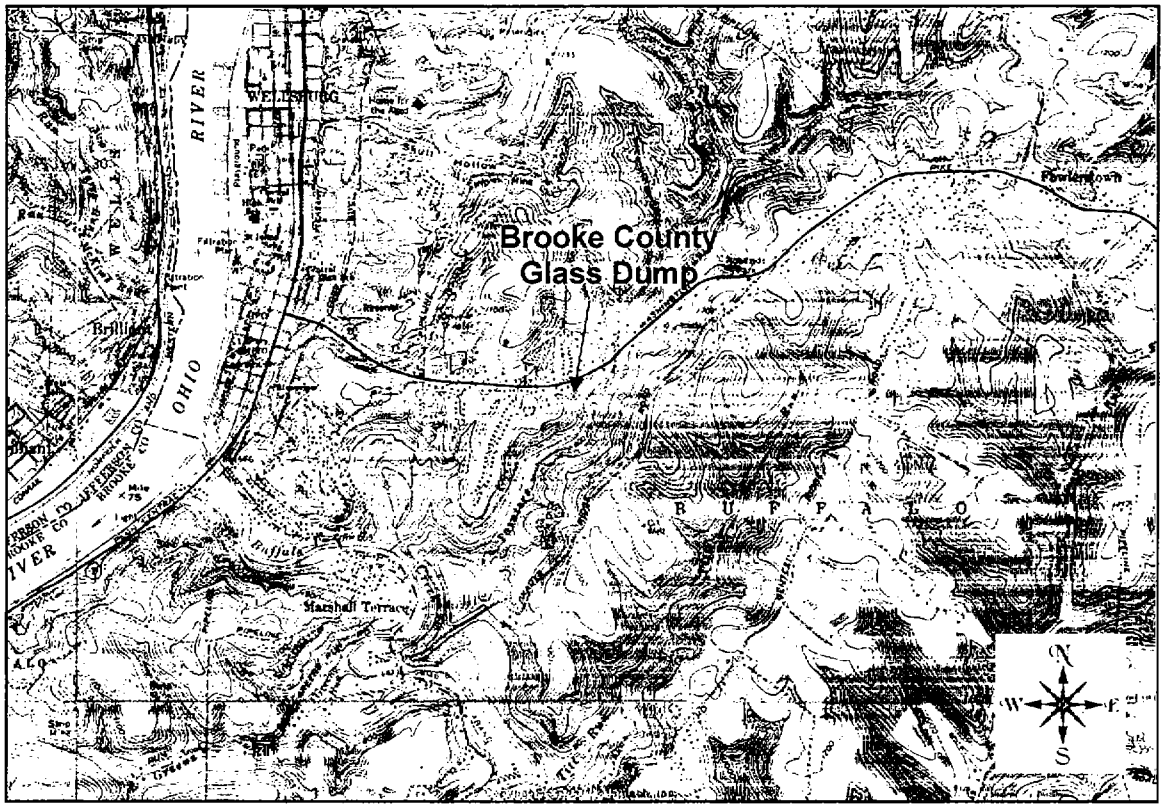


Figure 1. Site Location Map, USGS 1981

2.2 Site Description

The Site property is 5.42 acres and is currently owned by Mary Diserio Call and

Anna Diserio Dick. There are no improvements on the property. The Brooke County Glass Dump CERCLIS Site is accessed from State Route 27 (Washington Pike) using an unpaved access road. The unpaved access road travels approximately 300-feet from State Route 27 (Washington Pike) to the western edge of the Site.

The hillside from the top of the Site to the bottom is extremely steep with an approximate slope of 30 to 50 degrees to the south/southeast. Access of the hillside and bottom of the Site is very difficult due to the steep hillside gradient. Painter's Run, a tributary of Buffalo Creek and subsequently the Ohio River, flows along the base of the cullet pile from east to west. The areas to the east and west of the Site are also steeply sloping and moderately vegetated and wooded.

The Site is dominated by a glass cullet pile approximately 125 feet wide and 500 feet long. Access to the Site is unrestricted. A residence is located approximately 150 feet west of the Site. A family of four (two adults and two children) live in the residence. There was evidence of the children playing in the surface soil near the Site resulting in direct contact with COPCs.

During the 2007 SIR field sampling activities, glass cullet was observed along the slope, along the unpaved site access road, as well as in the residential yard of the adjoining residence. Glass cullet was not observed in Painter's Run or on the opposite side of the stream along the bank as reported in previous investigations. The glass cullet was most abundant down the slope toward Painter's Run; in some areas at depths greater than two feet. The color of the glass cullet was varied. Empty containers of varying sizes and types were observed on the slope. All containers were visually observed to be empty. Abandoned household appliances and household solid waste were also observed on the slope. No odors or soil staining was observed.

The general site features are depicted on the following page on **Figure 3, General**

Site Features.

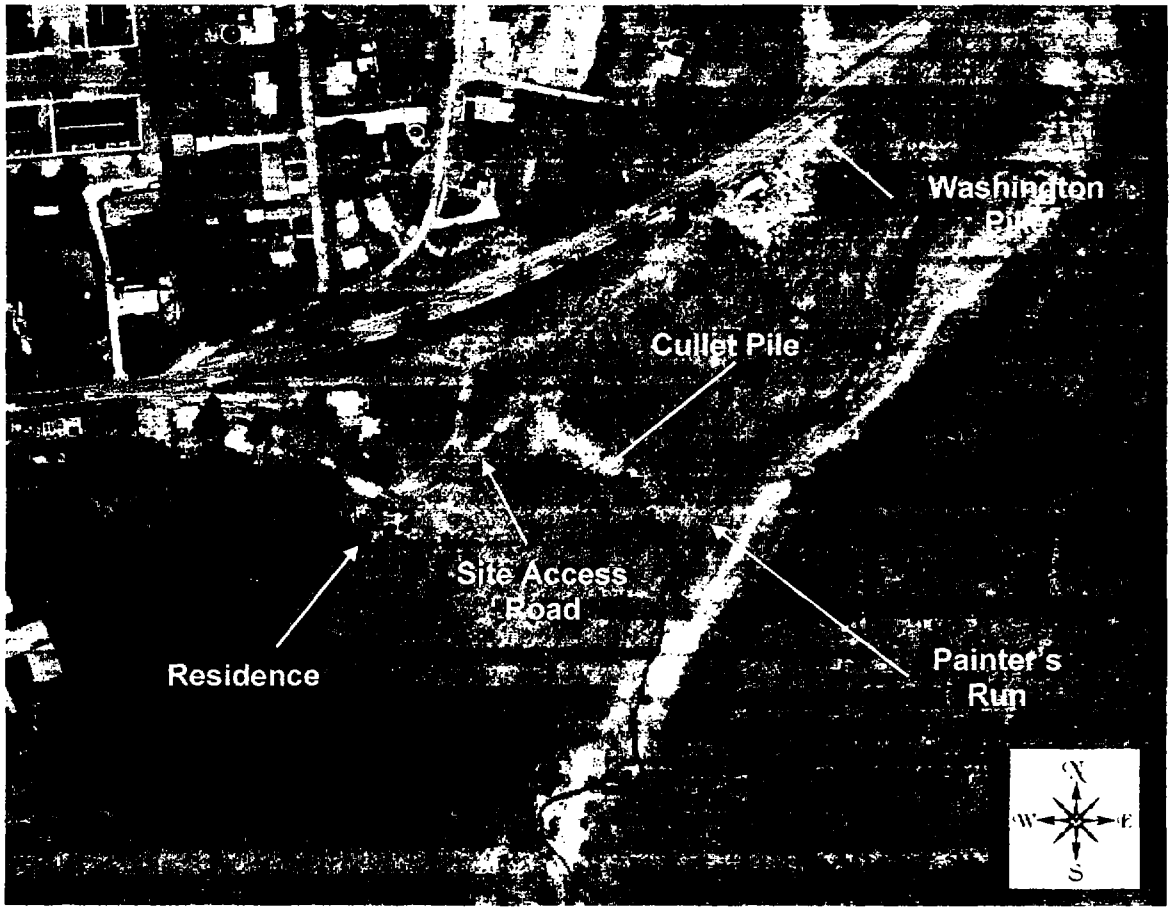


Figure 3. General Site Features (2003 aerial, WVGIS).

2.3 Standard Environmental Records

TRIAD contracted with Environmental Data Resources, Inc. (EDR) to provide both standard and additional environmental records from federal, state, and local databases to obtain information regarding potential recognized environmental conditions within a one mile search distance of the Site. The EDR database report is included in the attached **Appendix 1, *Environmental Data Resources, Inc. Report***.

Eighteen sites were identified in the various databases. However, due to poor or

inadequate address information these "orphan sites" could not be mapped by EDR. Brooke County Glass Dump is listed as an orphan CERCLIS site. In addition there are six registered underground storage tank (UST) sites, two leaking UST (LUST) sites, one CERCLIS NFRAP site, three RCRA small quantity generators, two NPDES dischargers to surface water, and three Facility Index System (FINDS) sites. Based on the given address information and distance from the Site, these additional "orphan sites" do not appear to represent an environmental concern at the Site Property. Due to the rural location of the Site, Sanborn fire insurance mapping and city directories were unavailable for review.

2.4 Uses of Adjoining Properties

Properties that adjoin the Site are as follows:

Adjoining Property Observations

Direction	Boundary Feature	Topographic Relation	Environmental Concerns
North	Unpaved access road, wooded area, and Washington Pike.	Up Gradient	No.
East	Wooded area.	Cross Gradient	No.
South	Painter's Run.	Down Gradient	No.
West	Residential property and wooded area.	Cross Gradient	No.

Adjoining properties are not potential environmental concerns.

There are residential properties adjoining the Site. The closest residence to the Site is approximately 150-feet west of the Site.

2.5 Historical Operational Activities

Glass cullet was disposed at the Site by the Brooke County Glass Company from April 1988 through September 1991. The Brooke County Glass Company contended other local glass companies also used the Site for glass cullet disposal; however, no evidence of this could be substantiated in the WVDEP project file. The Brooke County Glass Company, located at 6th and Yankee Streets, Wellsburg, West Virginia, is no longer operational.

Prior to April 1988, the property was undeveloped woodlands. A review of historical aerial photographs of the area from June 1938 and April 1954 provided evidence that the Site was undeveloped woodlands. Review of an April 1989 aerial photograph clearly depicts a large disturbed area in the same location as the cullet pile.

According to the WVDEP project file, the owner of the property during the glass cullet disposal time frame, John Diserio, gave the Brooke County Glass Company permission to dispose glass cullet on his property. Mr. John Diserio is now deceased and bequeathed the property to his sisters Mary Diserio Call and Anna Diserio Dick. According to Mrs. Anna Diserio Dick, she and her sister were unaware of the disposal activities. They are both elderly (in their 90s) and living on a fixed income and cannot afford any removal activities (TRIAD telephone interview, January 2007).

2.6 Historical Site Investigations

The WVDEP, OER project files indicate environmental investigations were performed at the Site beginning in 1989 and continue through the present. Discussions of the investigatory and sampling activities performed during this time period are summarized in this section in chronological order.

2.6.1 September 1989 – Soil Sampling, WVDNR, DWM

In September 1989, the West Virginia Department of Natural Resources (WVDNR), Division of Waste Management (DWM) conducted a site reconnaissance and soil sampling investigation at the Brooke County Glass Dump. During the investigation, two surface soil samples were collected. Unfortunately, analytical results were not available in the project file for review.

2.6.2 May 1995 – Sampling of Cullet Pile, WVDNR, DWM

On May 15, 1995, the WVDNR, DWM, conducted a site reconnaissance and sampling investigation at the Brooke County Glass Dump. During the investigation, two composite samples of cullet were collected. One sample represented the top (north) of the cullet pile; the other sample represented the bottom (south) of the cullet pile. The samples were analyzed for Toxicity Characteristics Leaching Procedure (TCLP) arsenic, cadmium, selenium, and lead. The data are summarized in the table below:

COPC	Regulatory Limit (mg/L) as of June 2001	Top of Pile Result (mg/L)	Bottom of Pile Result (mg/L)
TCLP Arsenic	5.0	1.78	**669**
TCLP Cadmium	1.0	**1.73**	**650**
TCLP Selenium	1.0	0.08	**4.52**
TCLP Lead	5.0	1.42	1.62

Based on the TCLP results, it was determined the Brooke County Glass Company had disposed of hazardous waste at the Site without a permit. A Notice of Violation (NOV) was issued to the Brooke County Glass Company on May 15, 1995 requiring remedial action.

2.6.3 June 1996 – Sampling and Analysis Results, Brooke County Glass Company

In response to the NOV, the Brooke County Glass Company performed a preliminary characterization study on June 10, 1996. During the preliminary characterization, 28 soil samples (14 surface soil samples and 14 at a depth of 18 inches) and two surface water samples from Painter's Run were collected. The samples were analyzed for TCLP arsenic, cadmium, and selenium. The data are summarized in the table below:

COPC	Regulatory Limit (mg/L) as of June 2001	Surface Soil Maximum Conc. (mg/L)	Soil @ 18" bgs Maximum Conc. (mg/L)	Surface Water Painter's Run (mg/L)
TCLP Arsenic	5.0	**5.75**	0.99	ND
TCLP Cadmium	1.0	**32.9**	**17.0**	ND
TCLP Selenium	1.0	ND	ND	ND

ND = Not detected at a concentration above the laboratory reporting limit.

Hazardous waste was determined to be present throughout the cullet pile and not segregated to one area. The Brooke County Glass Company denied any legal responsibility for the remediation, contending that the Site was an open dump and disposal activities had occurred there by other responsible parties.

2.6.4 July 1998 – Preliminary Assessment, USEPA

As documented in Pollution Report #1, The USEPA Site Assessment Technical Assistance (SATA) performed a Preliminary Assessment (PA) at the Site on July 15, 1998. During the PA, radiation levels were monitored due to the presence of "Vaseline" glass, or glass produced with uranium oxide as

a coloring agent. No radiation levels above background were measured. In addition, 18 surface soil samples, three sediment samples from within the bed of Painter's Run, and three surface water samples from Painter's Run were collected. The samples were analyzed for TCLP and total target analyte list (TAL) metals. Unfortunately, analytical results were not available in the project files for review; however, a *Preliminary Assessment Report* (USEPA, January 30, 2004) summarized the data as follows:

COPC	Action Level, Industrial Soil RBC (mg/Kg)	Surface Soil Maximum Conc. (mg/Kg)	Sediment Painter's Run	Surface Water Painter's Run
Arsenic	13 *	**1110**	**>3X Background, HRS Observed Release**	Not reported
Cadmium	511	**1930**	**>3X Background, HRS Observed Release**	Not reported
Lead	400	**1170**	<3X Background	Not reported
Selenium	5110	534	**>3X Background, HRS Observed Release**	Not reported

* Natural background concentration used in place of RBC. Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.

2.6.5 March 2000 – Glass Cullet Sampling, WVDEP, OWM

The WVDEP, Office of Waste Management (OWM), conducted a glass cullet sampling investigation at the Brooke County Glass Dump on March 27, 2000. During the investigation, four composite samples of cullet were collected. One sample represented the top (north) end of the cullet pile; one the "middle

upper" portion of the cullet pile, one the "middle lower" portion of the cullet pile, and the remaining sample represented the bottom (south) end of the cullet pile. The samples were analyzed for TCLP arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver. The data are summarized in the table below:

COPC	Regulatory Limit (mg/L) as of June 2001	Top (mg/L)	Middle Upper (mg/L)	Middle Lower (mg/L)	Bottom (mg/L)
TCLP Arsenic	5.0	0.75	ND	0.67	ND
TCLP Barium	100.0	0.36	0.51	0.79	0.61
TCLP Cadmium	1.0	0.14	0.59	0.37	**7.94**
TCLP Chromium	5.0	ND	ND	ND	ND
TCLP Lead	5.0	1.27	ND	**8.33**	4.12
TCLP Mercury	0.2	ND	ND	ND	ND
TCLP Selenium	1.0	ND	ND	ND	ND
TCLP Silver	5.0	ND	ND	ND	ND

Based on the TCLP results, it was determined by the WVDEP, OWM that non-hazardous waste cullet could be segregated and removed from the Site without disturbing the identified hazardous waste located within the middle lower and bottom areas of the cullet pile.

2.7 Areas of Potential Environmental Concern

Based on the previous investigations performed at the Site and the site reconnaissance performed by the WVDEP and TRIAD on March 29, 2006, areas of potential environmental concern (AOPCs) included the following:

- Cullet pile,

- Adjacent residence,
- Painter's Run, and
- City of Wellsburg public drinking water supply (source: groundwater) located within a four mile radius of the Site.

2.8 Potentially Responsible Parties

The following have been identified as potentially responsible parties (PRPs) for the contamination at the Site.

- John Diserio, former owner, now deceased.

- Mary Diserio Call and Anna Diserio Dick, current owners who inherited property from decedent John Diserio.

  Mailing Address:
  965 Washington Pike
  Wellsburg, West Virginia 26070

- Brooke County Glass Company, no longer operational

  Former Contact Information:
  David W. Rithner, Vice President
  Sixth and Yankee Streets
  Post Office Box 109
  Wellsburg, West Virginia 26070

3.0 ENVIRONMENTAL SETTING

3.1 Topography

The topography of the Site consists of a very steep grade to the south/southeast toward Painter's Run. The estimated slope is 30 to 50 degrees along the glass cullet portion of the Site. The change in elevation was measured to be approximately 175 feet from top to toe of slope. Elevation at the unpaved access road was measured to be 935 feet mean sea level (msl) and 760 feet msl at Painter's Run.

The following map, provided by WVGIS, depicts the site topography in shaded relief.

Figure 4. Site Topography, WVGIS

3.2 Climate

Climate information for Brooke County, West Virginia is available at the World

Climate web-site (www.worldclimate.com). Temperatures in the summer months range from 79.0 to 82.6 degrees Fahrenheit and range from 34.7 to 39.2 degrees Fahrenheit in the winter months. The average rainfall is 37-inches a year. The average monthly rainfall ranges from 2.2-inches to 3.9-inches per month.

3.3 Demographics

Population information was based on data obtained from the U.S. Census Bureau LandView® 5 version 1.0 Custom Census CD. The population information is based on the year 2000 census and is summarized as follows:

Radial Distance from Site	Estimated Population
4 miles	11,723
3 miles	7,262
2 miles	6,074
1 mile	576
0.75 mile	398
0.50 mile	146
0.25 mile	125
0.10 mile	4

3.4 Soil Exposure Pathway

According to the *Soil Survey of Brooke, Hancock, and Ohio Counties, West Virginia*, the Site soils are of the Westmoreland association. The Westmoreland are silt loam, deep, moderately well drained soils on 40-55 degree foot slopes. Due to the slope, erosion is severe. Depth to bedrock is shallow and rock outcroppings are visible at the Site near Painter's Run. Along the cullet pile, depth to soil (or depth of cullet) is estimated to be six to > 24 inches, depending on location.

The majority of the Site is covered by glass cullet. The outer perimeter of the Site is sporadically covered with glass. There is no cover on the glass cullet areas of the Site and there is minimal vegetative cover on the outer perimeter of the Site.

Individuals exposed to site soils within the cullet pile would be limited to the occasional visitor or trespasser. Access to the Site is unrestricted and there is evidence of routine trespassers at the Site. The closest nearby resident individual is approximately 150 feet west of the Site. Two adults and two children live in the residence adjacent to the Site and there is evidence the children play along the unpaved site access road. As discussed previously, there is visible evidence of cullet within the bed of the unpaved access road as well as in the resident's yard. Based on the family's proximity to the Site and the visible evidence of cullet on their property, they qualify as HRS resident individuals.

3.5 Groundwater Migration Pathway

The Brooke County Glass Dump is located in the Pennsylvanian system's geologic formation Conemaugh series (*White, I.C., 1906, Map of Brooke County Showing the Geologic Formations, West Virginia Geological Survey, West Virginia, 1906*). The strata of the Pennsylvanian system consist of interbedded sandstones, siltstones, clays, shales, thin marine limestones, thick fresh-water limestones, marly shales, and coals. These strata are generally grouped in cyclic units. The strata are subject to erosion and downcutting streams which usually develop where edges of more or less resistant strata are crossed. One such intermittent stream, whose origin is a groundwater seep, is present northeast of the Site. Two groundwater seeps were observed at the Site along rock outcroppings near Painter's Run.

The City of Wellsburg, located 1.5 miles west and down gradient of the Site, occupies what is known as the Wellsburg Bottom. The normal pool-stage elevation of the Ohio River at the Wellsburg Bottom is 633 feet msl. Buffalo Creek, the recipient of Painter's Run, flows into the Ohio River at the southern end of the

bottom. The base of the alluvium in the central part of the Wellsburg Bottom is approximately 576 feet msl. The fill in the alluvium consists largely of gravel and sand (*Carlston, Charles W., and Graeff, George D. Jr., 1955, Geology, Economic, and Ground-Water Resources of the Ohio River Valley in West Virginia, West Virginia Geological and Economic Survey, Morgantown, West Virginia, June 30, 1955*).

The City of Wellsburg is supplied with drinking water from four groundwater wells in the Wellsburg Bottom alluvium, which yield an average of 850,000 gallons per day. These wells were drilled in 1941 and are at a depth of 80 to 81 feet below ground surface (bgs). They are located approximately seven blocks north of the former Brooke Glass Company and are within the HRS groundwater target distance limit (TDL) of four-miles of the Site. The City of Wellsburg public drinking water wells are within a wellhead protection area that extends 18 blocks from 6th Street to 31st Street in the City of Wellsburg, and from the Ohio River to a distance approximately 0.75 miles east of the Ohio River, where the groundwater flow reportedly changes direction (*Preliminary Assessment Report, USEPA 2004*).

These wells serve a population of approximately 4,477 residents (*USEPA Safe Drinking Water Information System [SDWIS]*). There are no other groundwater users within the HRS groundwater TDL of the Brooke County Glass Dump Site.

Contact with the City of Wellsburg Water Department was made regarding the results of analytical testing as required by all public water suppliers. The City of Wellsburg reported that in 2005, the drinking water supply met all federal and state water standards. A copy of the report supplied by the City of Wellsburg Water Department is provided as **Appendix 2, *City of Wellsburg Annual Drinking Water Quality Report 2005***.

The slope of the groundwater at the Site generally mimics the slope of the land surface. Due to the steep site topography and visible evidence of groundwater

seeps, Painter's Run acts as a hydrologic barrier to potential groundwater users down gradient of the Site. The complete pathway is groundwater to surface water via overland flow. Groundwater at the Site does not migrate off site, but migrates to Painter's Run. As a result, the City of Wellsburg public drinking water wells would not be impacted by contamination from the Site via the groundwater migration pathway.

3.6 Surface Water Pathway

As discussed previously, the Brooke County Glass Dump Site is located northwest and adjacent to Painter's Run, a tributary of Buffalo Creek. Painter's Run discharges to Buffalo Creek approximately 0.75 mile southwest of the Site. Buffalo Creek is a tributary of the Ohio River. It is approximately 1.5 stream miles from the Site to the Ohio River.

Painter's Run, Buffalo Creek, and the Ohio River are designated by the WVDEP as waters of the State for recreational use which includes fishing, boating, and swimming. The Ohio River downstream of the Site, within the HRS surface water TDL of 15 miles, is currently under a fish consumption advisory (*WV Department of Health and Human Resources, http://www.wvdhhr.org/fish/current.asp*).

Painter's Run, Buffalo Creek, and the Ohio River are also designated for use by aquatic life and the potential use as drinking water sources. There is one drinking water intake located on the Ohio River approximately 14 miles downstream of the Site. It is utilized by the City of Wheeling, West Virginia and serves 44,257 individuals (*SDWIS*). According to the USEPA SDWIS, there are four public water systems that purchase their drinking water from the City of Wheeling. These public water supply users are summarized in the table below:

Public Drinking Water Systems – Surface Water Source

Water System Name	Population Served	Location Relative to Site
City of Wheeling	31169	Aprox. 14 mile, downstream
Village of Bethlehem	2628	Purchased from Wheeling
Ohio County PSD	8537	Purchased from Wheeling
Triadelphia Water Dept.	1260	Purchased from Wheeling
Valley Grove Water Dept.	663	Purchased from Wheeling

However, due to the significant dilution that would occur to any COPCs by the Ohio River, it is unlikely that there is a measurable impact to the municipal water source intake along the Ohio River downstream of the Site. According to the USGS, the mean flow of the Ohio River at St. Marys, West Virginia, 55 miles southwest of Moundsville, is approximately 50,000 cubic feet per second (CFS). The estimated mean flow of Painter's Run is less than 10 CFS.

The Site is located in an area of minimal flooding and is considered outside a 500 year flood plain (*Federal Emergency Management Agency, 1983, Flood Insurance Rate Maps, Brooke County, West Virginia, December 15, 1983, Panel No. 540011 0045 B*).

3.7 Air Pathway

The majority of the Site is covered with glass cullet. There is thin vegetation covering the perimeter of the Site, with few trees. During the March 2007 SIR field sampling, dust was not observed on the Site during sample collection. This is primarily due to the large particle size of the cullet and the moisture content of the soil. However, the lack of any cover of the glass cullet on the Site presents a potential threat of release of contaminant particulate matter into the air.

3.8 Sensitive Environments

Based on information obtained from the U.S. Fish and Wildlife Service (USFWS), National Wetland Inventory (NWI) website, there are no known critical environments, wetlands, or endangered species within a one mile radius of the Site.

4.0 CURRENT SITE INVESTIGATIONS

Under Task 2 of the approved Work Plan, TRIAD performed field sampling activities at the Brooke County Glass Dump CERCLIS Site on March 26 through March 27, 2007. During the sampling event, 21 soil, four sediment, four surface water, and three groundwater samples were collected. The locations of these samples are depicted on **Figure 2, *Sample Location Map***.

The objective of the site investigation activities was to generate data of sufficient quality and quantity so that the following could be achieved:

- Preliminary Hazard Ranking System (HRS) site score can be calculated for the Site;
- Determine if any human health and ecological exposure pathways are complete; and
- Provide recommendations to the WVDEP and USEPA as to whether further action is required at the Site.

4.1 Surface Soil Sampling

TRIAD collected 21 surface soil samples (0 - 6 inches bgs) from the following locations:

SAMPLE ID	CLP ID	LOCATION
SS1	MC2116	adjacent residence near front porch
SS2	MC2127	adjacent residence child's play area and picnic table
SS3	MC2130	adjacent residence east facing basement door
SS4	MC2131	access road to cullet pile
SS5	MC2132	access road to cullet pile
SS6	MC2133	access road to cullet pile

SS7	MC2134	collected within cullet pile
SS8	MC2135	collected within cullet pile
SS9	MC2136	collected within cullet pile
SS10	MC2117	collected within cullet pile
SS11	MC2118	collected within cullet pile
SS12	MC2119	collected within cullet pile
SS13	MC2120	collected within cullet pile
SS14	MC2121	collected within cullet pile
SS15	MC2122	collected within cullet pile
SS16	MC2123	collected within cullet pile
SS17	MC2124	collected within cullet pile
SS18	MC2125	collected within cullet pile
SS19	MC2126	collected within cullet pile
SS20	MC2128	Background Sample
SS21	MC2129	Field Duplicate of SS17

Glass cullet was observed in the surface soil at the residence, along the unpaved access road, and down the slope to Painter's Run. There was evidence of the children playing in the surface soil. The color of the glass cullet was varied.

The glass cullet was most abundant down the slope toward Painter's Run; in some areas at depths greater than two feet. In these locations, the glass cullet was excavated by the sampling personnel until surface soil was encountered prior to surface soil sample collection.

Glass cullet was not observed in the bed of Painter's Run or along its banks. Empty containers of varying sizes and types were observed on the slope. Abandoned household appliances and household solid waste were also observed on the slope. No odor or soil staining was observed. Vegetation was sparse.

TRIAD also utilized X-Ray Florescence (XRF) technology by INNOV-X Systems, Inc. to field screen metals concentrations in-situ at each of the surface soil locations. TRIAD complied with *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846*; Method 6200, *Field Portable X-Ray Fluorescence Spectrometry for the Determination of Elemental Concentrations in Soil and Sediment.* Method 6200 is a field-screening method to be used with confirmatory analysis using USEPA approved laboratory methods.

4.2 Surface Water Sediment Sampling

TRIAD collected four surface water sediment samples (surficial 0-2 inches bgs) from the following locations:

SAMPLE ID	CLP ID	LOCATION
SED1	MC2108	Upstream (background) of Painter's Run
SED2	MC2109	Midstream of Painter's Run below cullet pile
SED3	MC2110	Downstream of Painter's Run
SED4	MC2111	Field Duplicate of SED2

Sediment sample locations were collected along the north bank closest to the cullet pile. No cullet was observed in Painter's Run or in the sediment samples collected.

TRIAD also utilized XRF technology to field screen metals concentrations in-situ at each of the sediment locations.

4.3 Surface Water Sampling

TRIAD collected four surface water samples from the following locations:

SAMPLE ID	CLP ID	LOCATION
SW1	MC2112	Upstream (background) of Painter's Run
SW2	MC2113	Midstream of Painter's Run below cullet pile
SW3	MC2114	Downstream of Painter's Run
SW4	MC2115	Field Duplicate of SW2

Painter's Run was observed to be in median flow condition with no visible turbidity. Painter's Run flows east to west toward the Buffalo Creek located approximately 0.75 miles downstream of the Site. No cullet was observed in Painter's Run. There was no visible evidence that Painter's Run is used for public drinking water purposes.

4.4 Groundwater Sampling

TRIAD collected three groundwater samples from the following locations:

SAMPLE ID	CLP ID	LOCATION
GW1	MC2101	Spring down gradient of cullet near Painter's Run
GW2	MC2102	Spring down gradient of cullet near Painter's Run
GW3	MC2103	Spring background sample, northeast of site

Groundwater seeps were observed at three locations. One seep was observed and collected at an area upgradient of the cullet pile, northeast of the Site. This sample, GW3, was collected as a background sample. Two seeps were observed down gradient of the cullet pile but upgradient of Painter's Run within rock outcroppings. They were collected as GW1 and GW2. Groundwater collected from the seeps was clear with very low turbidity.

Based on the observed seeps and site topography, it was determined the groundwater pathway was incomplete. Groundwater at the Site is directly connected to Painter's Run. Therefore, Painter's Run is an aquifer discontinuity to groundwater users down gradient of the Site.

4.5 Quality Control Samples

TRIAD also procured quality control (QC) samples during the investigation to assess sampling precision, effectiveness of decontamination procedures, sample temperature preservation, any evidence of sample cross-contamination, and matrix effect of each media as applicable. The following QC samples were obtained:

- Field duplicates
- Matrix spikes and matrix duplicates (MS/DUP)

Summaries of the field duplicates are provided in **Table 4A, *Field Duplicate Summary of Soil***; **Table 4B, *Field Duplicate Summary of Sediment***; and **Table 4C, *Field Duplicate Summary of Surface Water***. The Field Duplicate samples met the data quality objectives (DQO's) of the site specific *Sampling and Analysis Plan* for sediment and surface water; however the DQO was not met for the field duplicate in soil.

It is the technical opinion of the data reviewer the unacceptable precision in surface soil concentrations are most likely due to sample non-homogeneity. This is further substantiated by the laboratory matrix duplicates also exceeding the DQO for precision.

5.0 ANALYTICAL RESULTS

5.1 Analytical Scope

Data obtained during SIR activities may be used for a range of purposes by USEPA and the WVDEP. Therefore, based on available historical information and consultation with the WVDEP Project Manager and USEPA Region III Site Assessment Officer, data collected were analyzed for:

- Target Analyte List (TAL) Metals

5.2 Analytical Procedures

It was recommended and approved that the laboratory selection and analysis be managed by the USEPA Region 3 client services team. The metals fractions were analyzed and reported via the ILM05.3 USEPA Routine Analytical Services (RAS) Contract laboratory Program (CLP) current Statement of Work (SOW).

5.3 Data Reported

The USEPA Region 3 client services team provided the analytical results in both text and spreadsheet form. Data Summary Forms of the analytical data reported are presented in **Appendix 3, *CLP Analytical Results***. The data are reported according to individual sample delivery groups (SDGs):

- SDG MC2101,
- SDG MC2108, and
- SDG MC2120.

5.4 Data Validation Process

As per the approved Work Plan and as authorized by the USEPA Region 3, Site Assessment Manager, the analytical results underwent data validation. The CLP data was validated by USEPA Region 3 according to the following data validation levels *Understanding Region III Data Validation* (February 25, 2000):

- Inorganic review procedures IM-1

The data validation reports are provided along with the laboratory analytical data in **Appendix 3, *CLP Analytical Results***.

6.0 SELECTION OF CONTAMINANTS OF CONCERN

TRIAD has reviewed the laboratory analytical data for the 2007 SIR investigation in order to identify and select contaminants of concern (COCs) at the Site. A COPC is defined as any individual compound or analyte that was analyzed under the most recent site assessment activities. COCs were selected based on criteria in the USEPA *Risk Assessment Guidance for Superfund (RAGS), Volume 1, Human Health Evaluation Manual (Part A), Interim Final.* To be selected as a COC, a compound or analyte had to be:

- detected at least once at a concentration greater than the contract required detection limit (CRDL) and
- detected at a concentration greater than the applicable action level concentration to which it is compared.

In addition, soil inorganic results had to be detected at a concentration greater than their published maximum background concentration for soil in West Virginia, as published in the *West Virginia VRRDA Guidance Manual (version 2.1).*

The SIR laboratory analytical data were compared by media to the following USEPA and WVDEP environmental criteria and standards to select COCs:

Surface Soil:

- USEPA Region III, *Residential Soil Ingestion Risk Based Concentrations* (RBCs), April 2007.
- USEPA Region III, *Industrial Soil Ingestion* RBCs, April 2007.
- USEPA OSW Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities (OSWER Directive #9355.4-12 August 1994).
- West Virginia *Voluntary Remediation and Redevelopment Act Guidance Manual* (Version 2.1) Table 2-3 *Natural Background Levels of Inorganics in Soil in West Virginia and Surrounding Areas.*

Sediment:

- USEPA *ECO Update*, Ecotox Thresholds, January 1996, supplement to USEPA *Risk Assessment Guidance for Superfund (RAGS), Volume 1, Environmental Evaluation Manual.*
- USEPA Region 3 *Freshwater Sediment Screening Benchmarks*, August 2006. (http://www.epa.gov/reg3hwmd/risk/eco/btag/sbv/fwsed/screenbench.htm).

Surface Water:

- USEPA *National Recommended Water Quality Criteria*, freshwater CCC (chronic) concentrations or Human Health for the consumption of water + organisms, whichever is most stringent, November 2002.
- USEPA Region 3 Risk Assessment *Freshwater Screening Benchmarks* (http://www.epa.gov/reg3hwmd/risk/eco/btag/sbv/fw/screenbench.htm).

Groundwater:

- USEPA Region III, *Tap Water* RBCs, April 2006.
- USEPA *National Primary Drinking Water Standards*, Winter 2004.
- USEPA *National Secondary Drinking Water Regulations*, Winter 2004.

The occurrence and distribution of COPCs, selection of COCs, and the specific action level risk based concentration or criteria used for comparison purposes are summarized relative to environmental media and area of concern in **Tables 1A through 1E**. The comparison of these data to the applicable environmental action levels and criteria are presented in the following subsections.

6.1 Surface Soil Sample Results - Residential

Surface soil samples collected on the adjacent residential property (SS1, SS2, and SS3) as well as surface soil samples collected along the unpaved site access road

(SS4, SS5, and SS6) were compared to residential soil RBCs due to visual evidence of direct exposure to surface soils by the resident individuals adjacent to the Site.

Arsenic, cadmium, iron, and manganese were detected at concentrations greater than their respective action levels in surface soil. The occurrence, distribution and selection of COPCs, selection of COCs, and the specific action level risk based concentration or criteria used for comparison are summarized in **Table 1A, *Occurrence, Distribution and Selection of COCs – Surface Soil (<2 feet bgs) Residential Exposure***. In addition, the following table summarizes the selected COCs in surface soil by area of concern and maximum concentration:

COCs in Surface Soil (mg/Kg)	Area of Concern	
	Residential Property	Unpaved Access Road
Arsenic	< AL	47.1
Cadmium	< AL	54.1
Iron	25700	26800
Manganese	1720	4050

<AL, detected at a concentration less than the action level.

Based on in-situ analytical data generated by the XRF field screening; arsenic, cadmium, iron, manganese, and mercury were detected at concentrations greater than their respective action levels in surface soil using the XRF. The occurrence, distribution and selection of COPCs, selection of COCs, and the specific action level risk based concentration or criteria used for comparison are summarized in **Table 3A, *Occurrence, Distribution and Selection of COCs – XRF Field Screening Data-Surface Soil (<2 feet bgs) Residential Exposure***. Light elements and minerals such as aluminum, beryllium, calcium, magnesium, potassium, sodium, thallium, and vanadium are not measured by the XRF.

The following table summarizes the selected residential exposure COCs based on

the XRF field screening data:

COCs in Surface Soil (mg/Kg) according to XRF Data	Area of Concern	
	Residential Property	Unpaved Access Road
Arsenic	196	42
Cadmium	115	136
Iron	31043	32307
Manganese	< AL	4392
Mercury	1025	< AL

<AL, detected at a concentration less than the action level.

Deviations in XRF concentrations as compared to those generated by the laboratory could be due to sample interferences (one element wavelength interfering with another when concentrations are elevated) or sample non-homogeneity.

6.2 Surface Soil Sample Results – Non-Residential

Surface soil samples collected on the glass cullet pile (SS7 through SS19) were compared to industrial (non-residential) soil RBCs. There was no visual evidence of direct exposure to surface soils within the cullet pile by resident individuals. Due to the steep topography, it is unlikely the cullet pile is routinely trespassed.

Arsenic, cadmium, lead, and mercury were detected at concentrations greater than their respective action levels in surface soil. The occurrence, distribution and selection of COPCs, selection of COCs, and the specific action level risk based concentration or criteria used for comparison are summarized in **Table 1B, *Occurrence, Distribution and Selection of COCs – Surface Soil (<2 feet bgs) Non-Residential Exposure*.** In addition, the following table summarizes the selected COCs in surface soil by area of concern and concentration:

COCs in Surface Soil (mg/Kg)	Area of Concern within the Cullet Pile			
	Top (north)	Upper-Middle	Lower-Middle	Bottom (south)
Arsenic	330	1010	229	366
Cadmium	1010	4640	1350	8310
Lead	< AL	< AL	3710	763
Mercury	0.71	< AL	< AL	0.79

<AL, detected at a concentration less than the action level.

Based on in-situ analytical data generated by the XRF field screening; antimony, arsenic, cadmium, and lead were detected at concentrations greater than their respective action levels in surface soil using the XRF. The occurrence, distribution and selection of COPCs, selection of COCs, and the specific action level risk based concentration or criteria used for comparison are summarized in **Table 3B, *Occurrence, Distribution and Selection of COCs – XRF Field Screening Data-Surface Soil (<2 feet bgs) Non-Residential Exposure***. Light elements and minerals such as aluminum, beryllium, calcium, magnesium, potassium, sodium, thallium, and vanadium are not measured by the XRF.

The following table summarizes the selected non-residential exposure COCs based on the XRF field screening data:

COCs in Surface Soil (mg/Kg) according to XRF Data	Area of Concern within the Cullet Pile			
	Top (north)	Upper-Middle	Lower-Middle	Bottom (south)
Antimony	788	< AL	< AL	< AL
Arsenic	474	456	61	96
Cadmium	1716	< AL	< AL	1122
Lead	< AL	907	555	< AL

<AL, detected at a concentration less than the action level.

Deviations in XRF concentrations as compared to those generated by the laboratory

could be due to sample interferences or sample non-homogeneity.

6.3 Surface Water Sediment Sample Results

Copper, iron, manganese, nickel, selenium, silver, and zinc were detected at concentrations greater than their respective action levels in the surface water sediment of Painter's Run. The occurrence, distribution and selection of COPCs, selection of COCs, and the specific action level risk based concentration or criteria used for comparison are summarized in **Table 1C, *Occurrence, Distribution and Selection of COCs – Surface Water Sediment.*** In addition, the following table summarizes the selected COCs in surface water sediment by area of concern:

COCs in Sediment (mg/Kg)	Painter's Run	
	Upstream	Downstream
Copper	< AL	40.4
Iron	31900	38300
Manganese	2380	6500
Nickel	44.7	73.8
Selenium	5.5	6.1
Silver	< AL	1.2
Zinc	125	141

<AL, detected at a concentration less than the action level.

Based on in-situ analytical data generated by the XRF field screening; antimony, cadmium, cobalt, copper, iron, manganese, and nickel were detected at concentrations greater than their respective action levels in surface soil using the XRF. The occurrence, distribution and selection of COPCs, selection of COCs, and the specific action level risk based concentration or criteria used for comparison are summarized in **Table 3A, *Occurrence, Distribution and Selection of COCs – XRF Field Screening Data-Sediment.*** Light elements and minerals such as aluminum, beryllium, calcium, magnesium, potassium, sodium, thallium, and vanadium are not

measured by the XRF.

The following table summarizes the selected COCs in sediment based on the XRF field screening data:

COCs in Sediment (mg/Kg) according to XRF Data	Painter's Run	
	Upstream	Downstream
Antimony	< AL	253
Cadmium	< AL	54
Cobalt	395	447
Copper	< AL	34
Iron	27912	24561
Manganese	2750	2915
Nickel	< AL	74

<AL, detected at a concentration less than the action level.

Deviations in XRF concentrations as compared to those generated by the laboratory could be due to sample interferences or sample non-homogeneity.

6.4 Surface Water Sample Results

Aluminum, barium, iron, manganese, and mercury were detected at concentrations greater than their respective action levels in the surface water of Painter's Run. The occurrence, distribution and selection of COPCs, selection of COCs, and the specific action level risk based concentration or criteria used for comparison are summarized in **Table 1D, *Occurrence, Distribution and Selection of COCs – Surface Water.*** In addition, the following table summarizes the selected COCs in surface water by area of concern:

COCs in Surface Water (ug/L)	Painter's Run	
	Upstream	Downstream
Aluminum	281	504
Barium	34.3	34.6
Iron	441	643
Manganese	317	314
Mercury	0.08	0.2

<AL, detected at a concentration less than the action level.

6.5 Groundwater Results

Aluminum was detected at concentrations greater than their respective action levels in the groundwater seeps. The occurrence, distribution and selection of COPCs, selection of COCs, and the specific action level risk based concentration or criteria used for comparison are summarized in **Table 1E, *Occurrence, Distribution and Selection of COCs – Groundwater***. In addition, the following table summarizes the selected COCs in groundwater by area of concern:

COCs in Groundwater (ug/L)	Area of Concern	
	Background	On-Site
Aluminum	198	130

<AL, detected at a concentration less than the action level.

Aluminum is an inorganic regulated according to USEPA National Secondary Drinking Water Regulations, which are "non-enforceable Federal guidelines regarding cosmetic effects (such as tooth or skin discoloration) or aesthetic effects (such as taste, odor, or color)." Therefore, even though aluminum exceeded the action level concentrations, it is non-enforceable and would not appear to pose an actual human health risk.

6.6 Verification of the Conceptual Site Model

Human health potentially complete exposure pathways were identified for incidental ingestion, dermal contact, and inhalations of particulates associated with COCs in soil by resident individuals, trespassers, and/or future construction workers. The human health groundwater and indoor air exposure pathways are incomplete due to the lack of COCs detected in the groundwater.

Based on the Site's proximity to surface water bodies, human health potentially complete exposure pathways may exist for incidental ingestion, dermal contact, and fish consumption with surface water contaminants by recreational visitors and/or anglers via a surface runoff and/or groundwater to surface water migration pathway.

A potentially complete ecological exposure pathway was identified for terrestrial and/or semi-aquatic life potentially exposed to site-related contaminants in soil as well as COCs migrating from surface runoff and groundwater to surface water pathways. A potentially complete ecological exposure pathway was identified for aquatic life potentially exposed to site-related contaminants in surface water.

A visual representation of each conceptual site model is presented as **Figure 5, *Human Health Conceptual Site Model*** and as **Figure 6, *Ecological Conceptual Site Model*.**

7.0 HAZARD RANKING SYSTEM SCORE

TRIAD developed a preliminary Hazard Ranking System (HRS) site score following USEPA guidance documents. **The calculated preliminary HRS site score is 15.02**. The HRS model output is included in **Appendix 4, *2007 HRS Site Score Package.***

7.1 Observed Release

Substances that meet the criteria for an "observed release," according to its respective media and location were entered into the USEPA HRS QuickScore version 2.3 computer model.

An HRS observed release is established when a sample concentration is three times or greater than that of the background concentration. In cases of the background concentration being non-detect or not measured, the concentration of the substance must be greater than the contract required detection limit (CRDL) to qualify as an observed release. The COPCs which met the criteria for a HRS observed release are presented in **Tables 2A through 2E** as well as summarized in following HRS pathway sections.

It is important to note the QuickScore computer model does not account for the concentration of the substance, only whether or not it is observed. Therefore, substances detected at de minimis concentrations will carry the same calculated weight as if they were detected above applicable action level concentrations. This may result in an overestimation of actual risk.

7.2 Source of Contamination

The source of contamination assigned to the Brooke County Glass Dump CERCLIS HRS site score is a pile of solid hazardous waste from historical disposal activities of glass cullet.

7.3 Hazardous Waste Quantity (HWQ)

Hazardous waste quantities (HWQ) at the Site were estimated based on the volume of the glass cullet. The total volume was estimated to be 62,500 cubic feet based on an area of 125 feet wide by 500 feet long and an average depth of one foot. This calculates to be 2,315 cubic yards.

Based on this information, the HWQ for the migration pathways (groundwater, surface water overland flow, and surface water to groundwater) was determined to be 926. The soil pathway HWQ was determined to be 1,838, resulting in a total HWQ of 2,764.

7.4 Pathway Scores

The overall HRS site score is calculated using the USEPA QuickScore computer model which evaluates four individual potential contaminant migration pathways. The individual migration pathway scores at the Site are as follows:

Groundwater migration pathway score: (23.01)
Surface water migration pathway score: (3.92)
Soil exposure pathway score (uncapped): (19.21)
Air migration pathway score: (not evaluated)

Based on these four pathway scores, the QuickScore computer model calculated an overall HRS site score of 15.02. TRIAD prepared the model to reflect current site conditions and the laboratory analytical data obtained during the 2007 SIR field sampling investigation. The QuickScore model indicates the groundwater migration and soil exposure pathway is the critical pathway of concern at the Site. Each pathway score is discussed in the following sections.

7.4.1 Groundwater Migration Pathway

The groundwater migration pathway evaluates threats resulting from releases

or potential releases of hazardous substances to aquifers. A groundwater migration score is calculated for each aquifer that underlies sources at the Site. The highest groundwater migration score then becomes the assigned score for the groundwater migration pathway. In the case of the Brooke County Glass Dump Site, only one aquifer was observed.

The groundwater migration pathway score for the Site is 23.01 and is based only on the potential of contamination to impact the 4,447 groundwater users within the TDL of the Site. A complete groundwater exposure pathway is unlikely as there were no observed releases to groundwater based on the March 2007 SIR field sampling activities and the aquifer discontinuity of Painter's Run.

The occurrence, distribution and selection of HRS observed releases are summarized in **Table 2E, *Occurrence, Distribution and Selection of HRS Observed Releases – Groundwater***.

The groundwater exposure pathway can be summarized in the following table:

Exposure Pathway	HRS Observed Releases?	Targets?	Pathway Complete?
Groundwater	No	Yes (City of Wellsburg public water supply wells)	No (aquifer discontinuity of Painter's Run and no COCs)

7.4.2 Surface Water Migration Pathway

The surface water migration pathway is a function of two individual migration components:

- Surface water overland/flood migration component
- Groundwater to surface water migration component

Both of these migration components are scored independently by the QuickScore computer model. The higher of either score then becomes the assigned score for the surface water migration pathway. These two migration components themselves are a function of three individual target threats:

- Drinking water target threat
- Human food chain target threat
- Environmental target threat

The target threats are also scored independently. The sum of the three individual target threat scores then becomes the score for the migration component. The surface water overland/flood migration component and target threat scores are summarized as follows:

Surface water overland/flood migration component: (1.98)

- Drinking water target threat: (1.01)
- Human food chain target threat: (0.09)
- Environmental target threat: (0.88)

The groundwater to surface water migration component and target threat scores are summarized as follows:

Groundwater to surface water migration component: (0.66)

- Drinking water target threat: (0.10)
- Human food chain target threat: (0.02)
- Environmental target threat: (0.54)

There were no observed releases to the surface water of Painter's Run based on the March 2007 SIR field sampling activities. In addition, there were no observed releases to the sediment of Painter's Run based on the March 2007 SIR field sampling activities. The occurrence, distribution and selection of

HRS observed releases are summarized in **Table 2C, *Occurrence, Distribution and Selection of HRS Observed Releases – Sediment*** and **Table 2D, *Occurrence, Distribution and Selection of HRS Observed Releases – Surface Water*.**

The surface water exposure pathway can be summarized in the following table:

Exposure Pathway	HRS Observed Releases?	Targets?	Pathway Complete?
Surface Water	No	Yes (City of Wheeling public drinking water intake)	No (no observed releases)

7.4.3 Soil Exposure Pathway

The soil exposure pathway is a function of two direct exposure threats:

- Resident population threat
- Nearby population threat

These two direct exposure components are based on three factor categories:

- Likelihood of Exposure
- Waste Characteristics
- Targets

The sum of the two direct exposure threat scores then become a factor in the score for the soil exposure pathway. The direct exposure threat scores are summarized as follows:

- Resident population threat: (1,584,000)
- Nearby population threat: (1,152)

The occurrence, distribution and selection of HRS observed releases are

summarized in **Table 2A, *Occurrence, Distribution and Selection of HRS Observed Releases – Surface Soil (<2 feet bgs) Residential Exposure*** and **Table 2B, *Occurrence, Distribution and Selection of HRS Observed Releases – Surface Soil (<2 feet bgs) Non-Residential Exposure***. The following table summarizes the March 2007 HRS observed releases in surface soil by area of concern:

Observed Releases in Soil (mg/Kg)	Adjacent Residence	Unpaved Access Road	Cullet Pile
Antimony	< 3X BG	< 3X BG	**87.6**
Arsenic	< 3X BG	**47.1**	**1010**
Barium	< 3X BG	< 3X BG	**1150**
Beryllium	< 3X BG	**3.3**	< 3X BG
Cadmium	< 3X BG	**54.1**	**8310**
Chromium	< 3X BG	< 3X BG	**130**
Copper	**237**	**95.5**	**289**
Iron	**25700**	**26800**	**192000**
Lead	< 3X BG	< 3X BG	**3710**
Magnesium	< 3X BG	**11700**	< 3X BG
Mercury	< 3X BG	< 3X BG	**0.79**
Selenium	< 3X BG	**42.3**	**569**
Silver	< 3X BG	< 3X BG	**3.2**
Thallium	< 3X BG	< 3X BG	**9.3**
Zinc	< 3X BG	< 3X BG	**9240**

<3X BG, detected at a concentration less than 3 times the site specific background concentration.

Analytes and compounds that are not considered a risk to human health or the environment (no RBC or MDL) were not included in the above table. These included aluminum, calcium, cobalt, and sodium.

Analytes and compounds that result in both COC and HRS observed releases in the soil exposure pathway are considered Level 1 concentrations for HRS scoring purposes. The following analytes are Level 1 concentrations in soil at the Site:

Level 1 Concentrations in Soil (mg/Kg)	Adjacent Residence	Unpaved Access Road	Cullet Pile
Arsenic	< AL	**47.1**	**1010**
Cadmium	< AL	**54.1**	**8310**
Iron	**25700**	**26800**	< AL
Lead	< AL	< AL	**3710**
Mercury	< AL	< AL	**0.79**

<AL, detected at a concentration less than the action level.

Those concentrations that are HRS observed releases but did not exceed the action level, and are therefore not COCs, are considered Level II concentrations for HRS scoring purposes.

Due to observed releases of Level I concentrations in the adjacent resident's surface soil as well as the unpaved access road with evidence of direct exposure to resident individuals, the resident population threat is driving the soil exposure site score.

As discussed previously, the soil exposure pathway score is 19.21. If the source of the waste (glass cullet pile), the unpaved access road, and the observed releases to the adjacent resident's property were to be removed or encapsulated, the HRS site score would be reduced to 3.15. If the resident individuals were removed from the observed releases of contaminants, the site score would also be reduced to 3.15. A fence restricting access to the

Site would not reduce the site score due to the direct exposure of the resident individuals and their close proximity (<200 feet) to the source of the contamination.

The soil exposure pathway can be summarized in the following table:

Exposure Pathway	HRS Observed Releases?	Targets?	Pathway Complete?
Soil	Yes	Yes	Yes

7.4.4 Air Exposure Pathway

The air exposure pathway was not evaluated.

7.5 Historical HRS

Based on the review of the WVDEP project files, an historical HRS site score has not been calculated for the Brooke County Glass Dump Site.

8.0 SUMMARY AND RECOMMENDATIONS

The Brooke County Glass Dump CERCLIS Site is located in Brooke County, West Virginia approximately 1.5 miles east of Wellsburg, West Virginia. The Site property is 5.42 acres and was used by the Brooke County Glass Company for cullet (waste glass) disposal from 1988 to 1991. The estimated volume of glass cullet is 62,500 cubic feet. Access to the Site is unrestricted. A family of four, two adults and two children live in a residence approximately 150 feet west of the Site. There is evidence of the children playing in the surface soil near the Site. Cullet is also visible along the unpaved access road to the Site as well as in the surface soil of the residential yard. Historical site investigations have determined the cullet within the pile to be hazardous waste based on TCLP arsenic, cadmium, lead, and selenium concentrations. There is currently no regulatory oversight at the property. The USEPA and WVDEP, OER determined a SIR was warranted to assess potential risk associated with the Site.

SIR field sampling activities were conducted in March 2007. Surface soil, groundwater, surface water, and sediment were collected and analyzed for TAL metals according to an approved *Sampling and Analysis Plan*. Elevated concentrations of metals were detected in the surface soil at the residence, along the unpaved site access road and within the cullet pile. Groundwater, surface water, and sediment have not been impacted.

A preliminary HRS site score of 15.02 was calculated. Any HRS site score above 28.5 warrants further CERCLA action and potential recommendation to the Superfund National Priorities List (NPL). The HRS site score of 15.02 is due to the observed releases of Level I concentrations in the adjacent resident's surface soil as well as the unpaved access road. The resident population threat and potential impact to groundwater users is driving the HRS site score.

Based on these SIR activities, TRIAD concludes the following:

- Contamination to site soils from historical disposal activities exists.

- The resident individuals are being exposed to Level 1 concentrations of arsenic, cadmium, and iron.
- Trespassers on the Site are being exposed to Level 1 concentrations of arsenic, cadmium, lead, and mercury.
- The cullet qualifies as hazardous waste based on historical analytical concentrations.
- Sample data demonstrate the cullet and associated soils are non-homogeneous. There is little confidence in the precision of the analytical results based on limited grab sampling.
- Groundwater, surface water, and sediment are not impacted by the cullet.
- The Brooke County Glass Dump does not qualify for the NPL.

Based on these SIR activities, TRIAD recommends the following for consideration:

- A human health and ecological risk assessment be performed in order to determine what removal activities would be adequate at the Site.
- The Brooke County Glass Site be turned over to USEPA Region 3 Removal Program for regulatory oversight and remedial action.
- Extent of contamination sampling be performed according to protocol established in *Environmental Investigations Standard Operating Procedures and Quality Assurance Manual - EISOPQAM* (USEPA, 2001) using precision data generated during the 2007 SIR.
- Land use of the Site property be deed restricted to non-residential use.

FIGURES

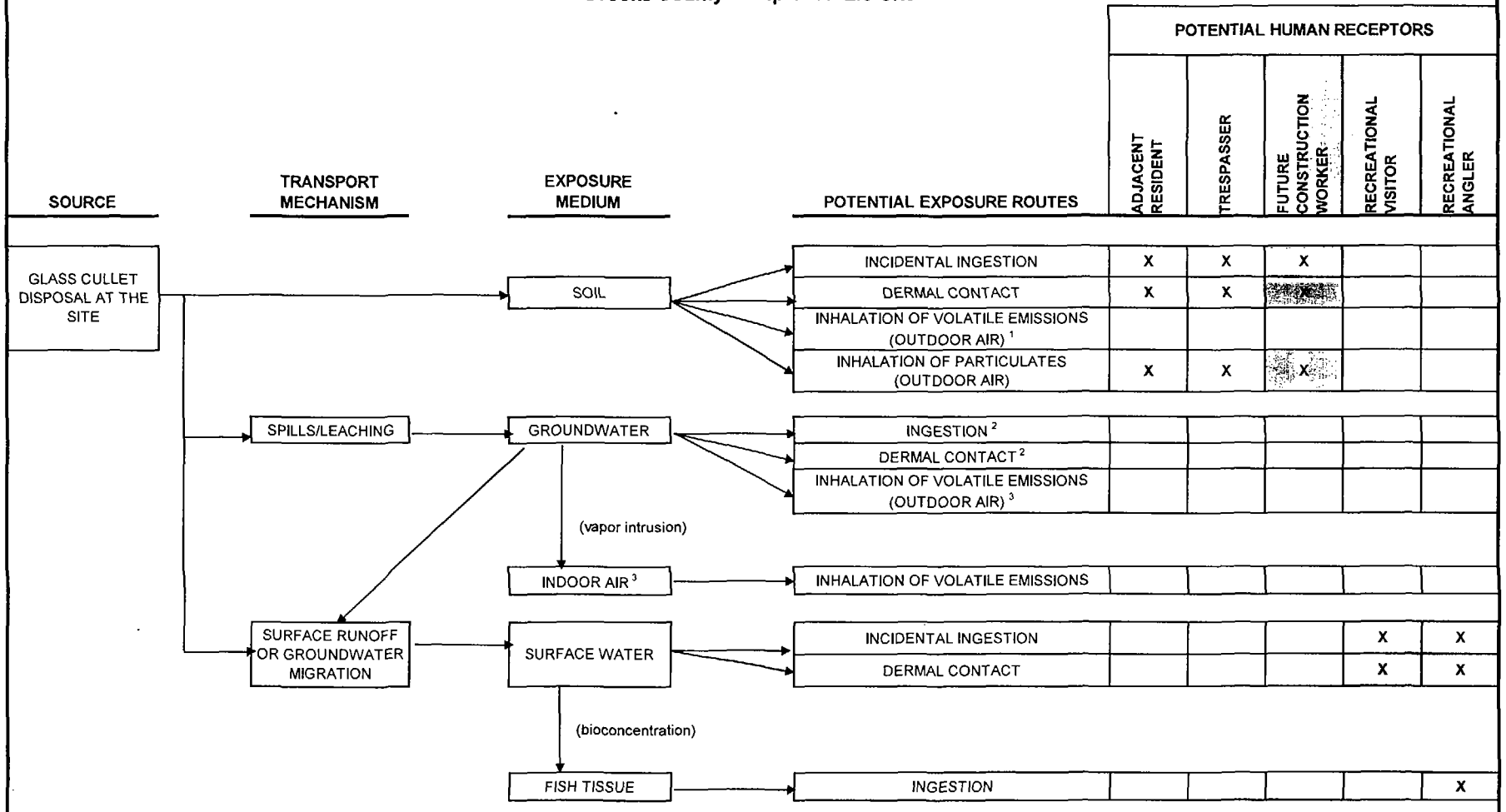
SAMPLE LOCATION
AERIAL VIEW
BROOKE COUNTY GLASS DUMP
WELLSBURG, WEST VIRGINIA

TRIAD

FIGURE NO.
2

AR100081

FIGURE 5
HUMAN HEALTH CONCEPTUAL SITE MODEL
Brooke County Dump CERCLIS Site



Notes:

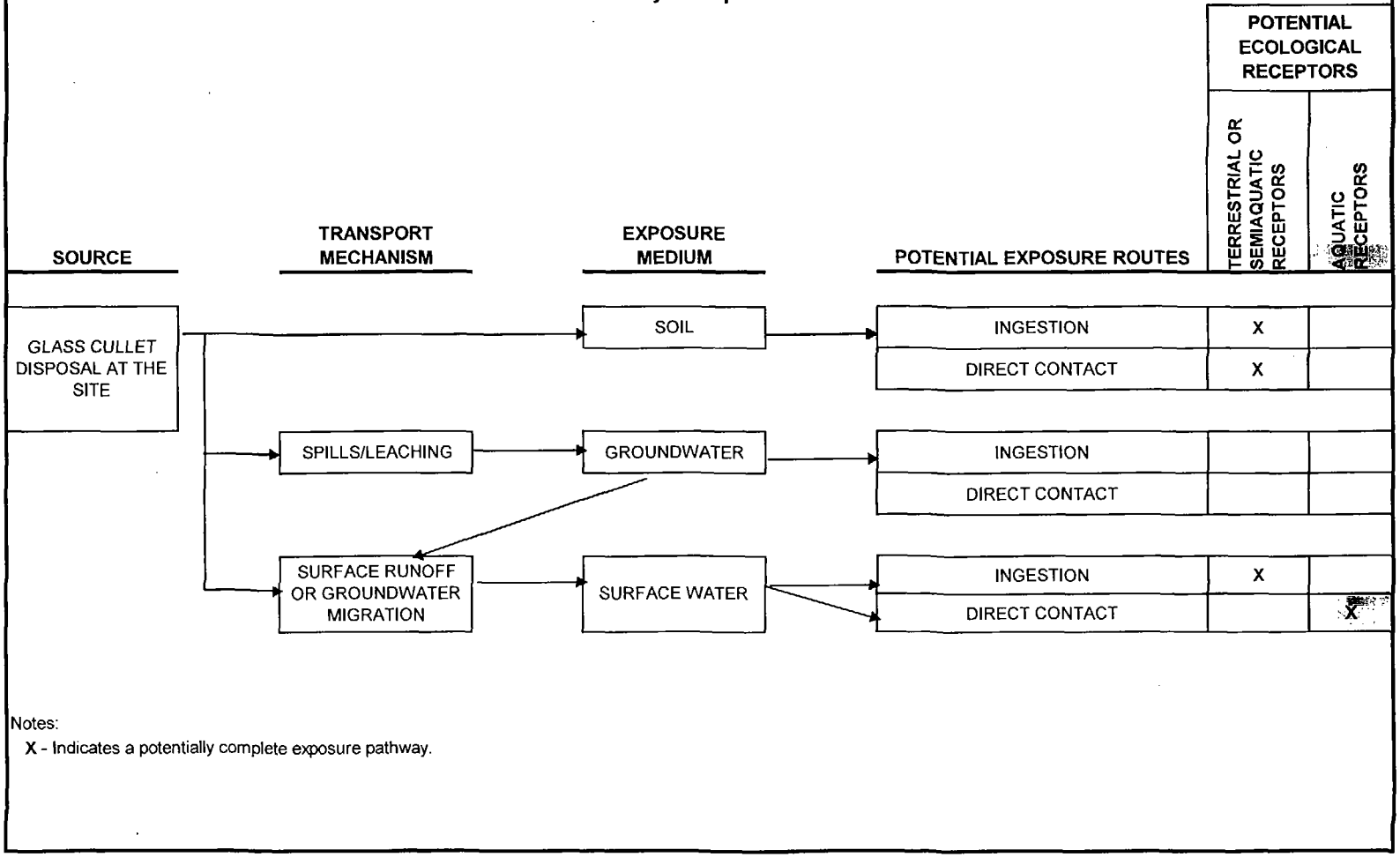
X - Indicates a potentially complete exposure pathway.

[1] The soil to outdoor air inhalation is incomplete because no volatile COCs were identified in soil.

[2] The groundwater ingestion and dermal contact pathway is incomplete because groundwater is not extracted from the site for use.

[3] The vapor intrusion pathway and groundwater to outdoor air inhalation is complete because volatile COCs were identified in groundwater.

FIGURE 6
ECOLOGICAL CONCEPTUAL SITE MODEL
Brooke County Dump CERCLIS Site



Notes:

X - Indicates a potentially complete exposure pathway.

TABLES

Table 1A. Occurrence, Distribution and Selection of COC's
Surface Soil (<2 feet bgs) Residential Exposure
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (mg/Kg)							Frequency		Concentration		Action Level		COC ?	Background	HRS
		SS1	SS2	SS3	SS4	SS5	SS6	SS20 (BG)	Detects	Samples	Min (mg/kg)	Max (mg/kg)	Concentration (mg/Kg)			Concentration (mg/Kg)	Observed Release?
Metals																	
Aluminum	20	8060	6290	8050	27600	10800	20100	6950	7	7	6290	27600	NA	1	NO	6950	YES
Antimony	6	1.4	ND	ND	ND	ND	3.3	ND	2	7	ND	3.3	31	1	NO	ND	NO
Arsenic	1	9.7	5.5	7.8	7.7	7.7	47.1	8.7	7	7	5.5	47.1	13	4	YES	8.7	YES
Barium	20	104	110	90	278	112	257	103	7	7	90	278	5,500	1	NO	103	NO
Beryllium	0.5	1.1	1	0.9	3.3	1.2	2.2	1	7	7	0.9	3.3	160	1	NO	1	YES
Cadmium	0.5	2.3	1.1	1.3	14.2	7.6	54.1	1.4	7	7	1.1	54.1	39	1	YES	1.4	YES
Calcium	500	17400	50600	5780	90200	29200	82400	6890	7	7	5780	90200	NA	2	NO	6890	YES
Chromium	1	20.4	24.9	16.2	11.9	15.5	38	14.3	7	7	11.9	38	230	1	NO	14.3	NO
Cobalt	5	7.6	9.1	12.9	3.7	8.7	7.9	16.8	7	7	3.7	16.8	NA	1	NO	16.8	NO
Copper	2.5	27	237	33.9	17.1	95.5	71.5	29.9	7	7	17.1	237	3,100	1	NO	29.9	YES
Iron	10	19500	21800	25700	8640	20600	26800	23700	7	7	8640	26800	23,000	1	YES	23700	NO
Lead	1	58.6	30.5	43.7	39	59.6	48.1	42.5	7	7	30.5	59.6	400	3	NO	42.5	NO
Magnesium	500	3700	4510	2290	11700	3970	6350	1700	7	7	1700	11700	NA	2	NO	1700	YES
Manganese	1.5	949	1720	712	2420	1310	4050	1410	7	7	712	4050	1,600	1	YES	1410	NO
Mercury	0.1	ND	0.18	0.17	ND	0.12	0.16	0.13	5	7	ND	0.18	0.44	5	NO	0.13	NO
Nickel	4	16.3	15.9	23.5	6.8	19.4	18	20.8	7	7	6.8	23.5	1,600	1	NO	20.8	NO
Potassium	500	1260	1060	2310	2410	1450	2130	1710	7	7	1060	2410	NA	2	NO	1710	NO
Selenium	3.5	1.8	ND	1.6	2.8	3.4	42.3	1.7	6	7	ND	42.3	390	1	NO	1.7	YES
Silver	1	0.69	ND	0.69	ND	ND	ND	0.62	3	7	ND	0.69	390	1	NO	0.62	NO
Sodium	500	602	407	605	952	542	1320	417	7	7	407	1320	NA	2	NO	417	YES
Thallium	2.5	3.6	1.2	2	ND	1.2	1.3	1.5	6	7	ND	3.6	5.5	1	NO	1.5	NO
Vanadium	5	19.3	19.8	17.1	14.5	20	38.2	15.3	7	7	14.5	38.2	78	1	NO	15.3	NO
Zinc	6	167	71.6	170	101	118	350	117	7	7	71.6	350	23,000	1	NO	117	NO

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 USEPA Region III Industrial Soil Risk Based Concentration, April 2006.

2 Essential Nutrient. Eliminated from consideration as COC.

3 Memorandum: OSWER Directive: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. United States Environmental Protection Agency, August 1994. Office of Solid

4 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.

5 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg

B Result estimated due to laboratory contamination.

R Result rejected according to data validation guidelines.

BG Background concentration from site specific location SS20.

Table 1B. Occurrence, Distribution and Selection of COC's
Surface Soil (<2 feet bgs) Non-Residential Exposure
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (mg/Kg)																Frequency		Concentration		Action Level Concentration (mg/Kg)		Background Concentration (mg/Kg)	IRIS Observed Release?
		SS7	SS8	SS9	SS10	SS11	SS12	SS13	SS14	SS15	SS16	SS17	SS18	SS19	SS20 (BG)	SS21 (FD of SS17)	Detects	Samples	Min (mg/kg)	Max (mg/kg)		COC ?		
Metals																									
Aluminum	20	1020	2380	20600	1810	2010	4410	3520	2700	2230	4090	7030	5610	1440	6950	11000	15	15	1020	20600	NA [1]	NO	6950	NO
Antimony	6	3.4	87.6	14.6	5.2	17.3	15.1	19.1	12.9	12.2	18	1.7	ND	5.6	ND	ND	12	15	ND	87.6	409 [1]	NO	ND	YES
Arsenic	1	92.9	330	1010	104	103	365	229	44.2	366	181	113	42	34.8	8.7	9	15	15	8.7	1010	13 [4]	YES	8.7	YES
Barium	20	24.2	611	96.3	359	102	60.7	190	1150	755	276	273	104	78.2	103	113	15	15	24.2	1150	204000 [1]	NO	103	YES
Beryllium	0.5	0.091	0.047	0.076	0.07	0.16	0.4	ND	1.6	ND	ND	0.69	0.68	ND	1	1.2	11	15	ND	1.6	2040 [1]	NO	1	NO
Cadmium	0.5	19.2	1010	4640	66.4	180	302	1350	37.7	8310	154	41	23	62.2	1.4	12.7	15	15	1.4	8310	511 [1]	YES	1.4	YES
Calcium	500	2950	9910	4220	4270	12500	11200	14800	19400	17500	14200	17500	52700	3890	6890	27000	15	15	2950	52700	NA [2]	NO	6890	YES
Chromium	1	12.7	59.7	11.1	43.1	18.5	40.6	45.7	130	26.7	58.9	18.6	11.6	7.4	14.3	14.8	15	15	7.4	130	1530000 [1]	NO	14.3	YES
Cobalt	5	1.1	9.7	2.8	4.4	3.6	5.9	7.1	12.4	4.8	51.2	11.9	9.5	2	16.8	10.6	15	15	1.1	51.2	NA [1]	NO	16.8	YES
Copper	2.5	12	289	142	53.4	68.9	160	152	105	72.9	97.7	51.5	23.9	25	29.9	32.5	15	15	12	289	40900 [1]	NO	29.9	YES
Iron	10	3190	192000	9350	35400	21900	25400	41500	109000	8780	27800	24300	19400	4700	23700	24700	15	15	3190	192000	307000 [1]	NO	23700	YES
Lead	1	115	90	351	3710	138	361	343	3370	763	343	431	38.4	124	42.5	25.1	15	15	25.1	3710	400 [3]	YES	42.5	YES
Magnesium	500	609	782	480	524	1370	3200	2730	1640	2390	3090	2810	4460	709	1700	4130	15	15	480	4460	NA [2]	NO	1700	NO
Manganese	1.5	305	693	106	298	425	311	595	1590	401	445	854	1040	176	1410	1250	15	15	106	1590	20400 [1]	NO	1410	NO
Mercury	0.1	0.71	0.16	0.23	0.4	ND	0.38	0.39	ND	ND	0.79	ND	0.18	0.17	0.13	0.1	11	15	ND	0.79	0.44 [5]	YES	0.13	YES
Nickel	4	3	27.7	5.6	14.8	13.5	31.8	31.7	28.2	20.8	46.4	24.5	16.9	3.8	20.8	23.5	15	15	3	46.4	20400 [1]	NO	20.8	NO
Potassium	500	194	109	4390	306	562	536	376	677	541	625	1620	1330	274	1710	1560	15	15	109	4390	NA [2]	NO	1710	NO
Selenium	3.5	22	333	225	24.6	96.6	284	271	45.3	569	186	19.6	3.3	35.7	1.7	5.1	15	15	1.7	569	5110 [1]	NO	1.7	YES
Silver	1	ND	3.2	ND	1.5	0.9	1	1.5	2.5	0.84	1.1	0.78	0.48	ND	0.62	0.33	12	15	ND	3.2	5110 [1]	NO	0.62	YES
Sodium	500	385	6910	28200	13600	1260	5520	7270	19000	2690	3640	1600	441	966	417	552	15	15	385	28200	NA [2]	NO	417	YES
Thallium	2.5	ND	9.3	ND	1.4	4.9	1.7	3	5.3	6.5	5.9	3.6	ND	ND	1.5	1.4	11	15	ND	9.3	71.5 [1]	NO	1.5	YES
Vanadium	5	5.3	2.3	12.5	4.6	5.4	9.4	7.5	7.8	5.7	7.9	16.9	13.1	2.9	15.3	21.8	15	15	2.3	21.8	1020 [1]	NO	15.3	NO
Zinc	6	122	3140	6000	6370	544	2700	3720	9240	1290	1760	723	134	446	117	128	15	15	117	9240	307000 [1]	NO	117	YES

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 USEPA Region III Industrial Soil Risk Based Concentration, April 2006.

2 Essential Nutrient Eliminated from consideration as COC

3 Memorandum: OSWER Directive Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities United States Environmental Protection Agency, August 1994 Office of Solid Waste and Emergency Response Directive 9355.4-12

4 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.

5 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg

B Result estimated due to laboratory contamination

R Result rejected according to data validation guidelines

BG Background concentration from site specific location SS20.

Table 1C. Occurrence, Distribution and Selection of COC's
Sediment (Painter's Run)
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (mg/Kg)				Frequency		Concentration		Action Level Concentration (mg/Kg)	COC ?	Background Concentration (mg/Kg)	HRS Observed Release?
		SED1 (BG)	SED2	SED3	SED4 (FD of SED2)	Detects	Samples	Min (mg/kg)	Max (mg/kg)				
Metals													
Aluminum	20	7610	8500	7040	7950	4	4	7040	8500	NA	NO	7610	NO
Antimony	6	1.5	ND	1.7	ND	2	4	ND	1.7	2 [2]	NO	1.5	NO
Arsenic	1	10.9	11.9	7.2	11.3	4	4	7.2	11.9	13 [3]	NO	10.9	NO
Barium	20	78.3	137	190	103	4	4	78.3	190	NA	NO	78.3	NO
Beryllium	0.5	1	1.4	1.2	1.1	4	4	1	1.4	NA	NO	1	NO
Cadmium	0.5	0.3	0.66	0.57	0.48	4	4	0.3	0.66	0.99 [2]	NO	0.3	NO
Calcium	500	7890	10400	3910	7860	4	4	3910	10400	NA	NO	7890	NO
Chromium	1	17.5	19.6	13	17.1	4	4	13	19.6	43.4 [2]	NO	17.5	NO
Cobalt	5	26.8	41.9	23.2	32.5	4	4	23.2	41.9	50 [2]	NO	26.8	NO
Copper	2.5	26.8	40.4	23.8	31	4	4	23.8	40.4	31.6 [2]	YES	26.8	NO
Iron	10	31900	30200	38300	30700	4	4	30200	38300	20000 [2]	YES	31900	NO
Lead	1	28.2	31.2	19.1	26.6	4	4	19.1	31.2	35.8 [2]	NO	28.2	NO
Magnesium	500	2990	2990	2510	2940	4	4	2510	2990	NA	NO	2990	NO
Manganese	1.5	2380	6500	3270	3560	4	4	2380	6500	460 [2]	YES	2380	NO
Mercury	0.1	ND	ND	ND	ND	0	4	ND	ND	0.44 [4]	NO	0.094	NO
Nickel	4	44.7	73.8	39.6	54.3	4	4	39.6	73.8	21 [1]	YES	44.7	NO
Potassium	500	1070	1140	993	1140	4	4	993	1140	NA	NO	1070	NO
Selenium	3.5	5.5	6.1	5.1	5.2	4	4	5.1	6.1	2 [2]	YES	5.5	NO
Silver	1	0.92	0.98	1.2	1	4	4	0.92	1.2	1 [2]	YES	0.92	NO
Sodium	500	505	583	433	480	4	4	433	583	NA	NO	505	NO
Thallium	2.5	2.8	2	2.2	2.4	4	4	2	2.8	NA	NO	2.8	NO
Vanadium	5	18.2	19.1	17.6	17.9	4	4	17.6	19.1	NA	NO	18.2	NO
Zinc	6	125	141	87.2	115	4	4	87.2	141	121 [2]	YES	125	NO

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 USEPA ECO Update, Ecotox Thresholds, January 1996, supplement to USEPA Risk Assessment Guidance for Superfund (RAGS), Volume II, Environmental Evaluation Manual.

2 USEPA Region 3 Risk Assessment Freshwater Sediment Screening Benchmarks.

3 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.

4 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg.

B Result estimated due to laboratory contamination.

R Result rejected according to data validation guidelines.

BG Background concentration from site specific location SED1, upstream Painter's Run sample.

Table 1D. Occurrence, Distribution and Selection of COC's
Surface Water (Painter's Run)
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (ug/L)				Frequency		Concentration		Action Level Concentration (ug/L)		COC ?	Background Concentration (ug/L)	HRS Observed Release?
		SW1 (BG)	SW2	SW3	SW4 (FD of SW2)	Detects	Samples	Min (ug/L)	Max (ug/L)					
Metals														
Aluminum	200	281	504	264	269	4	4	264	504	87	2	YES	281	NO
Antimony	60	ND	ND	ND	ND	0	4	ND	ND	5.6	1	NO	ND	NO
Arsenic	10	ND	ND	ND	ND	0	4	ND	ND	0.018	2	NO	ND	NO
Barium	200	34.3	34.2	34.2	34.6	4	4	34.2	34.6	4	2	YES	34.3	NO
Beryllium	5	ND	ND	ND	ND	0	4	ND	ND	0.66	2	NO	ND	NO
Cadmium	5	ND	ND	ND	ND	0	4	ND	ND	0.25	1	NO	ND	NO
Calcium	5000	93200	90500	92600	92400	4	4	90500	93200	116000	2	NO	93200	NO
Chromium	10	ND	ND	ND	ND	0	4	ND	ND	74	1	NO	ND	NO
Cobalt	50	ND	ND	ND	ND	0	4	ND	ND	23	2	NO	ND	NO
Copper	25	ND	ND	ND	ND	0	4	ND	ND	9	1	NO	ND	NO
Iron	100	441	643	390	385	4	4	385	643	300	2	YES	441	NO
Lead	10	ND	ND	ND	ND	0	4	ND	ND	2.5	1	NO	ND	NO
Magnesium	5000	34900	33900	34600	34700	4	4	33900	34900	82000	2	NO	34900	NO
Manganese	15	317	312	314	310	4	4	310	317	50	1	YES	317	NO
Mercury	0.2	0.08	0.2	0.07	0.2	4	4	0.07	0.2	0.026	2	YES	0.08	NO
Nickel	40	ND	ND	ND	ND	0	4	ND	ND	52	1	NO	ND	NO
Potassium	5000	2800	2720	2670	2670	4	4	2670	2800	53000	2	NO	2800	NO
Selenium	35	ND	ND	ND	ND	0	4	ND	ND	1	2	NO	ND	NO
Silver	10	ND	ND	ND	ND	0	4	ND	ND	3.2	2	NO	ND	NO
Sodium	5000	16200	15400	15600	15700	4	4	15400	16200	680000	2	NO	16200	NO
Thallium	25	ND	ND	ND	ND	0	4	ND	ND	0.8	2	NO	ND	NO
Vanadium	50	ND	ND	ND	ND	0	4	ND	ND	20	2	NO	ND	NO
Zinc	60	6	5.4	4.3	4.6	4	4	4.3	6	120	1	NO	6	NO

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 USEPA National Recommended Water Quality Criteria (NRWQC), freshwater CCC (chronic) concentrations or Human Health for the consumption of water + organisms, which November 2002.

2 USEPA Region 3 BTAG Risk Assessment Freshwater Screening Benchmarks, July 2006.

B Result estimated due to laboratory contamination.

R Result rejected according to data validation guidelines.

BG Background concentration from site specific location SW1, upstream Painter's Run sample.

Table 1E. Occurrence, Distribution and Selection of COC's
Groundwater
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (ug/L)			Frequency		Concentration		Action Level Concentration (ug/L.)	COC ?	Background Concentration (ug/L.)	HRS Observed Release?
		GW1	GW2	GW3 (BG)	Detects	Samples	Min (ug/L.)	Max (ug/L.)				
Metals												
Aluminum	200	130	128	198	3	3	128	198	50 [3]	YES	198	NO
Antimony	60	ND	ND	ND	0	3	ND	ND	14.6 [1]	NO	ND	NO
Arsenic	10	ND	ND	ND	0	3	ND	ND	0.045 [1]	NO	ND	NO
Barium	200	29.4	41.5	51.3	3	3	29.4	51.3	7300 [1]	NO	51.3	NO
Beryllium	5	ND	ND	ND	0	3	ND	ND	73 [1]	NO	ND	NO
Cadmium	5	ND	ND	ND	0	3	ND	ND	18 [1]	NO	ND	NO
Calcium	5000	74200	85900	89400	3	3	74200	89400	NA	NO	89400	NO
Chromium	10	ND	ND	1.3	1	3	ND	1.3	55000 [1]	NO	1.3	NO
Cobalt	50	ND	ND	ND	0	3	ND	ND	NA	NO	ND	NO
Copper	25	ND	ND	ND	0	3	ND	ND	1460 [1]	NO	ND	NO
Iron	100	59.1	47.8	142	3	3	47.8	142	11000 [1]	NO	142	NO
Lead	10	ND	ND	ND	0	3	ND	ND	15 [2]	NO	ND	NO
Magnesium	5000	16500	17400	28900	3	3	16500	28900	NA	NO	28900	NO
Manganese	15	3.8	4.2	3.5	3	3	3.5	4.2	730 [1]	NO	3.5	NO
Mercury	0.2	0.08	0.09	0.09	3	3	0.08	0.09	2 [2]	NO	0.09	NO
Nickel	40	ND	ND	ND	0	3	ND	ND	730 [1]	NO	ND	NO
Potassium	5000	1610	1510	5100	3	3	1510	5100	NA	NO	5100	NO
Selenium	35	22.4	15.6	35	3	3	15.6	35	182 [1]	NO	35	NO
Silver	10	ND	ND	ND	0	3	ND	ND	182 [1]	NO	ND	NO
Sodium	5000	18500	17300	112000	3	3	17300	112000	NA	NO	112000	NO
Thallium	25	ND	ND	ND	0	3	ND	ND	2.55 [1]	NO	ND	NO
Vanadium	50	ND	ND	1.7	1	3	ND	1.7	36.5 [1]	NO	1.7	NO
Zinc	60	ND	ND	ND	0	3	ND	ND	11000 [1]	NO	ND	NO

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 USEPA Region III, Tap Water RBCs, April 2006.

2 USEPA National Primary Drinking Water Standards, Winter 2004.

3 USEPA National Secondary Drinking Water Regulations, Winter 2004.

B Result estimated due to laboratory contamination.

R Result rejected according to data validation guidelines.

Table 2A. Occurrence, Distribution and Selection of HRS Observed Releases
Surface Soil (<2 feet bgs) Residential Exposure
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (mg/Kg)							Frequency		Concentration		Action Level Concentration (mg/Kg)		COC?	Background Concentration (mg/Kg)	HRS Observed Release?
		SS1	SS2	SS3	SS4	SS5	SS6	SS20 (BG)	Detects	Samples	Min (mg/Kg)	Max (mg/Kg)					
Metals																	
Aluminum	20	8060	6290	8050	[redacted]	10800	20100	6950	7	7	6290	27600	NA	1	NO	6950	[redacted]
Antimony	6	1.4	ND	ND	ND	ND	3.3	ND	2	7	ND	3.3	31	1	NO	ND	NO
Arsenic	1	9.7	5.5	7.8	7.7	7.7	[redacted]	8.7	7	7	5.5	47.1	13	4	YES	8.7	[redacted]
Barium	20	104	110	90	278	112	257	103	7	7	90	278	5,500	1	NO	103	NO
Beryllium	0.5	1.1	1	0.9	3.3	1.2	2.2	1	7	7	0.9	3.3	160	1	NO	1	[redacted]
Cadmium	0.5	2.3	1.1	1.3	14.2	[redacted]	[redacted]	1.4	7	7	1.1	54.1	39	1	YES	1.4	[redacted]
Calcium	500	17400	[redacted]	5780	90200	[redacted]	[redacted]	6890	7	7	5780	90200	NA	2	NO	6890	[redacted]
Chromium	1	20.4	24.9	16.2	11.9	15.5	38	14.3	7	7	11.9	38	230	1	NO	14.3	NO
Cobalt	5	7.6	9.1	12.9	3.7	8.7	7.9	16.8	7	7	3.7	16.8	NA	1	NO	16.8	NO
Copper	2.5	27	[redacted]	33.9	17.1	[redacted]	71.5	29.9	7	7	17.1	237	3,100	1	NO	29.9	[redacted]
Iron	10	19500	[redacted]	[redacted]	8640	20600	[redacted]	[redacted]	7	7	8640	26800	23,000	1	YES	23700	NO
Lead	1	58.6	30.5	43.7	39	59.6	48.1	42.5	7	7	30.5	59.6	400	3	NO	42.5	NO
Magnesium	500	3700	4510	2290	[redacted]	3970	[redacted]	1700	7	7	1700	11700	NA	2	NO	1700	[redacted]
Manganese	1.5	949	1720	712	2420	1310	4050	1410	7	7	712	4050	1,600	1	YES	1410	NO
Mercury	0.1	ND	0.18	0.17	ND	0.12	0.16	0.13	5	7	ND	0.18	0.44	5	NO	0.13	NO
Nickel	4	16.3	15.9	23.5	6.8	19.4	18	20.8	7	7	6.8	23.5	1,600	1	NO	20.8	NO
Potassium	500	1260	1060	2310	2410	1450	2130	1710	7	7	1060	2410	NA	2	NO	1710	NO
Selenium	3.5	1.8	ND	1.6	2.8	3.4	[redacted]	1.7	6	7	ND	42.3	390	1	NO	1.7	[redacted]
Silver	1	0.69	ND	0.69	ND	ND	ND	0.62	3	7	ND	0.69	390	1	NO	0.62	NO
Sodium	500	602	407	605	952	542	[redacted]	417	7	7	407	1320	NA	2	NO	417	[redacted]
Thallium	2.5	3.6	1.2	2	ND	1.2	1.3	1.5	6	7	ND	3.6	5.5	1	NO	1.5	NO
Vanadium	5	19.3	19.8	17.1	14.5	20	38.2	15.3	7	7	14.5	38.2	78	1	NO	15.3	NO
Zinc	6	167	71.6	170	101	118	350	117	7	7	71.6	350	23,000	1	NO	117	NO

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 USEPA Region III Industrial Soil Risk Based Concentration, April 2006.

2 Essential Nutrient. Eliminated from consideration as COC.

3 Memorandum: OSWER Directive: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. United States Environmental Protection Agency, August 1994. Office of Solid

4 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.

5 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg.

B Result estimated due to laboratory contamination.

R Result rejected according to data validation guidelines.

BG Background concentration from site specific location SS20.

Table 2B. Occurrence, Distribution and Selection of HRS Observed Releases
Surface Soil (<2 feet bgs) Non-Residential Exposure
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Location (mg/Kg)															Frequency		Concentration		Screening Level		Background (Concentration)	
		SS7	SS8	SS9	SS10	SS11	SS12	SS13	SS14	SS16	SS17	SS18	SS19	SS20 (BG)	SS21 (FD of SS17)	Detects	Samples	Min (mg/kg)	Max (mg/kg)		EQC?	(mg/kg)	Release?
Metals																							
Aluminum	20	1020	2380	20600	1810	2010	4410	3520	2700	2230	4090	7030	5610	1440	6950	11000	15	15	1020	20600	NA [1]	NO	6950	NO
Antimony	6	3.4	87.6		5.2				12.9	12.2		1.7	ND	5.6	ND	ND	12	15	ND	87.6	409 [1]	NO	ND	
Arsenic	1	9.2	330						44.2	366					8.7	9	15	15	8.7	1010	13 [4]	YES	8.7	YES
Barium	20	24.2		96.3		102	60.7	190			276	273	104	78.2	103	113	15	15	24.2	1150	204000 [1]	NO	103	
Beryllium	0.5	0.091	0.047	0.076	0.07	0.16	0.4	ND	1.6	ND	ND	0.69	0.68	ND	1	1.2	11	15	ND	1.6	2040 [1]	NO	1	NO
Cadmium	0.5												2.3		1.4	12.7	15	15	1.4	8310	511 [1]	YES	1.4	YES
Calcium	500	2950	9910	4220	4270	12500	11200	14800	19400	17500	14200	17500	52700	3890	6890	27000	15	15	2950	52700	NA [2]	NO	6890	YES
Chromium	1	12.7		11.1		18.5	40.6			26.7	58.9	18.6	11.6	7.4	14.3	14.8	15	15	7.4	130	1530000 [1]	NO	14.3	YES
Cobalt	5	1.1	9.7	2.8	4.4	3.6	5.9	7.1	12.4	4.8	51.2	11.9	9.5	2	16.8	10.6	15	15	1.1	51.2	NA [1]	NO	16.8	YES
Copper	2.5	12			53.4	68.9				72.9		51.5	23.9	25	29.9	32.5	15	15	12	289	40900 [1]	NO	29.9	YES
Iron	10	3190		9350	35400	21900	25400	41500		8780	27800	24300	19400	4700	23700	24700	15	15	3190	192000	307000 [1]	NO	23700	YES
Lead	1	115	90										38.4	124	42.5	25.1	15	15	25.1	3710	400 [3]	YES	42.5	
Magnesium	500	609	782	480	524	1370	3200	2730	1640	2390	3090	2810	4460	709	1700	4130	15	15	480	4460	NA [2]	NO	1700	NO
Manganese	1.5	305	693	106	298	425	311	595	1590	401	445	854	1040	176	1410	1250	15	15	106	1590	20400 [1]	NO	1410	NO
Mercury	0.1		0.16	0.23		ND	0.38	0.39	ND	ND		ND	0.18	0.17	0.13	0.1	11	15	ND	0.79	0.44 [5]	YES	0.13	
Nickel	4	3	27.7	5.6	14.8	13.5	31.8	31.7	28.2	20.8	46.4	24.5	16.9	3.8	20.8	23.5	15	15	3	46.4	20400 [1]	NO	20.8	NO
Potassium	500	194	109	4390	306	562	536	376	677	541	625	1620	1330	274	1710	1560	15	15	109	4390	NA [2]	NO	1710	NO
Selenium	3.5												3.3		1.7	5.1	15	15	1.7	569	5110 [1]	NO	1.7	
Silver	1	ND	3.2	ND	1.5	0.9	1	1.5	2.5	0.84	1.1	0.78	0.48	ND	0.62	0.33	12	15	ND	3.2	5110 [1]	NO	0.62	YES
Sodium	500	385	591						19000				441	966	417	552	15	15	385	28200	NA [2]	NO	417	YES
Thallium	2.5	ND		ND	1.4		1.7	3				3.6	ND	ND	1.5	1.4	11	15	ND	9.3	71.5 [1]	NO	1.5	
Vanadium	5	5.3	23	12.5	4.6	5.4	9.4	7.5	7.8	5.7	7.9	16.9	13.1	2.9	15.3	21.8	15	15	2.3	21.8	1020 [1]	NO	15.3	NO
Zinc	6	122											134		117	128	15	15	117	9240	307000 [1]	NO	117	

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available

CRDL Contract Required Detection Limit

1 USEPA Region III Industrial Soil Risk Based Concentration, April 2006.

2 Essential Nutrient Eliminated from consideration as COC

3 Memorandum: OSWER Directive: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities United States Environmental Protection Agency, August 1994. Office of Solid Waste and Emergency Response. Directive 9355.4-12.

4 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg

5 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg

B Result estimated due to laboratory contamination

R Result rejected according to data validation guidelines.

BG Background concentration from site specific location SS20.

Table 2C. Occurrence, Distribution and Selection of HRS Observed Releases
***Sediment* (Painter's Run)**
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (mg/Kg)				Frequency		Concentration		Action Level Concentration (mg/Kg)		Background Concentration (mg/Kg)	HRS Observed Release?
		SED1 (BG)	SED2	SED3	SED4 (FD of SED2)	Detects	Samples	Min (mg/kg)	Max (mg/kg)		COC?		
Metals													
Aluminum	20	7610	8500	7040	7950	4	4	7040	8500	NA	NO	7610	NO
Antimony	6	1.5	ND	1.7	ND	2	4	ND	1.7	2 [2]	NO	1.5	NO
Arsenic	1	10.9	11.9	7.2	11.3	4	4	7.2	11.9	13 [3]	NO	10.9	NO
Barium	20	78.3	137	190	103	4	4	78.3	190	NA	NO	78.3	NO
Beryllium	0.5	1	1.4	1.2	1.1	4	4	1	1.4	NA	NO	1	NO
Cadmium	0.5	0.3	0.66	0.57	0.48	4	4	0.3	0.66	0.99 [2]	NO	0.3	NO
Calcium	500	7890	10400	3910	7860	4	4	3910	10400	NA	NO	7890	NO
Chromium	1	17.5	19.6	13	17.1	4	4	13	19.6	43.4 [2]	NO	17.5	NO
Cobalt	5	26.8	41.9	23.2	32.5	4	4	23.2	41.9	50 [2]	NO	26.8	NO
Copper	2.5	26.8	40.4	23.8	31	4	4	23.8	40.4	31.6 [2]	YES	26.8	NO
Iron	10	31900	30200	38300	30700	4	4	30200	38300	20000 [2]	YES	31900	NO
Lead	1	28.2	31.2	19.1	26.6	4	4	19.1	31.2	35.8 [2]	NO	28.2	NO
Magnesium	500	2990	2990	2510	2940	4	4	2510	2990	NA	NO	2990	NO
Manganese	1.5	2380	6500	3270	3560	4	4	2380	6500	460 [2]	YES	2380	NO
Mercury	0.1	ND	ND	ND	ND	0	4	ND	ND	0.44 [4]	NO	0.094	NO
Nickel	4	44.7	73.8	39.6	54.3	4	4	39.6	73.8	21 [1]	YES	44.7	NO
Potassium	500	1070	1140	993	1140	4	4	993	1140	NA	NO	1070	NO
Selenium	3.5	5.5	6.1	5.1	5.2	4	4	5.1	6.1	2 [2]	YES	5.5	NO
Silver	1	0.92	0.98	1.2	1	4	4	0.92	1.2	1 [2]	YES	0.92	NO
Sodium	500	505	583	433	480	4	4	433	583	NA	NO	505	NO
Thallium	2.5	2.8	2	2.2	2.4	4	4	2	2.8	NA	NO	2.8	NO
Vanadium	5	18.2	19.1	17.6	17.9	4	4	17.6	19.1	NA	NO	18.2	NO
Zinc	6	125	141	87.2	115	4	4	87.2	141	121 [2]	YES	125	NO

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 USEPA ECO Update, Ecotox Thresholds, January 1996, supplement to USEPA Risk Assessment Guidance for Superfund (RAGS), Volume II, Environmental Evaluation Manual.

2 USEPA Region 3 Risk Assessment Freshwater Sediment Screening Benchmarks.

3 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.

4 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg.

B Result estimated due to laboratory contamination.

R Result rejected according to data validation guidelines.

BG Background concentration from site specific location SED1, upstream Painter's Run sample.

Table 2D. Occurrence, Distribution and Selection of HRS Observed Releases
Surface Water (Painter's Run)
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (ug/L)				Frequency		Concentration		Action Level	COC?	Background	HRS
		SW1 (BG)	SW2	SW3	SW4 (FD of SW2)	Detected	Samples	Min (ug/L)	Max (ug/L)	Concentration (ug/L)		Concentration (ug/L)	Observed Release?
Metals													
Aluminum	200	281	504	264	269	4	4	264	504	87 [2]	YES	281	NO
Antimony	60	ND	ND	ND	ND	0	4	ND	ND	5.6 [1]	NO	ND	NO
Arsenic	10	ND	ND	ND	ND	0	4	ND	ND	0.018 [2]	NO	ND	NO
Barium	200	34.3	34.2	34.2	34.6	4	4	34.2	34.6	4 [2]	YES	34.3	NO
Beryllium	5	ND	ND	ND	ND	0	4	ND	ND	0.66 [2]	NO	ND	NO
Cadmium	5	ND	ND	ND	ND	0	4	ND	ND	0.25 [1]	NO	ND	NO
Calcium	5000	93200	90500	92600	92400	4	4	90500	93200	116000 [2]	NO	93200	NO
Chromium	10	ND	ND	ND	ND	0	4	ND	ND	74 [1]	NO	ND	NO
Cobalt	50	ND	ND	ND	ND	0	4	ND	ND	23 [2]	NO	ND	NO
Copper	25	ND	ND	ND	ND	0	4	ND	ND	9 [1]	NO	ND	NO
Iron	100	441	643	390	385	4	4	385	643	300 [2]	YES	441	NO
Lead	10	ND	ND	ND	ND	0	4	ND	ND	2.5 [1]	NO	ND	NO
Magnesium	5000	34900	33900	34600	34700	4	4	33900	34900	82000 [2]	NO	34900	NO
Manganese	15	317	312	314	310	4	4	310	317	50 [1]	YES	317	NO
Mercury	0.2	0.08	0.2	0.07	0.2	4	4	0.07	0.2	0.026 [2]	YES	0.08	NO
Nickel	40	ND	ND	ND	ND	0	4	ND	ND	52 [1]	NO	ND	NO
Potassium	5000	2800	2720	2670	2670	4	4	2670	2800	53000 [2]	NO	2800	NO
Selenium	35	ND	ND	ND	ND	0	4	ND	ND	1 [2]	NO	ND	NO
Silver	10	ND	ND	ND	ND	0	4	ND	ND	3.2 [2]	NO	ND	NO
Sodium	5000	16200	15400	15600	15700	4	4	15400	16200	680000 [2]	NO	16200	NO
Thallium	25	ND	ND	ND	ND	0	4	ND	ND	0.8 [2]	NO	ND	NO
Vanadium	50	ND	ND	ND	ND	0	4	ND	ND	20 [2]	NO	ND	NO
Zinc	60	6	5.4	4.3	4.6	4	4	4.3	6	120 [1]	NO	6	NO

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 USEPA National Recommended Water Quality Criteria (NRWQC), freshwater CCC (chronic) concentrations or Human Health for the consumption of water + organisms, which November 2002.

2 USEPA Region 3 BTAG Risk Assessment Freshwater Screening Benchmarks, July 2006.

B Result estimated due to laboratory contamination.

R Result rejected according to data validation guidelines.

BG Background concentration from site specific location SW1, upstream Painter's Run sample.

Table 2E. Occurrence, Distribution and Selection of HRS Observed Releases
Groundwater
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (ug/L)			Frequency		Concentration		Action Level		Background	HRS
		GW1	GW2	GW3 (BG)	Detects	Samples	Min (ug/L)	Max (ug/L)	Concentration (ug/L)	COC ?	Concentration (ug/L)	Observed Release?
Metals												
Aluminum	200	130	128	198	3	3	128	198	50 [3]	YES	198	NO
Antimony	60	ND	ND	ND	0	3	ND	ND	14.6 [1]	NO	ND	NO
Arsenic	10	ND	ND	ND	0	3	ND	ND	0.045 [1]	NO	ND	NO
Barium	200	29.4	41.5	51.3	3	3	29.4	51.3	7300 [1]	NO	51.3	NO
Beryllium	5	ND	ND	ND	0	3	ND	ND	73 [1]	NO	ND	NO
Cadmium	5	ND	ND	ND	0	3	ND	ND	18 [1]	NO	ND	NO
Calcium	5000	74200	85900	89400	3	3	74200	89400	NA	NO	89400	NO
Chromium	10	ND	ND	1.3	1	3	ND	1.3	55000 [1]	NO	1.3	NO
Cobalt	50	ND	ND	ND	0	3	ND	ND	NA	NO	ND	NO
Copper	25	ND	ND	ND	0	3	ND	ND	1460 [1]	NO	ND	NO
Iron	100	59.1	47.8	142	3	3	47.8	142	11000 [1]	NO	142	NO
Lead	10	ND	ND	ND	0	3	ND	ND	15 [2]	NO	ND	NO
Magnesium	5000	16500	17400	28900	3	3	16500	28900	NA	NO	28900	NO
Manganese	15	3.8	4.2	3.5	3	3	3.5	4.2	730 [1]	NO	3.5	NO
Mercury	0.2	0.08	0.09	0.09	3	3	0.08	0.09	2 [2]	NO	0.09	NO
Nickel	40	ND	ND	ND	0	3	ND	ND	730 [1]	NO	ND	NO
Potassium	5000	1610	1510	5100	3	3	1510	5100	NA	NO	5100	NO
Selenium	35	22.4	15.6	35	3	3	15.6	35	182 [1]	NO	35	NO
Silver	10	ND	ND	ND	0	3	ND	ND	182 [1]	NO	ND	NO
Sodium	5000	18500	17300	112000	3	3	17300	112000	NA	NO	112000	NO
Thallium	25	ND	ND	ND	0	3	ND	ND	2.55 [1]	NO	ND	NO
Vanadium	50	ND	ND	1.7	1	3	ND	1.7	36.5 [1]	NO	1.7	NO
Zinc	60	ND	ND	ND	0	3	ND	ND	11000 [1]	NO	ND	NO

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 USEPA Region III, Tap Water RBCs, April 2006.

2 USEPA National Primary Drinking Water Standards, Winter 2004.

3 USEPA National Secondary Drinking Water Regulations, Winter 2004.

B Result estimated due to laboratory contamination.

R Result rejected according to data validation guidelines.

Table 3A. XRF Field Screening Data - Occurrence, Distribution and Selection of COC's
Surface Soil (<2 feet bgs) Residential Exposure
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	Concentration (mg/Kg)							Frequency		Concentration		Action Level Concentration (mg/Kg)		COC ?	Background Concentration (mg/Kg)	HRS Observed Release?
	SS1	SS2	SS3	SS4	SS5	SS6	SS20 (BG)	Detects	Samples	Min (mg/kg)	Max (mg/kg)					
Metals																
Antimony	ND	ND	ND	ND	ND	ND	ND	0	7	ND	ND	31	1	NO	ND	NO
Arsenic	ND	**196**	ND	ND	9	**42**	**15**	4	7	ND	196	13	4	**YES**	15	YES
Barium	ND	ND	ND	ND	ND	ND	ND	0	7	ND	ND	5,500	1	NO	ND	NO
Cadmium	ND	ND	**115**	**136**	ND	**71**	ND	3	7	ND	136	39	1	**YES**	ND	NO
Chromium	ND	ND	ND	ND	ND	ND	ND	0	7	ND	ND	230	1	NO	ND	NO
Cobalt	ND	608	ND	ND	ND	ND	388	2	7	ND	608	NA	1	NO	388	NO
Copper	ND	351	ND	ND	ND	ND	ND	1	7	ND	351	3,100	1	NO	ND	NO
Iron	**31043**	**26752**	**25332**	18328	14858	13516	**32307**	7	7	13516	32307	23,000	1	**YES**	32307	NO
Lead	70	261	ND	118	21	35	40	6	7	ND	261	400	3	NO	40	YES
Manganese	839	514	ND	**1714**	507	**4392**	841	6	7	ND	4392	1,600	1	**YES**	841	YES
Mercury	ND	**1025**	ND	ND	ND	ND	ND	1	7	ND	1025	0.44	5	**YES**	ND	NO
Nickel	ND	344	ND	ND	ND	ND	ND	1	7	ND	344	1,600	1	NO	ND	NO
Selenium	ND	262	ND	ND	ND	50	ND	2	7	ND	262	390	1	NO	ND	NO
Silver	ND	ND	ND	ND	ND	95	ND	1	7	ND	95	390	1	NO	ND	NO
Zinc	143	375	92	259	115	439	117	7	7	92	439	23,000	1	NO	117	YES

NOTES:

ND Not detected at a concentration greater than the XRF Method Detection Limit (MDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 USEPA Region III Industrial Soil Risk Based Concentration, April 2006.

2 Essential Nutrient. Eliminated from consideration as COC.

3 Memorandum: OSWER Directive: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. United States Environmental Protection Agency, August 1994. Offi

4 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.

5 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg.

B Result estimated due to laboratory contamination.

R Result rejected according to data validation guidelines.

BG Background concentration from site specific location SS20.

Table 3B. XRF Field Screening Data - Occurrence, Distribution and Selection of COC's
Surface Soil (<2 feet bgs) Non-Residential Exposure
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	Concentration (mg/Kg)															Frequency		Concentration		Action Level Concentration (mg/Kg)	COC?	Background Concentration (mg/Kg)	HRS Observed Release?
	SS7	SS8	SS9	SS10	SS11	SS12	SS13	SS14	SS15	SS16	SS17	SS18	SS19	SS20 (BG)	SS21 (FD of SS17)	Detects	Samples	Min (mg/kg)	Max (mg/kg)				
Metals																							
Antimony	ND	**788**	ND	ND	ND	ND	ND	ND	307	ND	ND	ND	158	ND	ND	3	15	ND	787.64	409 [1]	**YES**	ND	**YES**
Arsenic	**244**	**474**	**456**	**61**	**44**	**435**	**25**	**61**	**93**	**96**	**79**	**25**	**95**	**15**	**16**	15	15	14.79	473.97	13 [4]	**YES**	8.7	**YES**
Barium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	15	ND	ND	204000 [1]	NO	103	NO
Cadmium	ND	**1716**	169	ND	50	385	120	ND	**1122**	53	ND	ND	54	ND	ND	8	15	ND	1715.72	511 [1]	**YES**	1.4	**YES**
Chromium	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	15	ND	ND	1530000 [1]	NO	14.3	NO
Cobalt	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	530	ND	ND	388	ND	2	15	ND	530.19	NA [1]	NO	16.8	**YES**
Copper	ND	349	229	ND	ND	210	ND	ND	ND	46	ND	ND	52	ND	ND	5	15	ND	349.4	40900 [1]	NO	29.9	**YES**
Iron	3973	209830	5858	25816	4143	51443	2813	7928	2424	7518	22698	12382	16511	32307	15279	15	15	2424.41	209829.84	307000 [1]	NO	23700	**YES**
Lead	ND	ND	263	237	101	**907**	97	**555**	321	242	215	29	187	40	29	13	15	ND	907.07	400 [3]	**YES**	42.5	**YES**
Manganese	ND	ND	ND	279	ND	ND	ND	472	ND	ND	420	365	233	841	608	7	15	ND	840.51	20400 [1]	NO	1410	NO
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	15	ND	ND	0.44 [5]	NO	0.13	NO
Nickel	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	15	ND	ND	20400 [1]	NO	20.8	NO
Selenium	809	954	208	ND	33	214	72	16	75	82	16	ND	56	ND	ND	11	15	ND	953.96	5110 [1]	NO	1.7	**YES**
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0	15	ND	ND	5110 [1]	NO	0.62	NO
Zinc	216	13293	3036	9068	513	4531	540	4527	565	1134	545	95	1194	117	265	15	15	94.94	13292.57	307000 [1]	NO	117	**YES**

NOTES:

ND Not detected at a concentration greater than the XRF Method Detection Limit (MDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 *USEPA Region III Industrial Soil Risk Based Concentration.* April 2006.

2 Essential Nutrient. Eliminated from consideration as COC.

3 Memorandum: OSWER Directive: Revised Interim Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities. United States Environmental Protection Agency, August 1994. Office of Solid Waste and Emergency Response. Directive 9355.4-12

4 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.

5 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg.

B Result estimated due to laboratory contamination

R Result rejected according to data validation guidelines

BG Background concentration from site specific location SS20.

Table 3C. XRF Field Screening Data - Occurrence, Distribution and Selection of COC's
Sediment (Painter's Run)
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	Concentration (mg/Kg)				Frequency		Concentration		Action Level Concentration (mg/Kg)	COC ?	Background Concentration (mg/Kg)	HRS Observed Release?
	SED1 (BG)	SED2	SED3	SED4 (FD of SED2)	Detects	Samples	Min (mg/kg)	Max (mg/kg)				
Metals												
Antimony	ND	**253**	ND	ND	1	4	ND	253.34	2 [2]	**YES**	ND	NO
Arsenic	11	ND	ND	ND	1	4	ND	11.11	13 [3]	NO	11.11	NO
Barium	ND	ND	ND	ND	0	4	ND	ND	NA	NO	ND	NO
Cadmium	ND	ND	**54**	ND	1	4	ND	54.47	0.99 [2]	**YES**	ND	NO
Chromium	ND	ND	ND	ND	0	4	ND	ND	43.4 [2]	NO	ND	NO
Cobalt	**395**	ND	**447**	ND	2	4	ND	447.41	50 [2]	**YES**	395.34	NO
Copper	ND	ND	**34**	ND	1	4	ND	34.12	31.6 [2]	**YES**	ND	NO
Iron	**27912**	11102	**24561**	**20928**	4	4	11102.09	27911.76	20000 [2]	**YES**	27911.76	NO
Lead	21	ND	15	ND	2	4	ND	20.91	35.8 [2]	NO	20.91	NO
Manganese	**2750**	**1486**	**1628**	**2915**	4	4	1485.9	2915.22	460 [2]	**YES**	2749.84	NO
Mercury	ND	ND	ND	ND	0	4	ND	ND	0.44 [4]	NO	ND	NO
Nickel	ND	ND	**74**	ND	1	4	ND	73.87	21 [1]	**YES**	ND	NO
Selenium	ND	ND	ND	ND	0	4	ND	ND	2 [2]	NO	ND	NO
Silver	ND	ND	ND	ND	0	4	ND	ND	1 [2]	NO	ND	NO
Zinc	79	ND	78	82	3	4	ND	81.68	121 [2]	NO	79.29	NO

NOTES:

ND Not detected at a concentration greater than the XRF Method Detection Limit (MDL).

NA Not Applicable or available.

CRDL Contract Required Detection Limit

1 USEPA ECO Update, Ecotox Thresholds, January 1996, supplement to USEPA Risk Assessment Guidance for Superfund (RAGS), Volume II, Environmental Evaluati

2 USEPA Region 3 Risk Assessment Freshwater Sediment Screening Benchmarks.

3 Published natural background concentration for arsenic in soil in West Virginia ranges from 5.9 to 13.0 mg/Kg.

4 Published natural background concentration for mercury in soil in West Virginia ranges from 0.02 to 0.44 mg/Kg.

B Result estimated due to laboratory contamination.

R Result rejected according to data validation guidelines.

BG Background concentration from site specific location SED1, upstream Painter's Run sample.

Table 4A. Field Duplicate Summary
Surface Soil
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (mg/Kg)		RPD Acceptance Limit(%)	RPD (%)
		SS17	SS21 (FD of SS17)		
Metals					
Aluminum	200	7030	11000	40	44
Antimony	60	1.7	ND	40	NA
Arsenic	10	113	9	40	170
Barium	200	273	113	40	83
Beryllium	5	0.69	1.2	40	54
Cadmium	5	41	12.7	40	105
Calcium	5000	17500	27000	40	43
Chromium	10	18.6	14.8	40	23
Cobalt	50	11.9	10.6	40	12
Copper	25	51.5	32.5	40	45
Iron	100	24300	24700	40	2
Lead	10	431	25.1	40	178
Magnesium	5000	2810	4130	40	38
Manganese	15	854	1250	40	38
Mercury	0.2	0.15	0.1	40	40
Nickel	40	24.5	23.5	40	4
Potassium	5000	1620	1560	40	4
Selenium	35	19.6	5.1	40	117
Silver	10	0.78	0.33	40	81
Sodium	5000	1600	552	40	97
Thallium	25	3.6	1.4	40	88
Vanadium	50	16.9	21.8	40	25
Zinc	60	723	128	40	140
				Mean RPD:	**43**

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not applicable, duplicate not measured against non-detects.

Table 4B. Field Duplicate Summary
Sediment
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (mg/Kg)		RPD Acceptance Limit(%)	RPD (%)
		SED2	SED4 (FD of SED2)		
Metals					
Aluminum	200	8500	7950	40	7
Antimony	60	10.5	8.9	40	16
Arsenic	10	11.9	11.3	40	5
Barium	200	137	103	40	28
Beryllium	5	1.4	1.1	40	24
Cadmium	5	0.66	0.48	40	32
Calcium	5000	10400	7860	40	28
Chromium	10	19.6	17.1	40	14
Cobalt	50	41.9	32.5	40	25
Copper	25	40.4	31	40	26
Iron	100	30200	30700	40	2
Lead	10	31.2	26.6	40	16
Magnesium	5000	2990	2940	40	2
Manganese	15	6500	3560	40	58
Mercury	0.2	0.18	0.1	40	57
Nickel	40	73.8	54.3	40	30
Potassium	5000	1140	1140	40	0
Selenium	35	6.1	5.2	40	16
Silver	10	0.98	1	40	2
Sodium	5000	583	480	40	19
Thallium	25	2	2.4	40	18
Vanadium	50	19.1	17.9	40	6
Zinc	60	141	115	40	20
				Mean RPD:	**12**

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not applicable, duplicate not measured against non-detects.

Table 4C. Field Duplicate Summary
Surface Water
Brooke County Glass Dump CERCLIS Site
Wellsburg, Brooke County, West Virginia

COPC	CRDL	Concentration (ug/L)		RPD Acceptance Limit(%)	RPD (%)
		SW2	SW4 (FD of SW2)		
Metals					
Aluminum	200	504	269	40	61
Antimony	60	ND	ND	40	NA
Arsenic	10	ND	ND	40	NA
Barium	200	34.2	34.6	40	1
Beryllium	5	ND	ND	40	NA
Cadmium	5	ND	ND	40	NA
Calcium	5000	90500	92400	40	2
Chromium	10	ND	ND	40	NA
Cobalt	50	ND	ND	40	NA
Copper	25	ND	ND	40	NA
Iron	100	643	385	40	50
Lead	10	ND	ND	40	NA
Magnesium	5000	33900	34700	40	2
Manganese	15	312	310	40	1
Mercury	0.2	0.2	0.2	40	0
Nickel	40	ND	ND	40	NA
Potassium	5000	2720	2670	40	2
Selenium	35	ND	ND	40	NA
Silver	10	ND	ND	40	NA
Sodium	5000	15400	15700	40	2
Thallium	25	ND	ND	40	NA
Vanadium	50	ND	ND	40	NA
Zinc	60	5.4	4.6	40	16
				Mean RPD:	**17**

NOTES:

ND Not detected at a concentration greater than the Contract Required Detection Limit (CRDL).

NA Not applicable, duplicate not measured against non-detects.

Appendix 1

EDR Report

EDR® Environmental
Data Resources Inc

The EDR Radius Map
with GeoCheck®

Brooke County Glass Dump
Washington Pike
Wellsburg, WV 26070

Inquiry Number: 1921435.1s

May 07, 2007

The Standard in Environmental Risk Information

440 Wheelers Farms Road
Milford, Connecticut 06461

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

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Map Findings Summary	4
Map Findings	6
Orphan Summary	7
Government Records Searched/Data Currency Tracking	GR-1

GEOCHECK ADDENDUM

Physical Setting Source Addendum	A-1
Physical Setting Source Summary	A-2
Physical Setting Source Map	A-7
Physical Setting Source Map Findings	A-8
Physical Setting Source Records Searched	A-10

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

WASHINGTON PIKE
WELLSBURG, WV 26070

COORDINATES

Latitude (North):	40.267200 - 40° 16' 1.9"
Longitude (West):	80.588400 - 80° 35' 18.2"
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	534997.7
UTM Y (Meters):	4457285.0
Elevation:	929 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	40080-C5 STEUBENVILLE EAST, WV
Most Recent Revision:	1997

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

FEDERAL RECORDS

NPL ..... National Priority List
Proposed NPL ..... Proposed National Priority List Sites
Delisted NPL ..... National Priority List Deletions
NPL LIENS ..... Federal Superfund Liens
CERCLIS ..... Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP ..... CERCLIS No Further Remedial Action Planned
CORRACTS ..... Corrective Action Report
RCRA-TSDF ..... Resource Conservation and Recovery Act Information
RCRA-LQG ..... Resource Conservation and Recovery Act Information

EXECUTIVE SUMMARY

RCRA-SQG	Resource Conservation and Recovery Act Information
ERNS	Emergency Response Notification System
HMIRS	Hazardous Materials Information Reporting System
US ENG CONTROLS	Engineering Controls Sites List
US INST CONTROL	Sites with Institutional Controls
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
US BROWNFIELDS	A Listing of Brownfields Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
ODI	Open Dump Inventory
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
SSTS	Section 7 Tracking Systems
LUCIS	Land Use Control Information System
DOT OPS	Incident and Accident Data
ICIS	Integrated Compliance Information System
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
US CDL	Clandestine Drug Labs
RADINFO	Radiation Information Database
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
MINES	Mines Master Index File
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System

STATE AND LOCAL RECORDS

SHWS	This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.
SWF/LF	List of M.S.W. Landfills/Transfer Station Listing
LUST	Leaking Underground Storage Tanks
UST	Underground Storage Tank Database
SPILLS	Spills Listing
INST CONTROL	Sites with Institutional Controls
VCP	Voluntary Remediation Sites
DRYCLEANERS	Listing of Drycleaner Locations
BROWNFIELDS	Brownfields Sites Listing
CDL	Drug Lab Site Locations
NPDES	Wastewater Discharge Permits Listing
AIRS	Permitted Facility and Emissions Listing

TRIBAL RECORDS

INDIAN RESERV	Indian Reservations
INDIAN LUST	Leaking Underground Storage Tanks on Indian Land
INDIAN UST	Underground Storage Tanks on Indian Land

EDR PROPRIETARY RECORDS

Manufactured Gas Plants	EDR Proprietary Manufactured Gas Plants

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were not identified.

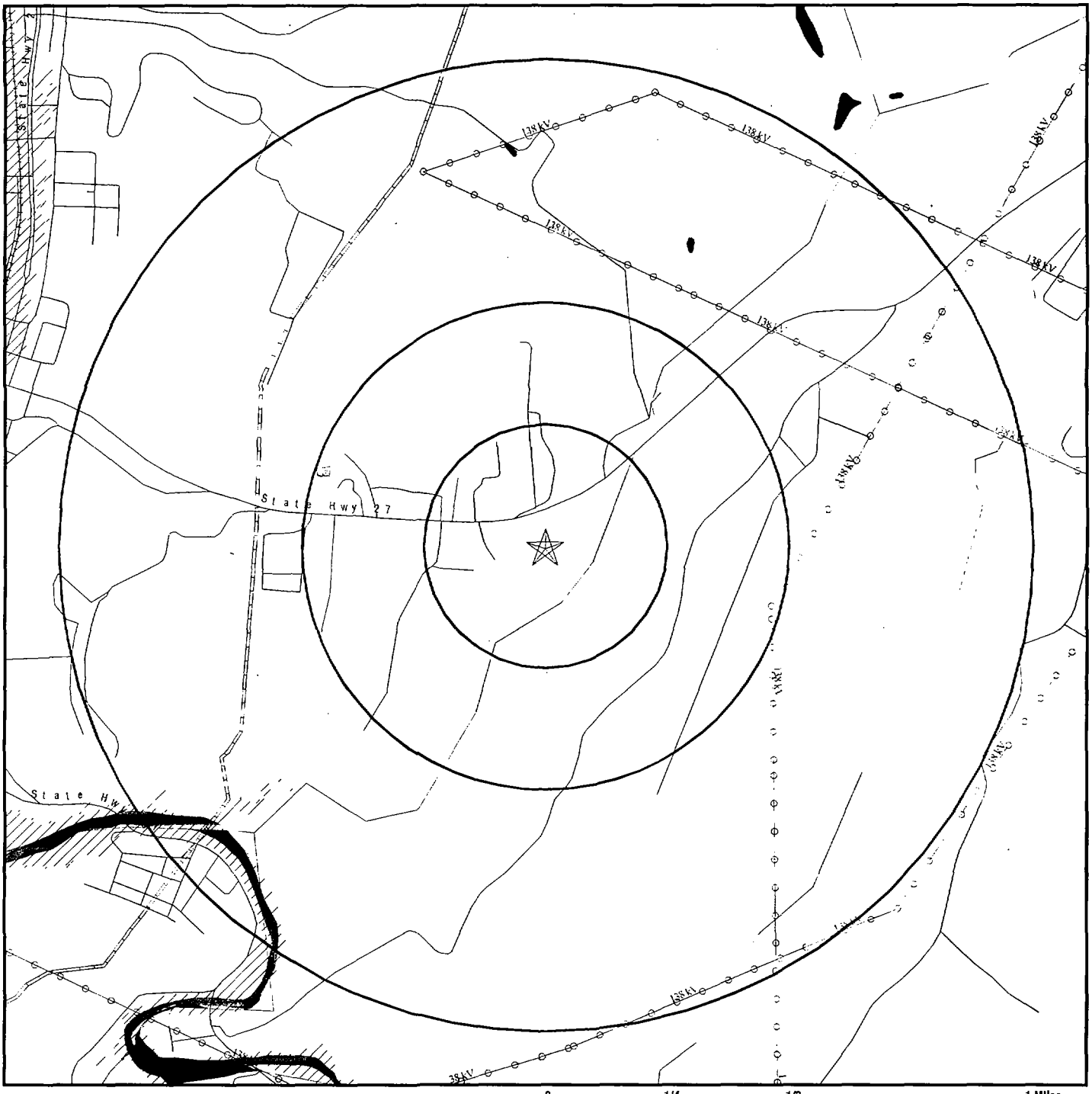
Unmappable (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
BROOKE HILLS PARK	NPDES
BROOKE MOBILE COURT	NPDES
BROOKE COUNTY GLASS DUMP	CERCLIS, FINDS
BROOKE COUNTY WHARF	CERC-NFRAP
BROOKE CO HQ 06051	LUST
AUTO MEDIC AMOCO	LUST, UST
BROOKE CO HQ 06051	UST
SMITH OIL CO INC #204	UST
VALLEY MARKET	UST
PROJECT NO BRF 002 054 CONSTRUCT	UST
BROOKE COUNTY HARBOR INC	UST
CARVER SCHOOL & GARAGE	UST
BROOKE CNTY SCHOOL BUS GARAGE	RCRA-SQG, FINDS
WVDOH BROOKE COUNTY HEADQUARTERS	RCRA-SQG, FINDS
BROOKE MACHINING & FABRICATING	RCRA-SQG, FINDS
BROOKE COUNTY ALTERNATIVE	FINDS
BROOKE HIGH SCHOOL	FINDS
BROOKE HILLS PARK	FINDS

OVERVIEW MAP - 1921435.1s

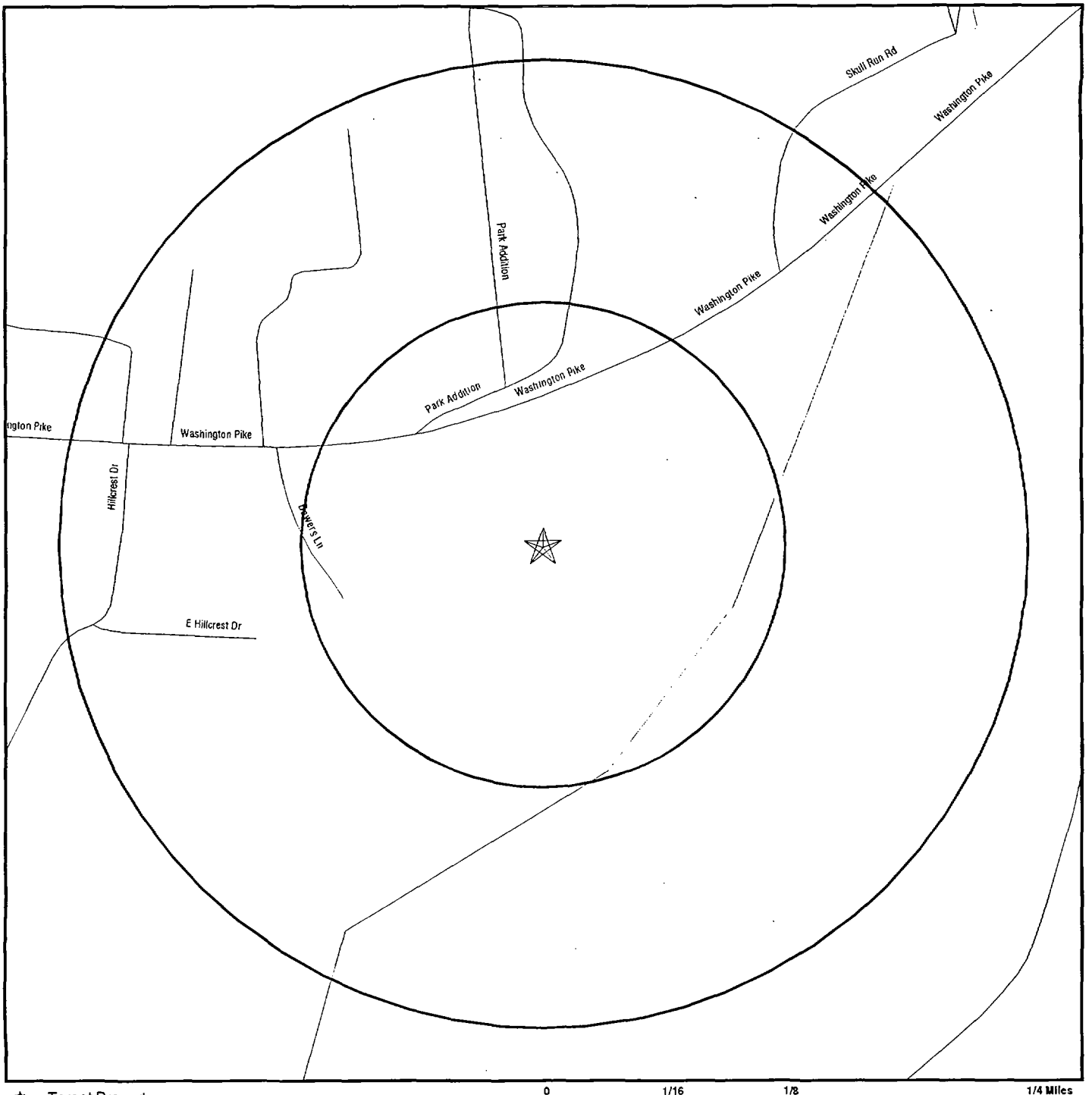


- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory

SITE NAME: Brooke County Glass Dump	CLIENT: Triad Engineering
ADDRESS: Washington Pike	CONTACT: Lydia Work
Wellsburg WV 26070	INQUIRY #: 1921435.1s
LAT/LONG: 40.2672 / 80.5884	DATE: May 07, 2007 7:02 pm

AR100107

DETAIL MAP - 1921435.1s



0 1/16 1/8 1/4 Miles

- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone

SITE NAME: Brooke County Glass Dump ADDRESS: Washington Pike Wellsburg WV 26070 LAT/LONG: 40.2672 / 80.5884	CLIENT: Triad Engineering CONTACT: Lydia Work INQUIRY #: 1921435.1s DATE: May 07, 2007 7:02 pm

AR100108

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL RECORDS								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
NPL LIENS		TP	NR	NR	NR	NR	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.500	0	0	0	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRA TSD		0.500	0	0	0	NR	NR	0
RCRA Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRA Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
US ENG CONTROLS		0.500	0	0	0	NR	NR	0
US INST CONTROL		0.500	0	0	0	NR	NR	0
DOD		1.000	0	0	0	0	NR	0
FUDS		1.000	0	0	0	0	NR	0
US BROWNFIELDS		0.500	0	0	0	NR	NR	0
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
UMTRA		0.500	0	0	0	NR	NR	0
ODI		0.500	0	0	0	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
SSTS		TP	NR	NR	NR	NR	NR	0
LUCIS		0.500	0	0	0	NR	NR	0
DOT OPS		TP	NR	NR	NR	NR	NR	0
ICIS		TP	NR	NR	NR	NR	NR	0
HIST FTTS		TP	NR	NR	NR	NR	NR	0
CDL		TP	NR	NR	NR	NR	NR	0
RADINFO		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
STATE AND LOCAL RECORDS								
State Haz. Waste		N/A	N/A	N/A	N/A	N/A	N/A	N/A
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
SPILLS		TP	NR	NR	NR	NR	NR	0
INST CONTROL		0.500	0	0	0	NR	NR	0
VCP		0.500	0	0	0	NR	NR	0
DRYCLEANERS		0.250	0	0	NR	NR	NR	0
BROWNFIELDS		0.500	0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CDL		TP	NR	NR	NR	NR	NR	0
NPDES		TP	NR	NR	NR	NR	NR	0
AIRS		TP	NR	NR	NR	NR	NR	0
TRIBAL RECORDS								
INDIAN RESERV		1.000	0	0	0	0	NR	0
INDIAN LUST		0.500	0	0	0	NR	NR	0
INDIAN UST		0.250	0	0	NR	NR	NR	0
EDR PROPRIETARY RECORDS								
Manufactured Gas Plants		1.000	0	0	0	0	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

N/A = This State does not maintain a SHWS list. See the Federal CERCLIS list.

MAP FINDINGS

Map ID Direction Distance Distance (ft.) Elevation	Site	Database(s)	EDR ID Number EPA ID Number
	NO SITES FOUND		

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
WELLSBURG	U003760153	BROOKE CO HQ 06051	RD 2 BOX 615 STATE RT 2	26070	UST
WELLSBURG	S104816638	BROOKE CO HQ 06051	RD 2 BOX 615 STATE RT 2	26070	LUST
WELLSBURG	1004802596	BROOKE CNTY SCHOOL BUS GARAGE	RT 2 & RT 67	26070	RCRA-SQG, FINDS
WELLSBURG	1000584800	WVDOH BROOKE COUNTY HEADQUARTERS	RT 2	26070	RCRA-SQG, FINDS
WELLSBURG	U003439044	AUTO MEDIC AMOCO	RT 2 & 16TH ST	26070	LUST, UST
WELLSBURG	1008254244	BROOKE COUNTY ALTERNATIVE	RR 3 BOX 610	26070	FINDS
WELLSBURG	U003760146	SMITH OIL CO INC #204	RT 3 BOX 16	26070	UST
WELLSBURG	U003760166	VALLEY MARKET	RT 3 BOX 568	26070	UST
WELLSBURG	1001230476	BROOKE COUNTY GLASS DUMP	ADJACENT TO 560D	26070	CERCLIS, FINDS
WELLSBURG	1006386445	BROOKE HIGH SCHOOL	BRUIN DRIVE	26070	FINDS
WELLSBURG	1004803745	BROOKE MACHINING & FABRICATING	600 CROSS CREEK RD	26070	RCRA-SQG, FINDS
WELLSBURG	S108349178	BROOKE HILLS PARK	140 GIST DR	26070	NPDES
WELLSBURG	1005527530	BROOKE HILLS PARK	140 GIST DRIVE	26070	FINDS
WELLSBURG	U003760159	PROJECT NO BRF 002 054 CONSTRUCT	INTERSECTION OF WV RT 2 & RT 67	26070	UST
WELLSBURG	1003867063	BROOKE COUNTY WHARF	MAIN STREET	26070	CERC-NFRAP
WELLSBURG	S108353685	BROOKE MOBILE COURT	RD NO. 3, BOX 577	26070	NPDES
WELLSBURG	U003546782	BROOKE COUNTY HARBOR INC	STATE RT 2	26070	UST
WELLSBURG	U003546770	CARVER SCHOOL & GARAGE	STATE RT 2 SOUTH OF WELLSBURG	26070	UST

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

FEDERAL RECORDS

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 01/25/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 09/27/2006
Date Data Arrived at EDR: 11/01/2006
Date Made Active in Reports: 11/22/2006
Number of Days to Update: 21

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 12/28/2006
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 40

Source: EPA
Telephone: N/A
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 03/26/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: No Update Planned

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/27/2007
Date Data Arrived at EDR: 03/21/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 37

Source: EPA
Telephone: 703-603-8960
Last EDR Contact: 03/21/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 12/20/2006
Date Data Arrived at EDR: 01/29/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 29

Source: EPA
Telephone: 703-603-8960
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 03/14/2007
Date Data Arrived at EDR: 03/20/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 38

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 03/05/2007
Next Scheduled EDR Contact: 06/04/2007
Data Release Frequency: Quarterly

RCRA: Resource Conservation and Recovery Act Information

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. RCRAInfo replaces the data recording and reporting abilities of the Resource Conservation and Recovery Information System (RCRIS). The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month. Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month. Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month. Transporters are individuals or entities that move hazardous waste from the generator off-site to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 06/13/2006
Date Data Arrived at EDR: 06/28/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 56

Source: EPA
Telephone: 800-438-2474
Last EDR Contact: 05/04/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Quarterly

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 01/24/2007
Date Made Active in Reports: 03/12/2007
Number of Days to Update: 47

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 04/24/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Annually

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 11/28/2006
Date Data Arrived at EDR: 01/17/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 41

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 04/17/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Annually

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 01/24/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 01/24/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 703-603-8905
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 703-692-8801
Last EDR Contact: 02/08/2007
Next Scheduled EDR Contact: 05/07/2007
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 09/20/2006
Date Made Active in Reports: 11/22/2006
Number of Days to Update: 63

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Varies

US BROWNFIELDS: A Listing of Brownfields Sites

Included in the listing are brownfields properties addresses by Cooperative Agreement Recipients and brownfields properties addressed by Targeted Brownfields Assessments. Targeted Brownfields Assessments-EPA's Targeted Brownfields Assessments (TBA) program is designed to help states, tribes, and municipalities--especially those without EPA Brownfields Assessment Demonstration Pilots--minimize the uncertainties of contamination often associated with brownfields. Under the TBA program, EPA provides funding and/or technical assistance for environmental assessments at brownfields sites throughout the country. Targeted Brownfields Assessments supplement and work with other efforts under EPA's Brownfields Initiative to promote cleanup and redevelopment of brownfields. Cooperative Agreement Recipients-States, political subdivisions, territories, and Indian tribes become Brownfields Cleanup Revolving Loan Fund (BCRLF) cooperative agreement recipients when they enter into BCRLF cooperative agreements with the U.S. EPA. EPA selects BCRLF cooperative agreement recipients based on a proposal and application process. BCRLF cooperative agreement recipients must use EPA funds provided through BCRLF cooperative agreement for specified brownfields-related cleanup activities.

Date of Government Version: 01/29/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 63

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 03/12/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Semi-Annually

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 08/23/2006
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 35

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 04/23/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/27/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 03/27/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/08/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 82

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 03/20/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Varies

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 *Subtitle D Criteria.*

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

TRIS: *Toxic Chemical Release Inventory System*

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2004
Date Data Arrived at EDR: 06/22/2006
Date Made Active in Reports: 08/23/2006
Number of Days to Update: 62

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 04/27/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2002
Date Data Arrived at EDR: 04/14/2006
Date Made Active in Reports: 05/30/2006
Number of Days to Update: 46

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 04/16/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 02/26/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 02/26/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/13/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 45

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 04/12/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Annually

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 01/30/2007
Date Data Arrived at EDR: 01/31/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 27

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 05/03/2007
Next Scheduled EDR Contact: 07/30/2007
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 01/08/2007
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 3

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 04/27/2007
Next Scheduled EDR Contact: 06/25/2007
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: No Update Planned

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/06/2006
Date Data Arrived at EDR: 02/02/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 04/16/2007
Next Scheduled EDR Contact: 07/16/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 03/26/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 02/14/2007
Date Data Arrived at EDR: 02/28/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 41

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 02/28/2007
Next Scheduled EDR Contact: 05/28/2007
Data Release Frequency: Varies

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/17/2006
Date Data Arrived at EDR: 11/29/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 43

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 03/02/2007
Next Scheduled EDR Contact: 05/07/2007
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 01/11/2007
Date Data Arrived at EDR: 01/26/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 32

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Quarterly

MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/15/2006
Date Data Arrived at EDR: 12/28/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 32

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 03/28/2007
Next Scheduled EDR Contact: 06/25/2007
Data Release Frequency: Semi-Annually

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 01/18/2007
Date Data Arrived at EDR: 01/23/2007
Date Made Active in Reports: 02/27/2007
Number of Days to Update: 35

Source: EPA
Telephone: (215) 814-5000
Last EDR Contact: 04/02/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 03/05/2007
Next Scheduled EDR Contact: 06/04/2007
Data Release Frequency: No Update Planned

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/06/2007
Date Made Active in Reports: 04/13/2007
Number of Days to Update: 38

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 03/06/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Biennially

STATE AND LOCAL RECORDS

SHWS: This state does not maintain a SHWS list. See the Federal CERCLIS list and Federal NPL list.

State Hazardous Waste Sites. State hazardous waste site records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. Available information varies by state.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: Department of Environmental Protection
Telephone: 304-926-0455
Last EDR Contact: 03/20/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: N/A

SWF/LF: List of M.S.W. Landfills/Transfer Station Listing

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 10/24/2006
Date Data Arrived at EDR: 10/25/2006
Date Made Active in Reports: 11/30/2006
Number of Days to Update: 36

Source: Division of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 04/25/2007
Next Scheduled EDR Contact: 07/23/2007
Data Release Frequency: Varies

LUST: Leaking Underground Storage Tanks

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/28/2007
Date Made Active in Reports: 05/04/2007
Number of Days to Update: 37

Source: Division of Environmental Protection
Telephone: 304-558-4253
Last EDR Contact: 03/28/2007
Next Scheduled EDR Contact: 06/25/2007
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UST: Underground Storage Tank Database
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 12/28/2006
Date Data Arrived at EDR: 01/16/2007
Date Made Active in Reports: 02/07/2007
Number of Days to Update: 22

Source: Division of Environmental Protection
Telephone: 304-759-0515
Last EDR Contact: 03/27/2007
Next Scheduled EDR Contact: 06/25/2007
Data Release Frequency: Annually

SPILLS: Spills Listing
A listing of spills and releases reported to the Office of Emergency Services, they do not include any TRI information.

Date of Government Version: 01/16/2007
Date Data Arrived at EDR: 02/20/2007
Date Made Active in Reports: 03/26/2007
Number of Days to Update: 34

Source: Office of Emergency Services
Telephone: 304-558-5380
Last EDR Contact: 02/20/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INST CONTROL: Sites with Institutional Controls
Sites that have institutional controls in place.

Date of Government Version: 02/01/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 05/04/2007
Number of Days to Update: 24

Source: Department of Environmental Protection
Telephone: 304-558-2508
Last EDR Contact: 03/21/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Varies

VCP: Voluntary Remediation Sites
Sites involved in the Voluntary Remediation Program.

Date of Government Version: 02/01/2007
Date Data Arrived at EDR: 04/10/2007
Date Made Active in Reports: 05/04/2007
Number of Days to Update: 24

Source: Department of Environmental Protection
Telephone: 304-558-2745
Last EDR Contact: 03/21/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Semi-Annually

DRYCLEANERS: Listing of Drycleaner Locations
A listing of drycleaners which use perchloroethylene.

Date of Government Version: 12/18/2006
Date Data Arrived at EDR: 12/18/2006
Date Made Active in Reports: 12/29/2006
Number of Days to Update: 11

Source: Department of Environmental Protection
Telephone: 304-926-0475
Last EDR Contact: 04/23/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Varies

BROWNFIELDS: Brownfields Sites Listing
Brownfields are abandoned, idle or underused commercial or industrial properties, where the expansion or redevelopment is hindered by real or perceived contamination. Brownfields vary in size, location, age, and past use -- they can be anything from a five-hundred acre automobile assembly plant to a small, abandoned corner gas station.

Date of Government Version: 03/22/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 05/04/2007
Number of Days to Update: 22

Source: Department of Environmental Protection
Telephone: 304-926-0455
Last EDR Contact: 03/22/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Varies

CDL: Drug Lab Site Locations
A listing of clandestine drug lab site locations.

Date of Government Version: 11/22/2006
Date Data Arrived at EDR: 11/22/2006
Date Made Active in Reports: 12/29/2006
Number of Days to Update: 37

Source: Department of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 04/23/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Varies

NPDES: Wastewater Discharge Permits Listing
A listing of wastewater discharge permits.

Date of Government Version: 02/06/2007
Date Data Arrived at EDR: 02/06/2007
Date Made Active in Reports: 03/26/2007
Number of Days to Update: 48

Source: Department of Environmental Protection
Telephone: 304-926-0495
Last EDR Contact: 05/07/2007
Next Scheduled EDR Contact: 08/06/2007
Data Release Frequency: Varies

AIRS: Permitted Facility and Emissions Listing
Permitted facility and emissions information listing.

Date of Government Version: 11/21/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 12/29/2006
Number of Days to Update: 28

Source: Department of Environmental Protection
Telephone: 304-926-0499
Last EDR Contact: 03/20/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

TRIBAL RECORDS

INDIAN RESERV: Indian Reservations
This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 02/08/2007
Next Scheduled EDR Contact: 05/07/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 02/19/2007
Date Data Arrived at EDR: 02/27/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 36

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 09/06/2006
Date Data Arrived at EDR: 10/04/2006
Date Made Active in Reports: 11/08/2006
Number of Days to Update: 35

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 01/04/2005
Date Data Arrived at EDR: 01/21/2005
Date Made Active in Reports: 02/28/2005
Number of Days to Update: 38

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Minnesota, Mississippi and North Carolina.

Date of Government Version: 08/24/2006
Date Data Arrived at EDR: 09/11/2006
Date Made Active in Reports: 11/08/2006
Number of Days to Update: 58

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 34

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 02/21/2007
Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/30/2007
Date Data Arrived at EDR: 03/30/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 28

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land

Date of Government Version: 03/01/2007
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 34

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

Date of Government Version: 03/26/2007
Date Data Arrived at EDR: 03/27/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 31

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN UST R4: Underground Storage Tanks on Indian Land

Date of Government Version: 08/24/2006
Date Data Arrived at EDR: 09/11/2006
Date Made Active in Reports: 11/08/2006
Number of Days to Update: 58

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Semi-Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R6: Underground Storage Tanks on Indian Land

Date of Government Version: 01/11/2007
Date Data Arrived at EDR: 01/12/2007
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 17

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
A listing of underground storage tank locations on Indian Land.

Date of Government Version: 12/01/2006
Date Data Arrived at EDR: 12/01/2006
Date Made Active in Reports: 01/29/2007
Number of Days to Update: 59

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

Date of Government Version: 12/02/2004
Date Data Arrived at EDR: 12/29/2004
Date Made Active in Reports: 02/04/2005
Number of Days to Update: 37

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

Date of Government Version: 02/19/2007
Date Data Arrived at EDR: 02/27/2007
Date Made Active in Reports: 04/04/2007
Number of Days to Update: 36

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

Date of Government Version: 09/06/2006
Date Data Arrived at EDR: 10/04/2006
Date Made Active in Reports: 11/08/2006
Number of Days to Update: 35

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 02/19/2007
Next Scheduled EDR Contact: 05/21/2007
Data Release Frequency: Varies

EDR PROPRIETARY RECORDS

Manufactured Gas Plants: EDR Proprietary Manufactured Gas Plants
The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 01/01/2007
Date Data Arrived at EDR: 01/04/2007
Date Made Active in Reports: 02/13/2007
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/05/2007
Next Scheduled EDR Contact: 07/02/2007
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 10/26/2006
Date Data Arrived at EDR: 11/29/2006
Date Made Active in Reports: 01/05/2007
Number of Days to Update: 37

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 03/02/2007
Next Scheduled EDR Contact: 05/28/2007
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 06/06/2006
Number of Days to Update: 81

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 04/16/2007
Next Scheduled EDR Contact: 06/11/2007
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 04/09/2007
Date Data Arrived at EDR: 04/12/2007
Date Made Active in Reports: 04/27/2007
Number of Days to Update: 15

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 03/19/2007
Next Scheduled EDR Contact: 06/18/2007
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 03/17/2006
Date Made Active in Reports: 05/02/2006
Number of Days to Update: 46

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 04/24/2007
Next Scheduled EDR Contact: 07/09/2007
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: PennWell Corporation
Telephone: (800) 823-6277
This map includes information copyrighted by PennWell Corporation. This information is provided on a best effort basis and PennWell Corporation does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of PennWell.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Day Care Center List
Source: Office of Social Services
Telephone: 304-558-7980

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

STREET AND ADDRESS INFORMATION

GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

BROOKE COUNTY GLASS DUMP
WASHINGTON PIKE
WELLSBURG, WV 26070

TARGET PROPERTY COORDINATES

Latitude (North):	40.26720 - 40° 16' 1.9"
Longitude (West):	80.5884 - 80° 35' 18.2"
Universal Tranverse Mercator:	Zone 17
UTM X (Meters):	534997.7
UTM Y (Meters):	4457285.0
Elevation:	929 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	40080-C5 STEUBENVILLE EAST, WV
Most Recent Revision:	1997

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

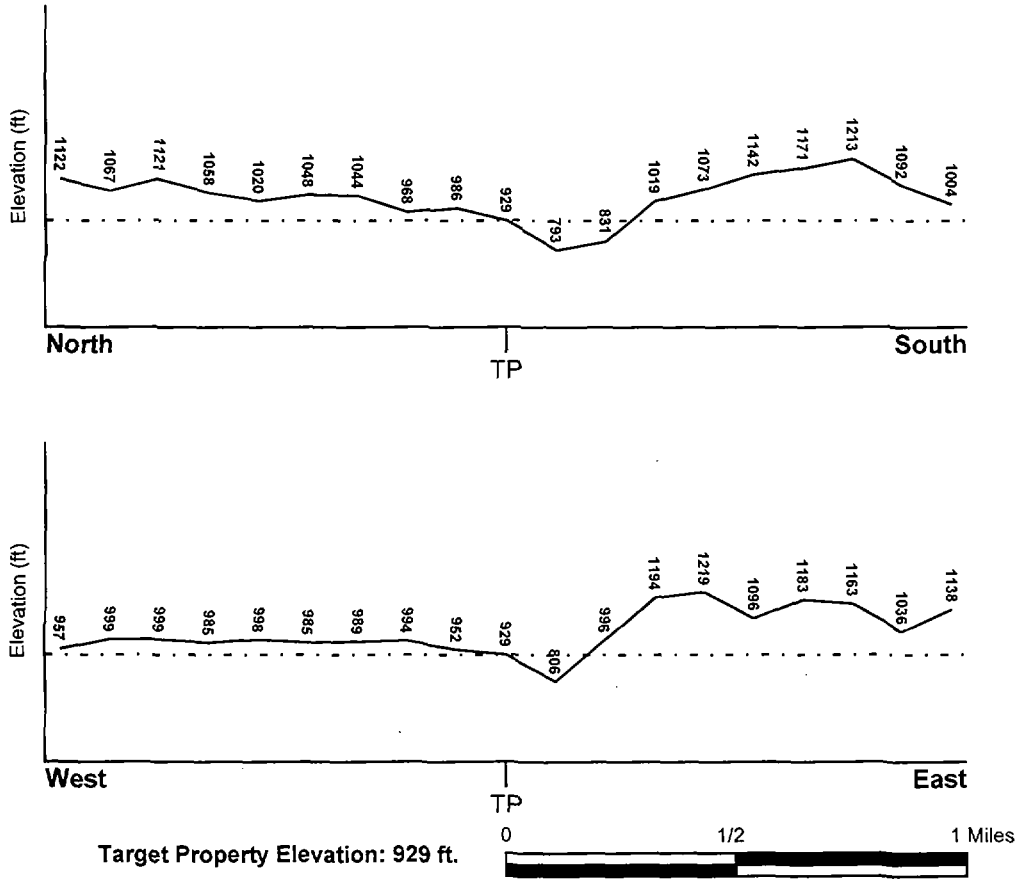
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General WSW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
BROOKE, WV	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	5400110045B
Additional Panels in search area:	5400110037B 5400110039B

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
STEUBENVILLE EAST	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT **GEOLOGIC AGE IDENTIFICATION**

Era:	Paleozoic	Category:	Stratifed Sequence
System:	Pennsylvanian		
Series:	Virgilian Series		
Code:	PP4 *(decoded above as Era, System & Series)*		

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name:	WESTMORELAND
Soil Surface Texture:	silt loam
Hydrologic Group:	Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.
Soil Drainage Class:	Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: LOW

Depth to Bedrock Min: > 40 inches

Depth to Bedrock Max: > 40 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (in/hr)	Soil Reaction (pH)
1	0 inches	7 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 2.00 Min: 0.60	Max: 6.00 Min: 4.50
2	7 inches	36 inches	silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 2.00 Min: 0.60	Max: 6.00 Min: 4.50
3	36 inches	49 inches	very channery - loam	Granular materials (35 pct. or less passing No. 200), Silty, or Clayey Gravel and Sand.	COARSE-GRAINED SOILS, Gravels, Gravels with fines, Silty Gravel	Max: 2.00 Min: 0.60	Max: 6.00 Min: 5.10
4	49 inches	53 inches	weathered bedrock	Not reported	Not reported	Max: 2.00 Min: 0.06	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: very stony - silt loam
silty clay

Surficial Soil Types: very stony - silt loam
silty clay

Shallow Soil Types: channery - loam
silty clay
clay

Deeper Soil Types: extremely channery - loam
unweathered bedrock

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
1	USGS2266878	1/2 - 1 Mile ESE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No Wells Found		

PHYSICAL SETTING SOURCE MAP - 1921435.1s

- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location

SITE NAME: Brooke County Glass Dump	CLIENT: Triad Engineering
ADDRESS: Washington Pike	CONTACT: Lydia Work
Wellsburg WV 26070	INQUIRY #: 1921435.1s
LAT/LONG: 40.2672 / 80.5884	DATE: May 07, 2007 7:02 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1 **ESE** **1/2 - 1 Mile** **Higher**	**FED USGS**	**USGS2266878**

Agency cd:	USGS	Site no:	401538080341901
Site name:	Brk-0032		
Latitude:	401538		
Longitude:	0803419	Dec lat:	40.26062608
Dec lon:	-80.57173902	Coor meth:	M
Coor accr:	S	Latlong datum:	NAD27
Dec latlong datum:	NAD83	District:	54
State:	54	County:	009
Country:	US	Land net:	Not Reported
Location map:	STEUBENVILLE EAST	Map scale:	24000
Altitude:	1190.00		
Altitude method:	Interpolated from topographic map		
Altitude accuracy:	10		
Altitude datum:	National Geodetic Vertical Datum of 1929		
Hydrologic:	Upper OhioWheeling. Ohio, Pennsylvania, West Virginia. Area = 1490 sq.mi.		
Topographic:	Hilltop		
Site type:	Ground-water other than Spring	Date construction:	19590101
Date inventoried:	Not Reported	Mean greenwich time offset:	EST
Local standard time flag:	Y		
Type of ground water site:	Single well, other than collector or Ranney type		
Aquifer Type:	Not Reported		
Aquifer:	MONONGAHELA FORMATION		
Well depth:	62.0	Hole depth:	62.0
Source of depth data:	owner		
Project number:	445404500		
Real time data flag:	0	Daily flow data begin date:	0000-00-00
Daily flow data end date:	0000-00-00	Daily flow data count:	0
Peak flow data begin date:	0000-00-00	Peak flow data end date:	0000-00-00
Peak flow data count:	0	Water quality data begin date:	1982-07-29
Water quality data end date:	1982-07-29	Water quality data count:	1
Ground water data begin date:	0000-00-00	Ground water data end date:	0000-00-00
Ground water data count:	0		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

EPA Region 3 Statistical Summary Readings for Zip Code: 26070

Number of sites tested: 82.

Maximum Radon Level: 50.8 pCi/L.
Minimum Radon Level: 0.3 pCi/L.

pCi/L <4	pCi/L 4-10	pCi/L 10-20	pCi/L 20-50	pCi/L 50-100	pCi/L >100
45 (54.88%)	27 (32.93%)	6 (7.32%)	2 (2.44%)	2 (2.44%)	0 (0.00%)

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

West Virginia Water Well Information
Source: Bureau of Public Health
Telephone: 304-558-6765

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

EPA Region 3 Statistical Summary Readings
Source: Region 3 EPA
Telephone: 215-814-2082
Radon readings for Delaware, D.C., Maryland, Pennsylvania, Virginia and West Virginia.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

STREET AND ADDRESS INFORMATION

Appendix 2

City of Wellsburg Annual Drinking Water Quality Report 2005

Annual Drinking Water Quality Report 2005
Wellsburg Water Dept.
City Hall
70 7th Street
Wellsburg, WV 26070
304-737-2104
WVPWSID# 3300517
April 6th, 2006

Why am I receiving this report?

In compliance with the Safe Drinking Water Act Amendments, the **Wellsburg Water Dept.** is providing its customers with this annual water quality report. This report explains where your water comes from, what it contains, and how it compares to standards set by regulatory agencies. The information in this report shows the results of our monitoring for the period of January 1st to December 31st, 2005 or earlier if not on a yearly schedule.

If you have any questions concerning this report, you may contact **Ernie Jack, Utilities Supervisor @ 304-737-3002**
If you have any further questions, comments or suggestions, please attend any of our regularly scheduled water board meetings held on the 4th **Wednesday of every month at 5:00PM at City Hall, 70 7th Street in Wellsburg.**

Where does my water come from?

Your water source is surface water from 4 deep wells along the Ohio River Basin.

Source Water Assessment

A Source Water Assessment was conducted in 2003 by the West Virginia Bureau for Public Health (WVBPH). The intake that supplies drinking water to the Wellsburg Water has a moderate susceptibility to contamination, due to the sensitive nature of surface water supplies and the potential contaminant sources identified within the area. This does not mean that this intake will become contaminated; only that conditions are such that the surface water could be impacted by a potential contaminant source. Future contamination may be avoided by implementing protective measures. The source water assessment report which contains more information is available for review or a copy will be provided to you at our office during business hours or from the WVBPH 304-558-2981.

Why must water be treated?

All drinking water contains various amounts and kinds of contaminants. Federal and state regulations establish limits, controls, and treatment practices to minimize these contaminants and to reduce any subsequent health effects.

Contaminants in Water

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits of contaminants in bottled water which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

The source of drinking water (both tap and bottled water) includes rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of land or through the ground, it dissolves naturally-occurring minerals, and, in some cases radioactive material and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

Inorganic contaminants, such as salts and metals, which can be naturally-occurring, or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, farming.

Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can, also, come from gas stations, urban storm water runoff, and septic systems.

Radioactive contaminants, which can be naturally-occurring or the result of oil and gas production and mining activities.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Water Quality Data Table

Definitions of terms and abbreviations used in the table or report:

- **MCLG - Maximum Contaminant Level Goal**, or the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- **MCL - Maximum Contaminant Level**, or the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technique.
- **MRDLG - Maximum Residual Disinfectant Level Goal**, or the level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect benefits of use of disinfectants to control microbial contaminants.
- **MRDL - Maximum Residual Disinfectant Level**, or the highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of disinfectant is necessary to control microbial contaminants.

Abbreviations that may be found in the table:

- **ppm** - parts per million or milligrams per liter
- **ppb** - parts per billion or micrograms per liter
- **NE** - not established
- **N/A** - not applicable

The **Wellsburg Water Dept** routinely monitors for contaminants in your drinking water according to federal and state laws. The tables below show the results of our monitoring for contaminants.

Table of Test Results - Regulated Contaminants -

Inorganic Contaminants						
Copper	N	0.105	ppm	1.3	AL=1.3	Corrosion of household plumbing, erosion of natural deposits
Fluoride	N	1.04	ppm	4	4	Erosion of natural deposits; water additive that promotes strong teeth; discharge from aluminum and fertilizer plants
Lead	N	0.18	ppb	0	AL=15	Corrosion of household plumbing, erosion of natural deposits
Nitrate	N	0.49	ppm	10	10	Runoff from fertilizer use; erosion of natural deposits
Volatile Organic Contaminants						
Chlorine	N	1.5	ppm	4 MRDLG	4 MRDL	Water additive used to control microbes

* Copper and lead samples were collected from (20) area residences on (8/25/2005). Only the 90th percentile is reported. None of the samples collected exceeded the MCL.

WE ARE PLEASED TO REPORT THAT THE WELLSBURG WATER DEPT. MET ALL FEDERAL AND STATE WATER STANDARDS FOR THE REPORTING YEAR 2005.

Additional Information

All other water test results for the reporting year 2005 were all non-detects.

Appendix 3

CLP Analytical Results

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MARYLAND 20755-5350

DATE : April 19, 2007

SUBJECT: Region III Data QA Review

FROM : Khin-Cho Thaung KCT
Region III ESAT RPO (3EA20)

TO : James Hargett
Regional Project Manager (3HS12)

Attached is the inorganic data validation report for the Brooke County Glass Dump site (Case # 36279; SDG #MC2101) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2743.

Attachment

cc: Pam Hayes/Lydia Work WVDEP/TRIAD

TO File #: 0007 TDF#: 0451

ANALYTICAL SERVICES AND QUALITY ASSURANCE BRANCH

Lockheed Martin Information Technology
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

LOCKHEED MARTIN
We never forget who we're working for™

DATE: April 17, 2007

SUBJECT: Inorganic Data Validation (IM1 Level)
Case: 36279
SDG: MC2101
Site: Brooke County Glass Dump

FROM: Mirna Alpizar MA
Inorganic Data Reviewer

Mahboobeh Mecanic MM
Senior Oversight Chemist

TO: Khin-Cho Thaung
ESAT Region 3 Project Officer

OVERVIEW

Case 36279, Sample Delivery Group (SDG) MC2101, consisted of seven (7) aqueous samples analyzed for total metals by Sentinel Inc. (SENTIN). The sample set contained one (1) field duplicate pair. Samples were analyzed in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) ILM05.4 through Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to EPA Region III Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995, which includes review of all Forms but excludes the review of raw data. Areas of concern with respect to data usability are listed below.

Data in this case have been impacted by an outlier present in the sample preservation. Details of this outlier are discussed under "Minor Problem" and qualified analytical results for all samples are summarized on the Data Summary Forms (DSFs).

MINOR PROBLEM

Samples MC2102 and MC2103 had a pH > 2. As per Region instructions, the samples were preserved prior to digestion. Positive results for all analytes in these samples may be biased low and have been qualified "L" unless superseded by "J" on the DSFs. Quantitation limits for all analytes in these samples may be biased low and have been qualified "UL" on the DSFs.

NOTES

Reported results with values greater than the MDL but below CRQL were qualified "J" on the DSFs.

The cooler used to transport all samples for this SDG had an interior temperature of 18°C. This temperature is outside the control limit (4°C ± 2°C). Due to the thermo-stability of metals, no data were qualified based on the cooler temperature.

The laboratory reported that inadvertently the matrix spike was spiked at four times (4X) the contract required level; however, the laboratory had insufficient sample volume to re-digest the matrix spike. Therefore, the laboratory diluted the matrix spike (0.25 dilution factor) and proceeded with the analysis. Values reported on Form 5A-Matrix Spike Sample Recovery are corrected values from the raw data.

Reported results for field duplicate pair MC2113/MC2115 were within 20% RPD, ±CRQL for all analytes except aluminum (Al) and iron (Fe).

Data for Case 36279, SDG MC2101, were reviewed in accordance with EPA Region 3 Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

APPENDIX A	GLOSSARY OF DATA QUALIFIER CODES
APPENDIX B	DATA SUMMARY FORM(S)
APPENDIX C	CHAIN OF CUSTODY RECORD(S)
APPENDIX D	LABORATORY CASE NARRATIVE(S)

DCN: 36279_MC2101.IM1.doc

APPENDIX A

GLOSSARY OF DATA QUALIFIERS

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION
(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

APPENDIX B

DATA SUMMARY FORMS (DSF)

DATA SUMMARY FORM: INORGANIC

Case #: 36279
Site :
Lab. :

SDG : MC2101
BROOKE COUNTY GLASS DUMP
SENTIN

Number of Soil Samples : 0
Number of Water Samples : 7

Sample Number :		MC2101		MC2102		MC2103		MC2112		MC2113	
Sampling Location :		GW1		GW2		GW3		SW1		SW2	
Field QC:										F. Dup MC2115	
Matrix :		Water		Water		Water		Water		Water	
Units :		ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :		3/27/2007		3/27/2007		3/27/2007		3/26/2007		3/26/2007	
Time Sampled :		11:05		11:15		12:30		11:20		11:10	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200	130	J	128	J	198	J	281		504	
ANTIMONY	60				UL		UL				
*ARSENIC	10				UL		UL				
BARIUM	200	29.4	J	41.5	J	51.3	J	34.3	J	34.2	J
BERYLLIUM	5				UL		UL				
*CADMIUM	5				UL		UL				
CALCIUM	5000	74200		85900	L	89400	L	93200		90500	
*CHROMIUM	10				UL	1.3	J				
COBALT	50				UL		UL				
COPPER	25				UL		UL				
IRON	100	59.1	J	47.8	J	142	L	441		643	
*LEAD	10				UL		UL				
MAGNESIUM	5000	16500		17400	L	28900	L	34900		33900	
MANGANESE	15	3.8	J	4.2	J	3.5	J	317		312	
MERCURY	0.2	0.080	J	0.090	J	0.090	J	0.080	J		
*NICKEL	40				UL		UL				
POTASSIUM	5000	1610	J	1510	J	5100	L	2800	J	2720	J
SELENIUM	35	22.4	J	15.6	J		UL				
SILVER	10				UL		UL				
SODIUM	5000	18500		17300	L	112000	L	16200		15400	
THALLIUM	25				UL		UL				
VANADIUM	50				UL	1.7	J				
ZINC	60				UL		UL	6.0	J	5.4	J

CRQL = Contract Required Quantitation Limit
*Action Level Exists
SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor)
Revised 09/99

DATA SUMMARY FORM: INORGANIC

Case #: 36279 SDG : MC2101
Site : BROOKE COUNTY GLASS DUMP
Lab. : SENTIN

Sample Number :		MC2114		MC2115							
Sampling Location :		SW3		SW4							
Field QC:				F. Dup MC2113							
Matrix :		Water		Water							
Units :		ug/L		ug/L							
Date Sampled :		3/26/2007		3/26/2007							
Time Sampled :		10:50		11:10							
Dilution Factor :		1.0		1.0							
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	200	264		269							
ANTIMONY	60										
*ARSENIC	10										
BARIUM	200	34.2	J	34.6	J						
BERYLLIUM	5										
*CADMIUM	5										
CALCIUM	5000	92600		92400							
*CHROMIUM	10										
COBALT	50										
COPPER	25										
IRON	100	390		385							
*LEAD	10										
MAGNESIUM	5000	34600		34700							
MANGANESE	15	314		310							
MERCURY	0.2	0.070	J								
*NICKEL	40										
POTASSIUM	5000	2670	J	2670	J						
SELENIUM	35										
SILVER	10										
SODIUM	5000	15600		15700							
THALLIUM	25										
VANADIUM	50										
ZINC	60	4.3	J	4.6	J						

CRQL = Contract Required Quantitation Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) Revised 09/99

APPENDIX C

CHAIN-OF-CUSTODY RECORDS

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

Case No: 36279
DAS No:
R

Region:	3	Date Shipped:	3/30/2007	Chain of Custody Record	Sampler Signature:
Project Code:	CT3807	Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	2007T03W302DD2CB396QB00	Airbill:	880575607063	Lydia Work 3/30/07 1200	
CERCLIS ID:	WV0002456275	Shipped to:	Sentinel Inc. 116 Washington Street, NE Huntsville AL 35801 (256) 534-9800	2	
Spill ID:				3	
Site Name/State:	Brooke County Glass/WV			4	
Project Leader:	Lydia Work				
Action:	Brownfields Site				
Sampling Co:	Triad Engineering				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC2101	Ground Water/ Gary Hilgar	M/G	TM (21)	31 (1)	GW1	S: 3/27/2007 11:05		-
MC2102	Ground Water/ Gary Hilgar	M/G	TM (21)	32 (1)	GW2	S: 3/27/2007 11:15		-
MC2103	Ground Water/ Gary Hilgar	M/G	TM (21)	33 (1)	GW3	S: 3/27/2007 12:30		-
MC2108	Sediment/ Carol Phillips	M/G	TM (21)	310 (1)	SED1	S: 3/26/2007 11:20		-
MC2109	Sediment/ Carol Phillips	M/G	TM (21)	311 (1)	SED2	S: 3/26/2007 11:05		-
MC2110	Sediment/ Lydia Work	M/G	TM (21)	312 (1)	SED3	S: 3/26/2007 10:55		-
MC2111	Sediment/ Carol Phillips	M/G	TM (21)	313 (1)	SED4	S: 3/26/2007 11:05		Field Duplicate of MC2109
MC2112	Surface Water/ Carol Phillips	M/G	TM (21)	314 (1)	SW1	S: 3/26/2007 11:20		-
MC2113	Surface Water/ Carol Phillips	M/G	TM (21)	317 (1)	SW2	S: 3/26/2007 11:10		-
MC2114	Surface Water/ Lydia Work	M/G	TM (21)	318 (1)	SW3	S: 3/26/2007 10:50		-
MC2115	Surface Water/ Carol Phillips	M/G	TM (21)	319 (1)	SW4	S: 3/26/2007 11:10		Field Duplicate of MC2113

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: MC2103, MC2111, MC2112, MC2120	Additional Sampler Signature(s): Lydia M. Work	Chain of Custody Seal Number:
Analysis Key: TM = CLP TAL Total Metals	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-043013577-033007-0001

REGION COPY

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

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax

U.S. EPA Region III Analytical Request Form

9TS 3-14-27

[redacted]

36279

Date: 03/14/2007	Site Activity: Site Inspection Reassessment			
Site Name: Brooke County Glass Dump		Street Address: Washington Pike		
City: Wellsburg	State: WV	Latitude: 40°16'5"		Longitude: 80°35'18"
Program: Superfund	Acct. #: 2007 T 03N 302DD2C B398 QB00		CERCLIS #: WV0002456275	
Site ID:	Spill ID:		Operable Unit: 0	
Site Specific QA Plan Submitted: ☐ No ☒ Yes Title: Sampling and Analysis Plan, Brooke County Glass Dump, Rev. 2 September 2006 Date Approved: October 2006				
EPA Project Leader: James Hargett 3H512	Phone#: 215-814-3305	Cell Phone #:		E-mail: Hargett.James@epa.gov
Request Preparer: Carol Phillips	Phone#: 304-296-2562	Cell Phone #:		E-mail: cphillips@triadeng.com
Site Leader: Pam Hayes, WVDEP	Phone#: 304-926-0499	Cell Phone #:		E-mail: pdhayes@wvdep.org
Contractor: Triad Engineering, Inc.		EPA CO/PO:		
#Samples 23	Matrix: soil Soils	Parameter: TAL Metals QL's present		Method: ILM05.3
#Samples 6	Matrix: sediment	Parameter: TAL Metals		Method: ILM05.3
#Samples 6	Matrix: water-non potable	Parameter: TAL Metals		Method: ILM05.3
#Samples 9	Matrix: water-non potable	Parameter: TAL Metals, Dissolved		Method: ILM05.3
#Samples 7	Matrix: water-drinking	Parameter: TAL Metals		Method: ILM05.3
#Samples	Matrix:	Parameter:		Method:
#Samples	Matrix:	Parameter:		Method:
#Samples	Matrix:	Parameter:		Method:
#Samples	Matrix:	Parameter:		Method:
Ship Date From: 3/26/2007	Ship Date To: 3/26/2007	Org. Validation Level N/A		Inorg. Validation Level IM1
Unvalidated Data Requested: ☒ No ☐ Yes If Yes, TAT Needed: ☐ 24hrs ☐ 48hrs ☐ 72hrs ☐ 7days ☐ Other (Specify)				
Validated Data Package Due: ☐ 14 days ☒ 21 days ☐ 30days ☐ 42 days ☐ Other (Specify) 14/7				
Electronic Data Deliverables Required: ☐ No ☒ Yes (EDDs will be provided in Region 3 EDD Format)				
Special Instructions:				

FORM ARF- 03/05

AR100154

TABLE 4. GROUNDWATER LABORATORY ANALYTICAL SUMMARY

Brooke County Glass Dump CERCLIS Site (WV0002456275)
Wellsburg, Brooke County, West Virginia

Target Analyte	CAS Number	Action Limit		Project Required Quantitation Limit
Metals (ug/L)				
ALUMINUM	7429905	200	2	200
ANTIMONY	7440360	6	1	2
ARSENIC	7440382	10	1	10
BARIUM	7440393	2,000	1	200
BERYLLIUM	7440417	4	1	1
CADMIUM	7440439	5	1	5
CALCIUM	7440702	NV		5,000
CHROMIUM	18540299	100	1	10
COBALT	7440484	730	3	50
COPPER	7440508	1,000	2	25
IRON	7439896	300	2	100
LEAD	7439921	15	1	10
MAGNESIUM	7439954	NV		5,000
MANGANESE	7439965	50	2	15
MERCURY	7439976	2	1	0.2
NICKEL	7440020	730	3	40
POTASSIUM	7440097	NV		5,000
SELENIUM	7782492	50	1	35
SILVER	7440224	1,000	2	10
SODIUM	7440235	NV		5,000
THALLIUM	7440280	2	1	1
VANADIUM	7440622	37	3	1
ZINC	7440666	5,000	2	60

Notes

1 USEPA National Primary Drinking Water Standard MCL, Winter 2004.

2 USEPA National Secondary Drinking Water Standard MCL, Winter 2004.

3 USEPA Region III Tap Water Risk Based Concentration, April 2005.

NV - No Value Available for compound

TABLE 5. SURFACE WATER LABORATORY ANALYSIS SUMMARY

Brooke County Glass Dump CERCLIS Site (WV0002456275)
Wellsburg, Brooke County, West Virginia

Target Analyte	CAS Number	Action Limit		Project Required Quantitation Limit
Metals (ug/L)				
ALUMINUM	7429905	750	3	200
ANTIMONY	7440360	640	1	60
ARSENIC	7440382	0.14	1	1
BARIUM	7440393	1,000	3	200
BERYLLIUM	7440417	0.0077	3	1
CADMIUM	7440439	10	3	5
CALCIUM	7440702	NV		5,000
CHROMIUM	18540299	50	3	10
COBALT	7440484	NV		50
COPPER	7440508	1,300	2	25
IRON	7439896	1.5	3	10
LEAD	7439921	50	3	10
MAGNESIUM	7439954	NV		5,000
MANGANESE	7439965	1,000	3	15
MERCURY	7439976	0.14	3	0.1
NICKEL	7440020	4,600	1	40
POTASSIUM	7440097	NV		5,000
SELENIUM	7782492	4,200	1	35
SILVER	7440224	4	3	1
SODIUM	7440235	NV		5,000
THALLIUM	7440280	6.3	1	2.5
VANADIUM	7440622	NV		50
ZINC	7440666	26,000	1	60

Notes

1 USEPA National Recommended Water Quality Criteria, November 2002, Human Health for Consumption of Organisms.

2 USEPA National Recommended Water Quality Criteria, November 2002, Human Health for Consumption of Water and Organisms.

3 West Virginia 46CSR1 Requirements Governing Water Quality Standards.

* Benchmarks for metals calculated by assuming a hardness value of 100 mg/L.

NV - No Value Available for compound

Lindsey Cholewa

From: "Berardino, Michelle" <mberardino@fedcsc.com>
To: "Lindsey Cholewa" <lcholewa@sentinellab.com>
Cc: "Carroll" <harris.carroll@epa.gov>; "Dan Slizys" <slizys.dan@epa.gov>; "John" <kwedar.john@epa.gov>; "Khin-Cho" <thaung.khin-cho@epa.gov>
Sent: Thursday, April 05, 2007 3:36 PM
Subject: Region 03 | Case 36279 | Lab SENTIN | Issue Multiple | FINAL

-Record of Communication Update-
This ROC has been updated to reflect the accurate sample ID in issue 5.

Summary Start
-Missing temperature blank-
Issue 1: There was no temperature blank in the cooler. The temperature of a sample was 18 C.
Resolution 1: Per Region 3, the issue must be documented in the SDG/Case Narrative.

-Discrepancies with tags, jars, and/or TR/COC-
Issue 2: The TR/COC does not list HG as a required analysis, however, the Case is scheduled for it per the Scheduling Notification Form.
Resolution 2: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, perform the analyses as indicated on the Scheduling Notification Form, and proceed with the analysis of the samples.

Issue 3: The TR/COC lists the TAT as 21 days, however, per the Scheduling Notification Form this Case has a 14 day TAT.
Resolution 3: In accordance with previous direction from Region 3, the laboratory will proceed with the turnaround time indicated on the Scheduling Notification Form, note the issue in the Case/SDG Narrative, and proceed with the analysis of the samples.

Issue 4: The Case was scheduled for both filtered and non-filtered water samples, however, the Case is complete and the TR/COC does not designate any samples as filtered.
Resolution 4: Per Region 3, filtered samples for this Case is no longer needed. Please note the issue in the Case/SDG Narrative.

-pH outside allowable limits-
Issue 5: Sample MC2102 has a pH of 6 and sample MC2103 has a pH of 5.
Resolution 5: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, adjust the pH, and proceed with the analysis of the samples.
Summary End

Please let me know if you have any further questions or problems.
Thanks,

Beth Rudolph for

Michelle Berardino
Computer Sciences Corporation
CLP Coordinator for Regions 1 & 3
mberardino@fedcsc.com
703.818.5264

From: Lindsey Cholewa [mailto:lcholewa@sentinellab.com]
Sent: Thursday, April 05, 2007 4:02 PM
To: Berardino, Michelle
Subject: Re: Region 03 | Case 36279 | Lab SENTIN | Issue Multiple | FINAL

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FYI..

Michelle-
for issue 5 below, the correct sample ID should be MC2103 not MC1203.

Thanks,
LC

----- Original Message -----
From: Berardino, Michelle
To: bkilgore@sentinellab.com ; Daphne ; Lindsey ; sample_receipt@sentinellab.com
Cc: Carroll ; Dan Slizys ; John ; Khin-Cho
Sent: Thursday, April 05, 2007 6:52 AM
Subject: Region 03 | Case 36279 | Lab SENTIN | Issue Multiple | FINAL

Lindsey,

-Missing temperature blank-
Issue 1: There was no temperature blank in the cooler. The temperature of a sample was 18 C.
Resolution 1: Per Region 3, the issue must be documented in the SDG/Case Narrative.

-Discrepancies with tags, jars, and/or TR/COC-
Issue 2: The TR/COC does not list HG as a required analysis, however, the Case is scheduled for it per the Scheduling Notification Form.
Resolution 2: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, perform the analyses as indicated on the Scheduling Notification Form, and proceed with the analysis of the samples.

Issue 3: The TR/COC lists the TAT as 21 days, however, per the Scheduling Notification Form this Case has a 14 day TAT.
Resolution 3: In accordance with previous direction from Region 3, the laboratory will proceed with the turnaround time indicated on the Scheduling Notification Form, note the issue in the Case/SDG Narrative, and proceed with the analysis of the samples.

Issue 4: The Case was scheduled for both filtered and non-filtered water samples, however, the Case is complete and the TR/COC does not designate any samples as filtered.
Resolution 4: Per Region 3, filtered samples for this Case is no longer needed. Please note the issue in the Case/SDG Narrative.

-pH outside allowable limits-
Issue 5: Sample MC2102 has a pH of 6 and sample MC1203 has a pH of 5.
Resolution 5: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, adjust the pH, and proceed with the analysis of the samples.
Please let me know if you have any further questions or problems.
Thanks,
Michelle Berardino
Computer Sciences Corporation
CLP Coordinator for Regions 1 & 3
mberardino@fedcsc.com
703.818.5264

From: Lydia M. Work [mailto:lwork@triadeng.com]
Sent: Wednesday, April 04, 2007 3:41 PM
To: Slizys.Dan@epamail.epa.gov; Berardino, Michelle; Carroll Harris
Cc: Carol Phillips; Pam Hayes; Heather A. Napier
Subject: RE: RE: NEW ISSUE | Case 36279 | Lab SENTIN | Issue Multiple|
Hi, All-

Thank you for addressing the issues listed. Please see my responses to the remaining items.

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Item 1: Since the samples were metals only, we did not feel a temperature blank was technically warranted (i.e., metals don't volatilize). For clarification, should we provide a temperature blank every time, even if it is metals only?

Item 2: We were able to collect groundwater samples from clear flowing springs, as a result, filtering was not performed. All waters are for total metals only.

Another clarification; I thought "TM" on the Traffic Report/COC included Hg? I thought you specify only when Hg is not included. See http://www.epa.gov/superfund/programs/clp/download/trs/inlabins.pdf. If we need to list Hg separately every time, please let us know. I would hate for the lab to miss an analytical request over a simple miscommunication.

Thanks,
-Lydia

>>> <Slizys.Dan@epamail.epa.gov> 4/4/2007 2:38 PM >>>

Michelle, Carol and Pam,

Issue 1: the lab must document that no temperature blank was submitted and temperature of the sample cooler in the case narrative.

Issue 4: The field personnel must reply and provide the identificaction of the filtered samples.

Issues 2, 3, and 5 were acceptable responses to the lab.

(See attached file: CT3907.doc)

"Berardino, Michelle" <mberardino@fedcsc.com>	To Dan Slizys/ESC/R3/USEPA/US@EPA
04/04/2007 01:51 PM	cc Subject RE: NEW ISSUE | Case 36279 | Lab SENTIN | Issue Multiple |

Dan,

Have you had a chance to look into issues 1 and 4 below yet? The CT number is 3907. Thanks!

-Michelle

-----Original Message-----
From: Berardino, Michelle
Sent: Wednesday, April 04, 2007 8:15 AM

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To: 'Slizys.Dan@epamail.epa.gov'
Subject: RE: NEW ISSUE | Case 36279 | Lab SENTIN | Issue Multiple |

Dan,

It is CT3907. Please let me know if you need any more information.
Thanks,

Michelle Berardino
Computer Sciences Corporation

-----Original Message-----
From: Slizys.Dan@epamail.epa.gov [mailto:Slizys.Dan@epamail.epa.gov]
Sent: Wednesday, April 04, 2007 7:18 AM
To: Berardino, Michelle
Cc: harris.carroll@epa.gov; slizys.dan@epa.gov; kwedar.john@epa.gov
Subject: Re: NEW ISSUE | Case 36279 | Lab SENTIN | Issue Multiple |

Michelle,

What is the "CT" number. I can not find 36279 in our database.

Michelle,

Please advise on issues 1 and 4. The remaining issues have been resolved using standard answers.

-Missing temperature blank-
Issue 1: There was no temperature blank in the cooler. The temperature of a sample was 18 C.
The issue must be documented in the case narrative.
-Discrepancies with tags, jars, and/or TR/COC- Issue 2: The TR/COC does not list HG as a required analysis, however, the Case is scheduled for it per the Scheduling Notification Form.
Resolution 2: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, perform the analyses as indicated on the Scheduling Notification Form, and proceed with the analysis of the samples.
The response is acceptable.
Issue 3: The TR/COC lists the TAT as 21 days, however, per the Scheduling Notification Form this Case has a 14 day TAT.
Resolution 3: In accordance with previous direction from Region 3, the laboratory will proceed with the turnaround time indicated on the Scheduling Notification Form, note the issue in the Case/SDG Narrative, and proceed with the analysis of the samples.
The response is acceptable.
Issue 4: The Case was scheduled for both filtered and non-filtered water samples, however, the Case is complete and the TR/COC does not designate any samples as filtered.
I will have to contact the field personnel for clarification.

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-pH outside allowable limits-
Issue 5: Sample MC2102 has a pH of 6 and sample MC1203 has a pH of 5.
Resolution 5: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, adjust the pH, and proceed with the analysis of the samples.
The response is acceptable.
Please let me know if you have any questions.
Thanks,

Michelle Berardino
Computer Sciences Corporation
CLP Coordinator for Regions 1 & 3
mberardino@fedcsc.com
703.818.5264

From: Lindsey Cholewa [mailto:lcholewa@sentinellab.com]
Sent: Monday, April 02, 2007 1:46 PM
To: Berardino, Michelle
Subject: case 36279

Michelle-

Today the lab received samples for case 36279.

1.There was no temp blank in the cooler. Using a non invasive laser thermometer, the temperature of a sample was 18.0C.

2.The TR/COC does not list Hg as a required analysis, however the case is scheduled for it. The lab assumes that this is an error on the TR/COC and will proceed with the scheduled analysis.

3.The TR/COC lists the TAT as 21 days, however the case is listed as a 14 day TAT. The lab assumes that this is an error on the TR/COC and will proceed with the scheduled TAT.

4.The case was scheduled for both filtered and nonfiltered water samples, however we only received samples listed for total metal analysis. Are we to expect the additional water samples?

5.Sample MC2102 has pH of 6 and sample MC1203 has pH of 5.

133

Thanks,

Lindsey Cholewa
Sample Receipt Coordinator/Environmental Scientist Sentinel,Inc.
256-534-9800 Ex.22

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APPENDIX D

LABORATORY CASE NARRATIVE

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2101

SAMPLE RECEIPT: Temperature Blank: PRESENT____ ABSENT ✓
If a blank is absent, a non-invasive laser measurement is taken using a sample.
Cooler temperature(s) recorded via laser measurement were: 18.002
Refer to Record of Communication (ROC) regarding EPA Sample # discrepancies for samples:

Refer to ROC regarding tag discrepancies for samples:

Refer to ROC regarding sample preservation discrepancies for samples:
MC2102, 03

Refer to ROC regarding:
- analysis + TAT discrepancies on COC ITR
- filtered samples no longer needed for this case

QC Specified: Yes ✓ No___ If no, chose:

ANALYSIS: The following analyte(s) were estimated due to possible matrix interferences:

DOCUMENT CONTROL: The following invalid defects resulted due to CCS program anomalies:
Initial Assessment:
Full Assessment:

A waiver has been requested for defects AR212 + AQ29

OTHER: 1. ICP-MS Mean Values in the raw data are incorrect due to TJA software anomalies.
2. Internal Standard calculations in the raw data are reported as the reciprocal values of the %RI (decimal form-not a percentage) with the control limits as stated in the SOW Exhibit D (ICP-MS) Section 12.11.1.

Signature:

Name & Title: BRIDGET CARR Date: 4/4/07

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2101

EQUATIONS:

HW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

HS1 Method: Concentration (dry wt.) (mg/kg) = ((C x V)/(W x S)) X DF

WHERE, C = Concentration (mg/L)
V = Final sample volume in Liters (L)
W = Wet sample weight (kg)
S = % Solids/100
DF = Dilution Factor

CW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

CS1 Method: Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = Concentration in µg/L
B = Weight in g
D = Dilution Factor
E = % Solids/100
F = Final Volume (0.100 L)

Signature: _____

Name & Title: Blair Gyde QAOfficer Date: 4/6/07

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2101

EQUATIONS:

DW2 Method: CN Concentration (µg/L) = (A x D x F)/ B

WHERE, A = µg/L CN of sample from regression analysis
B = volume of original sample for distillation (0.050 L)
D = any dilution factor necessary to bracket sample values within standard values
F = sample receiving solution volume (0.050 L)

DS2 Method: CN Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = µg/L CN of sample from regression analysis
B = wet weight of original sample (g)
D = any dilution factor necessary to bracket sample values within standard values
E = % solids/100
F = sample receiving solution volume (0.050 L)

HW2 Method: Concentration (µg/L) = C x (V_f/V_i) x (V_f/20) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (50 mL)
V_i = Initial digestion volume (100 mL)
DF = Dilution Factor

HW3 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

Signature: _____

Name & Title: _____ Date: 4/6/07

Waiver Request

Randi Hicks

From: "Randi Hicks" <rhicks@sentinellab.com>
To: <gurley.cindy@epa.gov>
Cc: "Beverly Kilgore" <bkilgore@sentinellab.com>
Sent: Friday, April 06, 2007 9:53 AM
Subject: Waiver Request for SDG MC2101, Case 36279

To: Cindy Gurley, R4 Project Officer
Date: 04/06/07
Contract #: EPW06059
Re: Request for Waiver for SDG MC2101, Case# 36279

Sentinel, Inc. request a waiver for the referenced SDG due to insufficient sample volume available to perform redigestion on the matrix spike sample. The matrix spike sample was inadvertently spiked at a four times greater level than required. Therefore a 0.25 dilution factor was used in reporting the data to obtain correct numerical values. This in turn resulted in defects AA21.2 and AQ29. Thank you for you consideration in this matter.

Randi D. Richey
Inorganic Supervisor/ Environmental Scientist
Sentinel Inc.
(256) 534-9800 ext. 23

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MARYLAND 20755-5350

DATE : April 24, 2007

SUBJECT: Region III Data QA Review

FROM : Khin-Cho Thaung KCT
Region III ESAT RPO (3EA20)

TO : James Hargett
Regional Project Manager (3HS12)

Attached is the inorganic data validation report for the Brooke County Glass Dump site (Case # 36279; SDG #MC2108) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2743.

Attachment

cc: Pam Hayes/Lydia Work WVDEP/TRIAD

TO File #: 0007 TDF#: 0450

Lockheed Martin Information Technology
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

LOCKHEED MARTIN
We never forget who we're working for™

DATE: April 17, 2007

SUBJECT: Level IM1 Inorganic Data Validation for Case 36279
SDG: MC2108
Site: Brooke County Glass Dump

FROM: Shilpa Udani
Inorganic Data Reviewer

Through: Mahboobeh Mecanic
Senior Data Review Chemist

TO: Khin-Cho Thaung
ESAT Region 3 Project Officer

OVERVIEW

Case 36279, Sample Delivery Group (SDG) MC2108, consisted of twelve (12) soil samples submitted to Sentinel, Inc. (SENTIN) for total metals analysis. The sample set included one (1) field duplicate pair. Samples were analyzed in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) ILM05.4 through Routine Analytical Services (RAS) program.

SUMMARY

Validation of data was performed according to EPA Region III Innovative Approaches for Validation of Inorganic Data, Level IM1, which includes review of all Forms but excludes review of raw data. Areas of concern with respect to data usability are listed below.

Data in this Case have been impacted by outliers present in laboratory blanks as well as ICP serial dilution and matrix spike analyses. Details for these outliers are discussed under "Major and Minor Problems". Qualified analytical results for all samples are summarized on Data Summary Forms (DSFs).

MAJOR PROBLEM

The matrix spike recovery was extremely low (< 30%) for antimony (Sb). The positive results reported for this analyte may be biased extremely low and have been qualified "L" on the DSFs unless superseded by "J". Quantitation limits for this analyte are unusable and have been qualified "R" on the DSFs.

MINOR PROBLEMS

The continuing calibration blank (CCB) had reported results greater than the Method Detection Limit (MDL) for beryllium (Be) and mercury (Hg). Positive results reported for these analytes in affected samples which are less than or equal to five times (≤5X) blank concentration may be biased high and have been qualified "B" on the DSFs.

Percent Differences (%Ds) for ICP serial dilution analysis were outside control limits (>10%) for aluminum (Al), barium (Ba), calcium (Ca), chromium (Cr), cobalt (Co), iron (Fe), magnesium (Mg), manganese (Mn), nickel (Ni), potassium (K), vanadium (V), and zinc (Zn). Reported positive results for these analytes are estimated and have been qualified "J" on the DSFs.

The matrix spike recoveries were low (<75% but >30%) for selenium (Se) and thallium (Tl). The low recovery may be attributed to matrix interferences or analyte lost during the digestion process. Reported results and quantitation limits for these analytes may be biased low and have been qualified "L" and "UL" on the DSFs unless superseded by "J".

The matrix spike recovery was high (>125%) for Zn. Positive results reported for this analyte in this SDG may be biased high. The "K" qualifier for this outlier has been superseded by "J" on the DSFs.

NOTES

Positive results which are less than the Contract Required Quantitation Limit (CRQL) but greater than MDL have been qualified "J" on the DSF unless superseded by "B".

The following samples were reanalyzed at dilutions in order to bring concentrations of analytes listed within the established calibration range. The results for these analytes in these samples are reported from the diluted analyses and annotated with a "+" on the DSFs.

Sample	Dilution factor	Analyte
MC2109	2 X	Mn
MC2122	2 X	cadmium (Cd)

The cooler chest used to transport samples in this case had an interior temperature of 18 °C, which exceeded the required cooler temperature of 4 °C to ± 2 °C. Due to thermostability of metals, no data were qualified based on the sample cooler chest temperature.

Reported results for field duplicate pairs MC2109/MC2111 were within 35% RPD, ±2XCRQL for all analytes except Mn.

Data for Case 36279, SDG MC2108, were reviewed in accordance with EPA Region 3 Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

APPENDIX A GLOSSARY OF DATA QUALIFIER CODES
APPENDIX B DATA SUMMARY FORM(S)
APPENDIX C CHAIN OF CUSTODY RECORD(S)
APPENDIX D LABORATORY CASE NARRATIVE(S)

DCN:36279_MC2108.IM1

Appendix A

Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES

CODES RELATED TO IDENTIFICATION
(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

[ ] = Analyte present. As values approach the IDL the quantitation may not be accurate.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

Appendix B

Data Summary Forms (DSFs)

DATA SUMMARY FORM: INORGANIC Page __1__ of __3__

Case #: 36279 SDG : MC2108 Number of Soil Samples : 12
Site : BROOKE COUNTY GLASS DUMP Number of Water Samples : 0
Lab. : SENTIN

Sample Number :		MC2108		MC2109		MC2110		MC2111		MC2116	
Sampling Location :		SED1		SED2		SED3		SED4		SS1	
Field QC :				Dup. of MC2111				Dup. of MC2109			
Matrix :		Soil		Soil		Soil		Soil		Soil	
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :		3/26/2007		3/26/2007		3/26/2007		3/26/2007		3/26/2007	
Time Sampled :		11:20		11:05		10:55		11:05		11:55	
%Solids :		63.7		57.3		68.2		67.3		69.7	
Dilution Factor :		1.0		1.0 / 2.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	7610	J	8500	J	7040	J	7950	J	8060	J
ANTIMONY	6	1.5	J	[illegible]	B	1.7	J	[illegible]	R	1.4	J
ARSENIC	1	10.9		11.9		7.2		11.3		9.7	
BARIUM	20	93.3	J	137	J	190	J	103	J	104	J
BERYLLIUM	0.5	1.0		1.4		1.2		1.1		1.1	
CADMIUM	0.5	0.50	J	0.66	J	0.57	J	0.48	J	2.0	
CALCIUM	500	7890	J	10400	J	3910	J	7860	J	17400	J
CHROMIUM	1	17.6	J	19.6	J	13.0	J	17.1	J	20.4	J
COBALT	5	26.8	J	41.9	J	23.2	J	32.5	J	7.6	J
COPPER	2.5	26.8		40.4		23.8		31.0		27.0	
IRON	10	31900	J	30200	J	38300	J	30700	J	19500	J
LEAD	1	28.2		33.2		19.3		26.6		58.6	
MAGNESIUM	500	2990	J	2990	J	2510	J	2940	J	3700	J
MANGANESE	1.5	2380	J	6500	J	3270	J	3560	J	949	J
MERCURY	0.1	0.094	B	0.18	B	0.11	B	0.10	B	0.14	B
NICKEL	4	44.1	J	73.8	J	39.6	J	54.3	J	16.3	J
POTASSIUM	500	1070	J	1140	J	993	J	1140	J	1260	J
SELENIUM	3.5	[illegible]	UL	[illegible]	UL	[illegible]	UL	[illegible]	UL	1.8	J
SILVER	1	0.92	J	0.98	J	1.2	J	1.0	J	0.69	J
SODIUM	500	505	J	583	J	433	J	480	J	602	J
THALLIUM	2.5	2.8	J	2.0	J	2.2	J	2.4	J		UL
VANADIUM	5	18.2	J	19	J	17.6	J	17.9	J	19.3	J
ZINC	6	125	J	141	J	87.2	J	115	J	167	J

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100) Revised 09/99
"+" = Result is reported from diluted analysis.

Case #: 36279 SDG : MC2108
Site : BROOKE COUNTY GLASS DUMP
Lab. : SENTIN

Sample Number :		MC2117		MC2118		MC2119		MC2121		MC2122	
Sampling Location :		SS10		SS11		SS12		SS14		SS15	
Field QC :											
Matrix :		Soil		Soil		Soil		Soil		Soil	
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :		3/27/2007		3/27/2007		3/27/2007		3/27/2007		3/27/2007	
Time Sampled :		11:45		13:20		13:27		11:50		11:22	
%Solids :		61.5		50.8		75.9		32.2		38.5	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0 / 2.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	1810	J	12200	J	4410	J	2700	J	2230	J
ANTIMONY	6	5.2	J	17.3	L	15.1	L	12.9	J	12.2	J
ARSENIC	1	104		103		365		442		366	
BARIUM	20	359	J	102	J	60.7	J	1150	J	755	J
BERYLLIUM	0.5	0.069	J	0.16	J	0.20	J	0.11	J	0.14	B
CADMIUM	0.5	68.4		180		302		37.7		8310 +	
CALCIUM	500	4270	J	12500	J	11200	J	19400	J	17500	J
CHROMIUM	1	43.1	J	18.5	J	40.6	J	130	J	26.7	J
COBALT	5	4.4	J	3.6	J	5.9	J	12.4	J	4.8	J
COPPER	2.5	53.4		68.9		160		105		72.9	
IRON	10	35400	J	21000	J	25400	J	109000	J	8780	J
*LEAD	1	3710		138		361		3370		763	
MAGNESIUM	500	524	J	1370	J	2200	J	840	J	2390	J
MANGANESE	1.5	298	J	425	J	311	J	1590	J	401	J
MERCURY	0.1	0.40		0.25	B	0.38		0.56	B	0.40	B
NICKEL	4	14.8	J	13.5	J	31.8	J	28.2	J	20.8	J
POTASSIUM	500	306	J	562	J	536	J	677	J	541	J
SELENIUM	3.5	24.6	L	96.6	L	284	L	45.3	L	569	L
SILVER	1	1.5	J	0.90	J	1.0	J	2.5	J	0.84	J
SODIUM	500	13600		1260		5520		19000		2690	
THALLIUM	2.5	1.4	J	1	UL	1.7	J	5.3	J	3.4	UL
VANADIUM	5	4.6	J	5.4	J	9.4	J	7.8	J	5.7	J
ZINC	4	6370	J	544	J	2700	J	9240	J	1290	J

CRQL = Contract Required Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100)

Revised 09/99

"+" = Result is reported from diluted analysis.

Case #: 36279 SDG : MC2108
Site : BROOKE COUNTY GLASS DUMP
Lab. : SENTIN

Sample Number :		MC2123		MC2124							
Sampling Location :		SS16		SS17							
Field QC :											
Matrix :		Soil		Soil							
Units :		mg/Kg		mg/Kg							
Date Sampled :		3/27/2007		3/27/2007							
Time Sampled :		11:18		11:15							
%Solids :		42.3		69.5							
Dilution Factor :		1.0		1.0							
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	4090	J	7030	J						
ANTIMONY	6	18.0	L	11.7							
ARSENIC	1	181		113							
BARIUM	20	278	J	273	J						
BERYLLIUM	0.5	0.25	B	0.69	J						
CADMIUM	0.5	154		41.0							
CALCIUM	500	14200	J	17500	J						
CHROMIUM	1	58.9	J	18.6	J						
COBALT	5	51.2	J	11.9	J						
COPPER	2.5	97.7		51.6							
IRON	10	27800	J	24300	J						
LEAD	1	343		43							
MAGNESIUM	500	3090	J	2810	J						
MANGANESE	1.5	445	J	854	J						
MERCURY	0.1	0.79		0.15	B						
NICKEL	4	46.4	J	24.5	J						
POTASSIUM	500	625	J	1620	J						
SELENIUM	3.5	186	L	19.6	L						
SILVER	1	1.1	J	0.78	J						
SODIUM	500	13540		1600							
THALLIUM	2.5		UL		UL						
VANADIUM	5	79	J	16.9	J						
ZINC	6	1760	J	723	J						

CRQL = Contract Required Quantitation Limit
SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100)
Revised 09/99

Appendix C

Chain-of-Custody Records

U.S. EPA Region III Analytical Request Form

9TS 3-14-27

[redacted]

36279

Date: 03/14/2007	Site Activity: Site Inspection Reassessment			
Site Name: Brooke County Glass Dump		Street Address: Washington Pike		
City: Wellsburg	State: WV	Latitude: 40°16'5"		Longitude: 80°35'18"
Program: Superfund	Acct. #: 2007 T 03N 302DD2C B398 QB00		CERCLIS #: WV0002456275	
Site ID:	Spill ID:		Operable Unit: 0	
Site Specific QA Plan Submitted: ☐ No ☒ Yes	Title: Sampling and Analysis Plan, Brooke County Glass Dump, Rev. 2 September 2006		Date Approved: October 2006	
EPA Project Leader: James Hargett 3HS12	Phone#: 215-814-3305	Cell Phone #:		E-mail: Hargett.James@epa.gov
Request Preparer: Carol Phillips	Phone#: 304-296-2562	Cell Phone #:		E-mail: cphillips@triadeng.com
Site Leader: Pam Hayes, WVDEP	Phone#: 304-926-0499	Cell Phone #:		E-mail: pdhayes@wvdep.org
Contractor: Triad Engineering, Inc.		EPA CO/PO:		
#Samples 23	Matrix: soil	Parameter: TAL Metals	QL's present	Method: ILM05.3
#Samples 6	Matrix: sediment	Parameter: TAL Metals		Method: ILM05.3
#Samples 6	Matrix: water-non potable	Parameter: TAL Metals		Method: ILM05.3
#Samples 9	Matrix: water-non potable	Parameter: TAL Metals, Dissolved		Method: ILM05.3
#Samples 7	Matrix: water-drinking	Parameter: TAL Metals		Method: ILM05.3
#Samples	Matrix:	Parameter:		Method:
#Samples	Matrix:	Parameter:		Method:
#Samples	Matrix:	Parameter:		Method:
#Samples	Matrix:	Parameter:		Method:
Ship Date From: 3/26/2007	Ship Date To: 3/26/2007	Org. Validation Level N/A		Inorg. Validation Level IM1
Unvalidated Data Requested: ☒ No ☐ Yes	If Yes, TAT Needed: ☐ 24hrs ☐ 48hrs ☐ 72hrs ☐ 7days ☐ Other (Specify)			
Validated Data Package Due: ☐ 14 days ☒ 21 days ☐ 30days ☐ 42 days ☐ Other (Specify)		14/7		
Electronic Data Deliverables Required: ☐ No ☒ Yes (EDDs will be provided in Region 3 EDD Format)				
Special Instructions:				

FORM ARF- 03/05

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

Case No: 36279 **R**
DAS No:

Region: 3	Date Shipped: 3/30/2007	Chain of Custody Record		Sampler Signature:	
Project Code: CT3907	Carrier Name: FedEx	Relinquished By	(Date / Time)	Received By	(Date / Time)
Account Code: 2007T03W302DD2CB398QB00	Airbill: 860575507063	Lydia Work	3/30/07 1200		
CERCLIS ID: WV0002456275	Shipped to: Sentinel Inc. 116 Washington Street, NE Huntsville AL 35801 (256) 534-9800	2			
Spill ID:		3			
Site Name/State: Brooke County Glass/WV		4			
Project Leader: Lydia Work					
Action: Brownfields Site					
Sampling Co: Triad Engineering					

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		ORGANIC SAMPLE No.	QC Type
MC2101	Ground Water/ Gary Hilgar	M/G	TM (21)	31 (1)	GW1	S: 3/27/2007	11:05		-
MC2102	Ground Water/ Gary Hilgar	M/G	TM (21)	32 (1)	GW2	S: 3/27/2007	11:15		-
MC2103	Ground Water/ Gary Hilgar	M/G	TM (21)	33 (1)	GW3	S: 3/27/2007	12:30		-
MC2108	Sediment/ Carol Phillips	M/G	TM (21)	310 (1)	SED1	S: 3/26/2007	11:20		-
MC2109	Sediment/ Carol Phillips	M/G	TM (21)	311 (1)	SED2	S: 3/26/2007	11:05		-
MC2110	Sediment/ Lydia Work	M/G	TM (21)	312 (1)	SED3	S: 3/26/2007	10:55		-
MC2111	Sediment/ Carol Phillips	M/G	TM (21)	313 (1)	SED4	S: 3/26/2007	11:05		Field Duplicate of MC2109
MC2112	Surface Water/ Carol Phillips	M/G	TM (21)	314 (1)	SW1	S: 3/26/2007	11:20		-
MC2113	Surface Water/ Carol Phillips	M/G	TM (21)	317 (1)	SW2	S: 3/26/2007	11:10		-
MC2114	Surface Water/ Lydia Work	M/G	TM (21)	318 (1)	SW3	S: 3/26/2007	10:50		-
MC2115	Surface Water/ Carol Phillips	M/G	TM (21)	319 (1)	SW4	S: 3/26/2007	11:10		Field Duplicate of MC2113

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: MC2103, MC2111, MC2112, MC2120	Additional Sampler Signature(s): Lydia M. Work	Chain of Custody Seal Number:
Analysis Key: TM = CLP TAL Total Metals	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced?

TR Number: 3-043013577-033007-0001

REGION COPY

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

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax

FZV5.1.047 PAGE 1 OF 4

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

Case No: 36279
DAS No:
R

Region:	3	Date Shipped:	3/30/2007	Chain of Custody Record	Sampler Signature:
Project Code:	CT3907	Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	2007T03W302DD2CB398QB00	Airbill:	880575507063	1 Lydia M Work 3/30/07 1200	
CERCLIS ID:	WV0002456275	Shipped to:	Sentinel Inc. 116 Washington Street, NE Huntsville AL 35801 (256) 534-9600	2	
Spill ID:				3	
Site Name/State:	Brooke County Glass/WV			4	
Project Leader:	Lydia Work				
Action:	Brownfields Site				
Sampling Co:	Triad Engineering				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC2116	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	320 (1)	SS1	S: 3/26/2007 11:55		-
MC2117	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	321 (1)	SS10	S: 3/27/2007 11:45		-
MC2118	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	322 (1)	SS11	S: 3/27/2007 13:20		-
MC2119	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	323 (1)	SS12	S: 3/27/2007 13:27		-
MC2120	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	324 (1)	SS13	S: 3/27/2007 11:55		-
MC2121	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	325 (1)	SS14	S: 3/27/2007 11:50		-
MC2122	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	326 (1)	SS15	S: 3/27/2007 11:22		-
MC2123	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	327 (1)	SS16	S: 3/27/2007 11:18		-
MC2124	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	328 (1)	SS17	S: 3/27/2007 11:15		-
MC2125	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	329 (1)	SS18	S: 3/27/2007 11:10		-

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: MC2103, MC2111, MC2112, MC2120	Additional Sampler Signature(s): Lydia M. Work	Chain of Custody Seal Number:
Analysis Key: TM = CLP TAL Total Metals	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced?

TR Number: 3-043013577-033007-0001

REGION COPY

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

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

TABLE 2. SOIL LABORATORY ANALYSIS SUMMARY

Brooke County Glass Dump CERCLIS Site (WV0002456275)
Wellsburg, Brooke County, West Virginia

Target Analyte	CAS Number	Screening Criteria	Project Quantitation Limit
Metals (mg/Kg)			
ALUMINUM	7429905	1,000,000	20
ANTIMONY	7440360	410	6
ARSENIC	7440382	1.9	1
BARIUM	7440393	72,000	20
BERYLLIUM	7440417	2,000	0.5
CADMIUM	7440439	510	0.5
CALCIUM	7440702	NV	500
CHROMIUM	18540299	3,100	1
COBALT	7440484	20,000	5
COPPER	7440508	41,000	2.5
IRON	7439896	310,000	10
LEAD	7439921	1,000	1
MAGNESIUM	7439954	NV	500
MANGANESE	7439965	20,000	1.5
MERCURY	7439976	NV	0.1
NICKEL	7440020	20,000	4
POTASSIUM	7440097	NV	500
SELENIUM	7782492	5,100	3.5
SILVER	7440224	5,100	1
SODIUM	7440235	NV	500
THALLIUM	7440280	72	2.5
VANADIUM	7440622	1,000	5
ZINC	7440666	310,000	6

Notes

Surface and subsurface soil samples will be compared to the EPA Region III RBC Table (04/07/2005) industrial soil values.

NV - No Value Available for compound

TABLE 3. SEDIMENT LABORATORY ANALYSIS SUMMARY

Brooke County Glass Dump CERCLIS Site (WV0002456275)
Wellsburg, Brooke County, West Virginia

Target Analyte	CAS Number	Screening Criteria	Project Quantitation Limit
Metals (mg/Kg)			
ALUMINUM	7429905	78,000	20
ANTIMONY	7440360	31	6
ARSENIC	7440382	0.43	1
BARIUM	7440393	5,500	20
BERYLLIUM	7440417	160	0.5
CADMIUM	7440439	39	0.5
CALCIUM	7440702	NV	500
CHROMIUM	18540299	230	1
COBALT	7440484	1,600	5
COPPER	7440508	3,100	2.5
IRON	7439896	23,000	10
LEAD	7439921	400	1
MAGNESIUM	7439954	NV	500
MANGANESE	7439965	1,600	1.5
MERCURY	7439976	NV	0.1
NICKEL	7440020	1,600	4
POTASSIUM	7440097	NV	500
SELENIUM	7782492	390	3.5
SILVER	7440224	390	1
SODIUM	7440235	NV	500
THALLIUM	7440280	5.5	2.5
VANADIUM	7440622	78	5
ZINC	7440666	23,000	6

Notes

Sediment samples will be compared to the EPA Region III RBC Table (04/07/2005) residential soil values.

NV - No Value Available for compound

Appendix D

Laboratory Case Narrative

USEPA - CLP

COVER PAGE

Lab Name: Sentinel, Inc. Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2108

SOW No.: ILM05.4

EPA SAMPLE NO.	Lab Sample ID.
MC2108	30207
MC2109	30208
MC2110	30209
MC2111	30210
MC2111D	30210S2
MC2111S	30210MS
MC2116	30211
MC2117	30212
MC2118	30213
MC2119	30214
MC2121	30216
MC2122	30217
MC2123	30218
MC2124	30219

Were ICP interelement corrections applied?	Yes/No	YES
Were ICP background corrections applied?	Yes/No	YES
If yes-were raw data generated before application of background corrections?	Yes/No	NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: Brad Lowe

Date: 4/6/07 Title: QA Officer

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2108

SAMPLE RECEIPT: Temperature Blank: PRESENT____ ABSENT ✓
If a blank is absent, a non-invasive laser measurement is taken using a sample.
Cooler temperature(s) recorded via laser measurement were: 18.0°C
Refer to Record of Communication (ROC) regarding EPA Sample # discrepancies for samples:

Refer to ROC regarding tag discrepancies for samples:

Refer to ROC regarding sample preservation discrepancies for samples:

Refer to ROC regarding:
analysis + TAT discrepancies on COC/TR
percent solids less than 50 percent

QC Specified: Yes ✓ No____ If no, chose:____

ANALYSIS: The following analyte(s) were estimated due to possible matrix interferences:
Al, Ba, Ca, Cr, Co, Fe, Mg, Mn, Ni, K, Y, +Zn

DOCUMENT CONTROL: The following invalid defects resulted due to CCS program anomalies:
Initial Assessment:
Full Assessment:

OTHER: 1. ICP-MS Mean Values in the raw data are incorrect due to TJA software anomalies.
2. Internal Standard calculations in the raw data are reported as the reciprocal values of the %RI (decimal form-not a percentage) with the control limits as stated in the SOW Exhibit D (ICP-MS) Section 12.11.1.

Signature:

Name & Title: Brian Igoe

Date: 4/6/07

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2108

EQUATIONS:

HW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

HS1 Method: Concentration (dry wt.) (mg/kg) = ((C x V)/(W x S)) X DF

WHERE, C = Concentration (mg/L)
V = Final sample volume in Liters (L)
W = Wet sample weight (kg)
S = % Solids/100
DF = Dilution Factor

CW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

CS1 Method: Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = Concentration in µg/L
B = Weight in g
D = Dilution Factor
E = % Solids/100
F = Final Volume (0.100 L)

Signature: _____

Name & Title: _____ Date: 4/6/07

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2108

EQUATIONS:

DW2 Method: CN Concentration (µg/L) = (A x D x F)/ B

WHERE, A = µg/L CN of sample from regression analysis
B = volume of original sample for distillation (0.050 L)
D = any dilution factor necessary to bracket sample values within standard values
F = sample receiving solution volume (0.050 L)

DS2 Method: CN Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = µg/L CN of sample from regression analysis
B = wet weight of original sample (g)
D = any dilution factor necessary to bracket sample values within standard values
E = % solids/100
F = sample receiving solution volume (0.050 L)

HW2 Method: Concentration (µg/L) = C x (V_f/V_i) x ($V_f/20$) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (50 mL)
V_i = Initial digestion volume (100 mL)
DF = Dilution Factor

HW3 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

Signature: _____

Name & Title: _____ Date: 4/6/07

SAMPLE LOG-IN SHEET

Lab Name Sentinel, Inc.	Page 1 of 1
Received By (Print Name) Lindsey Cholewa	Log-in Date 04/02/2007
Received By (Signature) LCholewa	
Case Number 36279	Sample Delivery Group No. MC2108 / NRAS Number

Remarks:

1. Custody Seal(s) (Present)/Absent* (Intact)/Broken
2. Custody Seal Nos. ——
3. *Traffic* Reports/Chain of Custody Records or Packing Lists (Present)/Absent*
4. Airbill (Airbill)/Sticker Present/Absent*
5. Airbill No. 8605755070 63
6. Sample Tags (Present)/Absent*
   Sample Tag Numbers (Listed)/Not Listed on Traffic Report/Chain of Custody Record
7. Sample Condition (Intact)/Broken*/Leaking
8. Cooler Temperature Indicator Bottle Present/(Absent*)
9. Cooler Temperature 18.0°C
10. Does information on Traffic Reports/Chain of Custody Records and sample tags agree? Yes/(No*)
11. Date Received at Lab 04/02/2007
12. Time Received 0911

Sample Transfer

Fraction All	Fraction
Area # Cooler	Area #
By LC	By
On 04/02/07	On

EPA Sample #	Aqueous Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
MC2108	NA	310	30207	
MC2109		311	30208	
MC2110		312	30209	
MC2111		313	30210	QC
MC2116		320	30211	
MC2117		321	30212	
MC2118		322	30213	
MC2119		323	30214	
MC2121		325	30216	
MC2122		326	30217	
MC2123		327	30218	
MC2124		328	30219	

* Contact SMO and attach record of resolution

Reviewed By			Logbook No. 1
Date	4/6/07		Logbook Page No. 11

FORM DC-1

ILM05.4 5

%S

Sentinel, Inc. Sample Analysis

% SOLIDS BATCH SHEET

DATE: 04/04/07 ANALYST: RR/SAS

SDG NO: MC2108 EPA Batch No.: 4 EPA Run No: 4

	Lab ID No.	Sample Description	Pan Weight, g	Soil & Pan Initial Wt., g	Soil & Pan Final Wt., g	Result, %	Date Analyzed	Analyst Initials
1	30210	MC2111	0.99	7.75	5.54	67.3	04/05/07	RR/SAS
2	30210D	MC2111D	1.02	8.06	5.64	65.6		
3	30207	MC2108	1.02	7.00	4.83	63.7		
4	30208	MC2109	1.00	6.99	4.43	57.3		
5	30209	MC2110	1.01	7.78	5.63	68.2		
6	30211	MC2116	1.03	7.26	5.37	69.7		
7	30212	MC2117	1.01	7.06	4.73	61.5		
8	30213	MC2118	0.99	7.05	4.07	50.8		
9	30214	MC2119	1.01	6.99	5.55	75.9		
10	30216	MC2121	1.01	7.87	3.22	32.2		
11	30217	MC2122	1.02	6.99	3.32	38.5		
12	30218	MC2123	1.02	7.71	3.85	42.3		
13	30219	MC2124	1.01	7.77	5.71	69.5	↓	↓
14								
15								
16								
17								
18								
19								
20								
21								

Reviewed By:

D. Hood 04/05/07
Analyst/Date for S. Slade

Reviewed By:

4/5/07
QA Officer/Supervisor/Date

206

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MARYLAND 20755-5350

DATE : April 19, 2007

SUBJECT: Region III Data QA Review

FROM : Khin-Cho Thaung KCT
Region III ESAT RPO (3EA20)

TO : James Hargett
Regional Project Manager (3HS12)

Attached is the inorganic data validation report for the Brooke County Glass Dump site (Case # 36279; SDG #MC2120) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2743.

Attachment

cc: Pam Hayes/Lydia Work WVDEP/TRIAD

TO File #: 0007 TDF#: 0452

ANALYTICAL SERVICES AND QUALITY ASSURANCE BRANCH

LOCKHEED MARTIN
We never forget who we're working for™

Lockheed Martin Information Technology
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

DATE: April 17, 2007

SUBJECT: Inorganic Data Validation (IM1 Level)
Case: 36279
SDG: MC2120
Site: Brooke County Glass Dump

FROM: Donald M. Brown
Inorganic Data Reviewer

Mahboobeh Mecanic
Senior Oversight Chemist

TO: Khin-Cho Thaung
ESAT Region 3 Project Officer

OVERVIEW

Case 36279, Sample Delivery Group (SDG) MC2120, consisted of thirteen (13) soil samples analyzed for total metals by Sentinel, Inc. (SENTIN). The sample set contained one (1) field duplicate pair. Samples were analyzed in accordance with Contract Laboratory Program (CLP) *Statement of Work (SOW) ILM05.4 through Routine Analytical Services (RAS) program.*

SUMMARY

Data were validated according to EPA Region III Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995, which includes review of all Forms but excludes review of raw data. Areas of concern with respect to data usability are listed below.

Data in this case have been impacted by outliers present in the laboratory blanks as well as the matrix spike, laboratory duplicate and ICP serial dilution analyses. Details of these outliers are discussed under "Minor Problems" and qualified analytical results for all samples are summarized on the Data Summary Forms (DSFs).

MINOR PROBLEMS

Continuing calibration (CCB) and/or preparation (PB) blanks had reported results greater than the Method Detection Limits (MDLs) for the analytes listed below. Positive results in affected samples which are less than or equal to five times ($\leq$5X) the blank concentrations may be biased high and have been qualified "B" on the DSFs.

Blank	Affected Analytes
CCB	beryllium (Be)
PB	mercury (Hg)

The matrix spike recovery was low (<75% but >30%) for manganese (Mn). The low recovery may be attributed to matrix interferences or analyte lost during the digestion process. Positive results for this analyte in all samples may be biased low and have been qualified "L" on the DSFs.

The relative percent difference (RPD) in the laboratory duplicate analysis was outside control limits (35% RPD, ±2XCRQL) for cadmium (Cd). Positive results for this analyte in all samples are estimated and have been qualified "J" on the DSFs.

The percent difference (%D) in the ICP serial dilution analysis was outside control limits (>10%) for sodium (Na). Positive results for this analyte in all samples are estimated due to possible matrix interferences and have been qualified "J" on the DSFs.

NOTES

Reported results between MDLs and Contract Required Quantitation Limits (CRQLs) were qualified "J" on the DSFs unless superseded by "B".

Several samples in this SDG were reported with percent solids less than fifty percent (<50%). CRQLs are elevated in these samples due to low percent solids.

One (1) of the cooler chests used to transport samples in this SDG had an interior temperature of 18.0°C, which is outside the control limit (4°C ± 2°C). Due to the thermostability of metals, no data were qualified based on this cooler temperature.

RPDs in the laboratory duplicate analysis were outside contractual control limits (20% RPD, ±CRQL) for aluminum (Al), iron (Fe) and lead (Pb). However, RPDs for these analytes were within Region III established control limits (35% RPD, ±2XCRQL) for soil analysis. No data were qualified for these analytes based on laboratory duplicate imprecision.

Reported results for field duplicate pair MC2129/MC2132 were within 35% RPD, ±2XCRQL for all analytes except Cd, copper (Cu) and lead (Pb).

The following samples were reanalyzed at dilutions for the analytes listed below in order to bring concentrations of these analytes within the linear range of the instrument. Results for these analytes in these samples were reported from the diluted analyses and annotated with a "+" on the DSFs.

Sample ID	Analyte	Dilution Factor
MC2133	Mn	2X
MC2135	Fe	2X
MC2136	Cd	2X

Data for Case 36279, SDG MC2120, were reviewed in accordance with EPA Region 3 Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

APPENDIX A	GLOSSARY OF DATA QUALIFIER CODES
APPENDIX B	DATA SUMMARY FORM(S)
APPENDIX C	CHAIN OF CUSTODY RECORD(S)
APPENDIX D	LABORATORY CASE NARRATIVE(S)

DCN: 36279.MC2120IM1.doc

Appendix A

Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

Appendix B

Data Summary Forms

DATA SUMMARY FORM: INORGANIC

Case #: 36279 SDG : MC2120 Number of Soil Samples : 13
Site : BROOKE COUNTY GLASS DUMP Number of Water Samples : 0
Lab. : SENTIN

Sample Number :		MC2120		MC2125		MC2126		MC2127		MC2128	
Sampling Location :		SS13		SS18		SS19		SS2		SS20	
Matrix :		Soil		Soil		Soil		Soil		Soil	
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :		3/27/2007		3/27/2007		3/27/2007		3/26/2007		3/27/2007	
Time Sampled :		11:55		11:10		13:55		11:45		13:20	
%Solids :		42.6		65.6		85.8		74.1		69.2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	3520		5610		1440		6290		6950	
ANTIMONY	6	19.1		42.0		5.6	J	5.5	J	8.7	
ARSENIC	1	229		42.0		34.8		5.5		8.7	
BARIUM	20	190		104		78.2		110		103	
BERYLLIUM	0.5	0.24	B	0.68	J	0.12	B	1.0		1.0	
CADMIUM	0.5	1.350		2.3	J	0.22	U	1.1	J	1.1	J
CALCIUM	500	14800		52700		3890		50600		6890	
CHROMIUM	1	457		11.6		7.4		24.9		19.5	
COBALT	5	7.1	J	9.5		2.0	J	9.1		16.8	
COPPER	2.5	152		239		25.0		237		29.9	
IRON	10	41500		19400		4700		21800		23700	
LEAD	1	1843		38.4		124		30.5		42.5	
MAGNESIUM	500	2730		4460		709		4510		1700	
MANGANESE	1.5	7595	L	1040	L	176	L	1720	L	1410	L
MERCURY	0.1	0.39		0.18		0.17		0.18		0.13	J
NICKEL	4	31.7		16.9		3.8	U	15.9		20.8	
POTASSIUM	500	376	J	1330		274	J	1060		1710	
SELENIUM	3.5	27		3.9	J	35.7		1.1	U	1.7	J
SILVER	1	1.5	J	0.48	J					0.62	J
SODIUM	500	7270	U	441	J	366	J	407	J	417	J
THALLIUM	2.5	3.0	J					1.2	J	1.5	J
VANADIUM	2.5	25.1		13.1		2.9	J	19.8		15.3	
ZINC	6	3720		134		446		71.6		117	

CRQL = Contract Required Quantitation Limit — SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100) — Revised 09/99

Case #: 36279 SDG : MC2120
Site : BROOKE COUNTY GLASS DUMP
Lab. : SENTIN

Sample Number :		MC2129		MC2130		MC2131		MC2132		MC2133	
Sampling Location :		SS21		SS3		SS4		SS5		SS6	
Field QC :		Dup of MC2132						Dup of MC2129			
Matrix :		Soil		Soil		Soil		Soil		Soil	
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :		3/27/2007		3/26/2007		3/27/2007		3/27/2007		3/27/2007	
Time Sampled :		13:10		11:50		13:02		13:06		13:15	
%Solids :		77.8		65.6		84.3		78.4		82.6	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0 / 2.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	11000		8050		27600		10800		20100	
ANTIMONY	6									3.3	J
ARSENIC	1	9.0		7.8		7.7		7.7		47.1	
BARIUM	20	113		90.0		278		112		257	
BERYLLIUM	0.5	1.2		0.90		3.3		1.2		2.2	
CADMIUM	0.5	1.7	J	1.3	J	14.2	J	7.6	J	54.1	J
CALCIUM	500	27000		5780		90200		29200		82400	
CHROMIUM	1	14.8		16.2		11.9		15.5		38.0	
COBALT	5	10.6		12.9		3.7	J	8.7		7.9	
COPPER	2.5	92.5		33.9		17.1		95.5		71.5	
IRON	10	24700		25700		8640		20600		26800	
LEAD	1	25.1		43.7		380		59.5		48.1	
MAGNESIUM	500	4130		2290		11700		3970		6350	
MANGANESE	1.5	1250	L	712	L	3420	L	1310	L	4050+	L
MERCURY	0.1	0.10	J	0.17		0.083	B	0.12	J	0.16	
NICKEL	4	23.5		23.5		6.8		19.4		18.0	
POTASSIUM	500	1560		2310		2410		1450		2130	
SELENIUM	3.5	3.1	J	1.6	J	2.8	J	3.4	J	42.3	
SILVER	1	0.33	J	0.69	J						
SODIUM	500	552	J	605	J	952	J	542	J	1320	J
THALLIUM	2.5	1.4	J	2.0	J			1.2	J	1.3	J
VANADIUM	5	21.8		17.1		14.5		20.0		38.2	
ZINC	6	128		170		101		118		350	

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100) Revised 09/99
+ = Result reported from diluted analysis.

Case #: 36279 SDG : MC2120
Site : BROOKE COUNTY GLASS DUMP
Lab. : SENTIN

Sample Number :		MC2134		MC2135		MC2136					
Sampling Location :		SS7		SS8		SS9					
Matrix :		Soil		Soil		Soil					
Units :		mg/Kg		mg/Kg		mg/Kg					
Date Sampled :		3/27/2007		3/27/2007		3/27/2007					
Time Sampled :		13:48		13:36		13:15					
%Solids :		92.9		93.4		85.0					
Dilution Factor :		1.0		1.0 / 2.0		1.0 / 2.0					
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	1020		2380		20600					
ANTIMONY	6	3.4	J	87.6		14.6					
ARSENIC	1	92.9		330		1010					
BARIUM	20	24.2		6110+		96.3					
BERYLLIUM	0.5	0.091	J	0.047	J	0.076	J				
CADMIUM	0.5	19.2	J	1010+	J	4840+	J				
CALCIUM	500	2950		9910		4220					
CHROMIUM	1	12.7		59.5		11.1					
COBALT	5	1.1	J	9.7		2.8	J				
COPPER	2.5	12.0		1280		142					
IRON	10	3190		192000+		9350					
LEAD	1	116		96.0		351					
MAGNESIUM	500	609		782		480	J				
MANGANESE	1.5	305	L	693	L	106	L				
MERCURY	0.1	0.71		0.16		0.23					
NICKEL	4	3.0	J	27.7		5.6					
POTASSIUM	500	194	J	109	J	4390					
SELENIUM	3.5	22.0		333		225					
SILVER	1			3.2							
SODIUM	500	385	J	5910	J	28200	J				
THALLIUM	2.5			9.3							
VANADIUM	5	5.3	J	2.5	J	12.5					
ZINC	6	122		3140		6000					

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100) Revised 09/99

+ = Result reported from diluted analysis.

Appendix C

Chain-of-Custody Records

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

Case No: 36279 **R**
DAS No:

Region:	3	**Date Shipped:**	3/30/2007	**Chain of Custody Record**	**Sampler Signature**
Project Code:	CT3907	**Carrier Name:**	FedEx	**Relinquished By (Date / Time)**	**Received By (Date / Time)**
Account Code:	2007T03W302DD2CB398QB00	**Airbill:**	860575507053	1 Lydia Work 3/30/07 1200	
CERCLIS ID:	WV0002456275	**Shipped to:**	Sentinel Inc. 116 Washington Street, NE Huntsville AL 35801 (256) 534-9800	2	
Spill ID:				3	
Site Name/State:	Brooke County Glass/WV			4	
Project Leader:	Lydia Work				
Action:	Brownfields Site				
Sampling Co:	Triad Engineering				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC2116	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	320 (1)	SS1	S: 3/26/2007 11:55		-
MC2117	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	321 (1)	SS10	S: 3/27/2007 11:45		-
MC2118	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	322 (1)	SS11	S: 3/27/2007 13:20		-
MC2119	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	323 (1)	SS12	S: 3/27/2007 13:27		-
MC2120	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	324 (1)	SS13	S: 3/27/2007 11:55		-
MC2121	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	325 (1)	SS14	S: 3/27/2007 11:50		-
MC2122	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	326 (1)	SS15	S: 3/27/2007 11:22		-
MC2123	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	327 (1)	SS16	S: 3/27/2007 11:18		-
MC2124	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	328 (1)	SS17	S: 3/27/2007 11:15		-
MC2125	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	329 (1)	SS18	S: 3/27/2007 11:10		-

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
	MC2103, MC2111, MC2112, MC2120	Lydia M. Work	
Analysis Key: TM = CLP TAL Total Metals	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G	**Shipment Iced?**

TR Number: 3-043013577-033007-0001

REGION COPY

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

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax

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

Case No: 36279 **R**
DAS No:

Region:	3	Date Shipped:	3/30/2007	Chain of Custody Record	Sampler Signature:
Project Code:	CT3907	Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	2007T03W302DD2CB398QB00	Airbill:	860675507063	1 Lydia Work 3/30/07 1200	
CERCLIS ID:	WV0002456275	Shipped to:	Sentinel Inc. 116 Washington Street, NE Huntsville AL 35801 (256) 534-9800	2	
Spill ID:				3	
Site Name/State:	Brooke County Glass/WV			4	
Project Leader:	Lydia Work				
Action:	Brownfields Site				
Sampling Co:	Triad Engineering				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		ORGANIC SAMPLE No.	QC Type
MC2126	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	330 (1)	SS19	S: 3/27/2007	13:55		–
MC2127	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	331 (1)	SS2	S: 3/26/2007	11:45		–
MC2128	Surface Soil (0"-12")/ Gary Hilgar	M/G	TM (21)	332 (1)	SS20	S: 3/27/2007	13:20		–
MC2129	Surface Soil (0"-12")/ Gary Hilgar	M/G	TM (21)	333 (1)	SS21	S: 3/27/2007	13:10		Field Duplicate of MC2132
MC2130	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	334 (1)	SS3	S: 3/26/2007	11:50		–
MC2131	Surface Soil (0"-12")/ Gary Hilgar	M/G	TM (21)	335 (1)	SS4	S: 3/27/2007	13:02		–
MC2132	Surface Soil (0"-12")/ Gary Hilgar	M/G	TM (21)	336 (1)	SS5	S: 3/27/2007	13:06		–
MC2133	Surface Soil (0"-12")/ Gary Hilgar	M/G	TM (21)	337 (1)	SS6	S: 3/27/2007	13:15		–
MC2134	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	338 (1)	SS7	S: 3/27/2007	13:48		–
MC2135	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	339 (1)	SS8	S: 3/27/2007	13:36		–

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: MC2103, MC2111, MC2112, MC2120	Additional Sampler Signature(s): Lydia M. Work	Chain of Custody Seal Number:
Analysis Key: TM = CLP TAL Total Metals	Concentration: L = Low, M = Low/Medium, H = High	Type Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-043013577-033007-0001

REGION COPY

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

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax

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

Case No: 36279 **R**
DAS No:

Region:	3	**Date Shipped:**	3/30/2007	**Chain of Custody Record**	**Sampler Signature:**
Project Code:	CT3907	**Carrier Name:**	FedEx	**Relinquished By (Date / Time)**	**Received By (Date / Time)**
Account Code:	2007T03W302DD2CB399QB00	**Airbill:**	880675507063	1 Lydia Work 3/30/07 1200	
CERCLIS ID:	WV0002456275	**Shipped to:**	Sentinel Inc. 116 Washington Street, NE Huntsville AL 35801 (256) 534-9800	2	
Spill ID:				3	
Site Name/State:	Brooke County Glass/WV			4	
Project Leader:	Lydia Work				
Action:	Brownfields Site				
Sampling Co:	Triad Engineering				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC2135	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	340 (1)	SS9	S: 3/27/2007 13:15		-

Shipment for Case Complete? Y	**Sample(s) to be used for laboratory QC:** MC2103, MC2111, MC2112, MC2120	**Additional Sampler Signature(s):** Lydia M Work	**Chain of Custody Seal Number:**
Analysis Key: TM = CLP TAL Total Metals	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G	**Shipment Iced?** _____

TR Number: 3-043013577-033007-0001

REGION COPY

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

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3818; Phone 703/818-4200; Fax 703/818-4607

U.S. EPA Region III Analytical Request Form

9TS 3-14-27

36279

Date: 03/14/2007	Site Activity: Site Inspection Reassessment			
Site Name: Brooke County Glass Dump		Street Address: Washington Pike		
City: Wellsburg	State: WV	Latitude: 40°16'5"	Longitude: 80°35'18"	
Program: Superfund	Acct. #: 2007 T 03N 302DD2C B398 QB00	CERCLIS #: WV0002456275		
Site ID:	Spill ID:	Operable Unit: 0		
Site Specific QA Plan Submitted: ☐ No ☒ Yes Title: Sampling and Analysis Plan, Brooke County Glass Dump, Rev. 2 September 2006 Date Approved: October 2006				
EPA Project Leader: James Hargett 3HS12	Phone#: 215-814-3305	Cell Phone #:	E-mail: Hargett.James@epa.gov	
Request Preparer: Carol Phillips	Phone#: 304-296-2562	Cell Phone #:	E-mail: cphillips@triadeng.com	
Site Leader: Pam Hayes, WVDEP	Phone#: 304-926-0499	Cell Phone #:	E-mail: pdhayes@wvdep.org	
Contractor: Triad Engineering, Inc.		EPA CO/PO:		
#Samples 23	Matrix: soil	Parameter: TAL Metals	Method: ILM05.3	
#Samples 6	Matrix: sediment	Parameter: TAL Metals	Method: ILM05.3	
#Samples 6	Matrix: water-non potable	Parameter: TAL Metals	Method: ILM05.3	
#Samples 9	Matrix: water-non potable	Parameter: TAL Metals, Dissolved	Method: ILM05.3	
#Samples 7	Matrix: water-drinking	Parameter: TAL Metals	Method: ILM05.3	
#Samples	Matrix:	Parameter:	Method:	
#Samples	Matrix:	Parameter:	Method:	
#Samples	Matrix:	Parameter:	Method:	
#Samples	Matrix:	Parameter:	Method:	
Ship Date From: 3/26/2007	Ship Date To: 3/26/2007	Org. Validation Level N/A	Inorg. Validation Level IM1	
Unvalidated Data Requested: ☒ No ☐ Yes If Yes, TAT Needed: ☐ 24hrs ☐ 48hrs ☐ 72hrs ☐ 7days ☐ Other (Specify)				
Validated Data Package Due: ☐ 14 days ☒ 21 days ☐ 30days ☐ 42 days ☐ Other (Specify) 14/7				
Electronic Data Deliverables Required: ☐ No ☒ Yes (EDDs will be provided in Region 3 EDD Format)				
Special Instructions:				

Soils

QL's present

FORM ARF- 03/05

AR100205

TABLE 2. SOIL LABORATORY ANALYSIS SUMMARY

Brooke County Glass Dump CERCLIS Site (WV0002456275)
Wellsburg, Brooke County, West Virginia

Target Analyte	CAS Number	Screening Criteria	Project Quantitation Limit
Metals (mg/Kg)			
ALUMINUM	7429905	1,000,000	20
ANTIMONY	7440360	410	6
ARSENIC	7440382	1.9	1
BARIUM	7440393	72,000	20
BERYLLIUM	7440417	2,000	0.5
CADMIUM	7440439	510	0.5
CALCIUM	7440702	NV	500
CHROMIUM	18540299	3,100	1
COBALT	7440484	20,000	5
COPPER	7440508	41,000	2.5
IRON	7439896	310,000	10
LEAD	7439921	1,000	1
MAGNESIUM	7439954	NV	500
MANGANESE	7439965	20,000	1.5
MERCURY	7439976	NV	0.1
NICKEL	7440020	20,000	4
POTASSIUM	7440097	NV	500
SELENIUM	7782492	5,100	3.5
SILVER	7440224	5,100	1
SODIUM	7440235	NV	500
THALLIUM	7440280	72	2.5
VANADIUM	7440622	1,000	5
ZINC	7440666	310,000	6

Notes

Surface and subsurface soil samples will be compared to the EPA Region III RBC Table (04/07/2005) industrial soil values.

NV - No Value Available for compound

Appendix D

Laboratory Case Narrative

USEPA - CLP

COVER PAGE

Lab Name: Sentinel, Inc. Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2120

SOW No.: ILM05.4

EPA SAMPLE NO.	Lab Sample ID.
MC2120	30240
MC2120D	30240S2
MC2120S	30240MS
MC2125	30241
MC2126	30242
MC2127	30243
MC2128	30244
MC2129	30245
MC2130	30246
MC2131	30247
MC2132	30248
MC2133	30249
MC2134	30250
MC2135	30251
MC2136	30252

Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: Bruce Igwe

Date: 4/6/07 Title: CMTA

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2120

SAMPLE RECEIPT: Temperature Blank: PRESENT____ ABSENT ✓
If a blank is absent, a non-invasive laser measurement is taken using a sample.
Cooler temperature(s) recorded via laser measurement were: 18.0 C
Refer to Record of Communication (ROC) regarding EPA Sample # discrepancies for samples:

Refer to ROC regarding tag discrepancies for samples:

Refer to ROC regarding sample preservation discrepancies for samples:

Refer to ROC regarding:
- TAT, analysis discrepancies on COC/TC
  percent solids less than 50 percent

QC Specified: Yes ✓ No____ If no, chose:____

ANALYSIS: The following analyte(s) were estimated due to possible matrix interferences:
Na

DOCUMENT CONTROL: The following invalid defects resulted due to CCS program anomalies:
Initial Assessment:
Full Assessment:

OTHER: 1. ICP-MS Mean Values in the raw data are incorrect due to TJA software anomalies.
2. Internal Standard calculations in the raw data are reported as the reciprocal values of the %RI (decimal form-not a percentage) with the control limits as stated in the SOW Exhibit D (ICP-MS) Section 12.11.1.

Signature:

Name & Title: Brian Gove QAMgr Date: 4/6/07

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2120

EQUATIONS:

HW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

HS1 Method: Concentration (dry wt.) (mg/kg) = ((C x V)/(W x S)) X DF

WHERE, C = Concentration (mg/L)
V = Final sample volume in Liters (L)
W = Wet sample weight (kg)
S = % Solids/100
DF = Dilution Factor

CW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

CS1 Method: Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = Concentration in µg/L
B = Weight in g
D = Dilution Factor
E = % Solids/100
F = Final Volume (0.100 L)

Signature: _____

Name & Title: _____ Date: 4/6/07

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2120

EQUATIONS:

DW2 Method: CN Concentration (µg/L) = (A x D x F)/ B

WHERE, A = µg/L CN of sample from regression analysis
B = volume of original sample for distillation (0.050 L)
D = any dilution factor necessary to bracket sample values within standard values
F = sample receiving solution volume (0.050 L)

DS2 Method: CN Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = µg/L CN of sample from regression analysis
B = wet weight of original sample (g)
D = any dilution factor necessary to bracket sample values within standard values
E = % solids/100
F = sample receiving solution volume (0.050 L)

HW2 Method: Concentration (µg/L) = C x (V_f/V_i) x (V_f/20) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (50 mL)
V_i = Initial digestion volume (100 mL)
DF = Dilution Factor

HW3 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

Signature: _____

Name & Title: _____ Date: 4/6/07

Lindsey Cholewa

From: "Berardino, Michelle" <mberardino@fedcsc.com>
To: <bkilgore@sentinellab.com>; "Daphne" <dwoods@sentinellab.com>; "Lindsey" <lcholewa@sentinellab.com>; <sample_receipt@sentinellab.com>
Cc: "Carroll" <harris.carroll@epa.gov>; "Dan Slizys" <slizys.dan@epa.gov>; "John" <kwedar.john@epa.gov>; "Khin-Cho" <thaung.khin-cho@epa.gov>
Sent: Thursday, April 05, 2007 6:52 AM
Subject: Region 03 | Case 36279 | Lab SENTIN | Issue Multiple | FINAL

Lindsey,

Summary Start
-Missing temperature blank-
Issue 1: There was no temperature blank in the cooler. The temperature of a sample was 18 C.
Resolution 1: Per Region 3, the issue must be documented in the SDG/Case Narrative.

-Discrepancies with tags, jars, and/or TR/COC-
Issue 2: The TR/COC does not list HG as a required analysis, however, the Case is scheduled for it per the Scheduling Notification Form.
Resolution 2: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, perform the analyses as indicated on the Scheduling Notification Form, and proceed with the analysis of the samples.

Issue 3: The TR/COC lists the TAT as 21 days, however, per the Scheduling Notification Form this Case has a 14 day TAT.
Resolution 3: In accordance with previous direction from Region 3, the laboratory will proceed with the turnaround time indicated on the Scheduling Notification Form, note the issue in the Case/SDG Narrative, and proceed with the analysis of the samples.

Issue 4: The Case was scheduled for both filtered and non-filtered water samples, however, the Case is complete and the TR/COC does not designate any samples as filtered.
Resolution 4: Per Region 3, filtered samples for this Case is no longer needed. Please note the issue in the Case/SDG Narrative.

-pH outside allowable limits-
Issue 5: Sample MC2102 has a pH of 6 and sample MC1203 has a pH of 5.
Resolution 5: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, adjust the pH, and proceed with the analysis of the samples.
Summary End

Please let me know if you have any further questions or problems.
Thanks,
Michelle Berardino
Computer Sciences Corporation
CLP Coordinator for Regions 1 & 3
mberardino@fedcsc.com
703.818.5264

From: Lydia M. Work [mailto:lwork@triadeng.com]
Sent: Wednesday, April 04, 2007 3:41 PM
To: Slizys.Dan@epamail.epa.gov; Berardino, Michelle; Carroll Harris
Cc: Carol Phillips; Pam Hayes; Heather A. Napier
Subject: RE: RE: NEW ISSUE | Case 36279 | Lab SENTIN | Issue Multiple|
Hi, All-

235

Thank you for addressing the issues listed. Please see my responses to the remaining items.

Item 1: Since the samples were metals only, we did not feel a temperature blank was technically

APPENDIX D

LABORATORY CASE NARRATIVE

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2101

SAMPLE RECEIPT: Temperature Blank: PRESENT____ ABSENT ✓
If a blank is absent, a non-invasive laser measurement is taken using a sample.
Cooler temperature(s) recorded via laser measurement were: 18.002
Refer to Record of Communication (ROC) regarding EPA Sample # discrepancies for samples:

Refer to ROC regarding tag discrepancies for samples:

Refer to ROC regarding sample preservation discrepancies for samples:
MC2102, 03

Refer to ROC regarding:
- analysis + TAT discrepancies on COC ITR
- filtered samples no longer needed for this case

QC Specified: Yes ✓ No____ If no, chose:____

ANALYSIS: The following analyte(s) were estimated due to possible matrix interferences:

DOCUMENT CONTROL: The following invalid defects resulted due to CCS program anomalies:
Initial Assessment:
Full Assessment:

A waiver has been requested for defects RA212 + RA229

OTHER: 1. ICP-MS Mean Values in the raw data are incorrect due to TJA software anomalies.
2. Internal Standard calculations in the raw data are reported as the reciprocal values of the %RI (decimal form-not a percentage) with the control limits as stated in the SOW Exhibit D (ICP-MS) Section 12.11.1.

Signature:

Name & Title: BMG: IGWR QAOR Date: 4/6/07

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2101

EQUATIONS:

HW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

HS1 Method: Concentration (dry wt.) (mg/kg) = ((C x V)/(W x S)) X DF

WHERE, C = Concentration (mg/L)
V = Final sample volume in Liters (L)
W = Wet sample weight (kg)
S = % Solids/100
DF = Dilution Factor

CW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

CS1 Method: Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = Concentration in µg/L
B = Weight in g
D = Dilution Factor
E = % Solids/100
F = Final Volume (0.100 L)

Signature: _____

Name & Title: _____ Date: 4/6/07

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2101

EQUATIONS:

DW2 Method: CN Concentration (µg/L) = (A x D x F)/ B

WHERE, A = µg/L CN of sample from regression analysis
B = volume of original sample for distillation (0.050 L)
D = any dilution factor necessary to bracket sample values within standard values
F = sample receiving solution volume (0.050 L)

DS2 Method: CN Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = µg/L CN of sample from regression analysis
B = wet weight of original sample (g)
D = any dilution factor necessary to bracket sample values within standard values
E = % solids/100
F = sample receiving solution volume (0.050 L)

HW2 Method: Concentration (µg/L) = C x (V_f/V_i) x ($V_f/20$) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (50 mL)
V_i = Initial digestion volume (100 mL)
DF = Dilution Factor

HW3 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

Signature: _____

Name & Title: _____ Date: 4/6/07

Waiver Request

Randi Hicks

From: "Randi Hicks" <rhicks@sentinellab.com>
To: <gurley.cindy@epa.gov>
Cc: "Beverly Kilgore" <bkilgore@sentinellab.com>
Sent: Friday, April 06, 2007 9:53 AM
Subject: Waiver Request for SDG MC2101, Case 36279

To: Cindy Gurley, R4 Project Officer
Date: 04/06/07
Contract #: EPW06059
Re: Request for Waiver for SDG MC2101, Case# 36279

Sentinel, Inc. request a waiver for the referenced SDG due to insufficient sample volume available to perform redigestion on the matrix spike sample. The matrix spike sample was inadvertently spiked at a four times greater level than required. Therefore a 0.25 dilution factor was used in reporting the data to obtain correct numerical values. This in turn resulted in defects AA21.2 and AQ29. Thank you for you consideration in this matter.

Randi D. Richey
Inorganic Supervisor/ Environmental Scientist
Sentinel Inc.
(256) 534-9800 ext. 23

135

4/6/2007

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MARYLAND 20755-5350

DATE : April 24, 2007

SUBJECT: Region III Data QA Review

FROM : *Khin-Cho Thaung* KCT
Region III ESAT RPO (3EA20)

TO : James Hargett
Regional Project Manager (3HS12)

Attached is the inorganic data validation report for the Brooke County Glass Dump site (Case # 36279; SDG #MC2108) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2743.

Attachment

cc: Pam Hayes/Lydia Work WVDEP/TRIAD

TO File #: 0007 TDF#: 0450

ANALYTICAL SERVICES AND QUALITY ASSURANCE BRANCH

Lockheed Martin Information Technology
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

LOCKHEED MARTIN
We never forget who we're working for™

DATE: April 17, 2007

SUBJECT: Level IM1 Inorganic Data Validation for Case 36279
SDG: MC2108
Site: Brooke County Glass Dump

FROM: Shilpa Udani
Inorganic Data Reviewer

Through: Mahboobeh Mecanic
Senior Data Review Chemist

TO: Khin-Cho Thaung
ESAT Region 3 Project Officer

OVERVIEW

Case 36279, Sample Delivery Group (SDG) MC2108, consisted of twelve (12) soil samples submitted to Sentinel, Inc. (SENTIN) for total metals analysis. The sample set included one (1) field duplicate pair. Samples were analyzed in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) ILM05.4 through Routine Analytical Services (RAS) program.

SUMMARY

Validation of data was performed according to EPA Region III Innovative Approaches for Validation of Inorganic Data, Level IM1, which includes review of all Forms but excludes review of raw data. Areas of concern with respect to data usability are listed below.

Data in this Case have been impacted by outliers present in laboratory blanks as well as ICP serial dilution and matrix spike analyses. Details for these outliers are discussed under "Major and Minor Problems". Qualified analytical results for all samples are summarized on Data Summary Forms (DSFs).

MAJOR PROBLEM

The matrix spike recovery was extremely low (< 30%) for antimony (Sb). The positive results reported for this analyte may be biased extremely low and have been qualified "L" on the DSFs unless superseded by "J". Quantitation limits for this analyte are unusable and have been qualified "R" on the DSFs.

MINOR PROBLEMS

The continuing calibration blank (CCB) had reported results greater than the Method Detection Limit (MDL) for beryllium (Be) and mercury (Hg). Positive results reported for these analytes in affected samples which are less than or equal to five times (≤5X) blank concentration may be biased high and have been qualified "B" on the DSFs.

Percent Differences (%Ds) for ICP serial dilution analysis were outside control limits (>10%) for aluminum (Al), barium (Ba), calcium (Ca), chromium (Cr), cobalt (Co), iron (Fe), magnesium (Mg), manganese (Mn), nickel (Ni), potassium (K), vanadium (V), and zinc (Zn). Reported positive results for these analytes are estimated and have been qualified "J" on the DSFs.

The matrix spike recoveries were low (<75% but >30%) for selenium (Se) and thallium (Tl). The low recovery may be attributed to matrix interferences or analyte lost during the digestion process. Reported results and quantitation limits for these analytes may be biased low and have been qualified "L" and "UL" on the DSFs unless superseded by "J".

The matrix spike recovery was high (>125%) for Zn. Positive results reported for this analyte in this SDG may be biased high. The "K" qualifier for this outlier has been superseded by "J" on the DSFs.

NOTES

Positive results which are less than the Contract Required Quantitation Limit (CRQL) but greater than MDL have been qualified "J" on the DSF unless superseded by "B".

The following samples were reanalyzed at dilutions in order to bring concentrations of analytes listed within the established calibration range. The results for these analytes in these samples are reported from the diluted analyses and annotated with a "+" on the DSFs.

Sample	Dilution factor	Analyte
MC2109	2 X	Mn
MC2122	2 X	cadmium (Cd)

The cooler chest used to transport samples in this case had an interior temperature of 18 °C, which exceeded the required cooler temperature of 4 °C to ± 2 °C. Due to thermostability of metals, no data were qualified based on the sample cooler chest temperature.

Reported results for field duplicate pairs MC2109/MC2111 were within 35% RPD, ±2XCRQL for all analytes except Mn.

Data for Case 36279, SDG MC2108, were reviewed in accordance with EPA Region 3 Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

APPENDIX A GLOSSARY OF DATA QUALIFIER CODES
APPENDIX B DATA SUMMARY FORM(S)
APPENDIX C CHAIN OF CUSTODY RECORD(S)
APPENDIX D LABORATORY CASE NARRATIVE(S)

DCN:36279_MC2108.IM1

Appendix A

Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES

CODES RELATED TO IDENTIFICATION
(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION
(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

[ ] = Analyte present. As values approach the IDL the quantitation may not be accurate.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

Appendix B

Data Summary Forms (DSFs)

DATA SUMMARY FORM: INORGANIC

Case #: 36279 | SDG : MC2108 | Number of Soil Samples : 12
Site : | BROOKE COUNTY GLASS DUMP | Number of Water Samples : 0
Lab. : | SENTIN

Sample Number :		MC2108		MC2109		MC2110		MC2111		MC2116	
Sampling Location :		SED1		SED2		SED3		SED4		SS1	
Field QC :				Dup. of MC2111				Dup. of MC2109			
Matrix :		Soil		Soil		Soil		Soil		Soil	
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :		3/26/2007		3/26/2007		3/26/2007		3/26/2007		3/26/2007	
Time Sampled :		11:20		11:05		10:55		11:05		11:55	
%Solids :		63.7		57.3		68.2		67.3		69.7	
Dilution Factor :		1.0		1.0 / 2.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	7610	J	8500	J	7040	J	7950	J	8060	J
ANTIMONY	6	1.6	J	1.8	J	1.7	J	2.0	J	1.1	J
ARSENIC	1	10.9		11.9		7.2		11.3		9.7	
BARIUM	20	85.5	J	107	J	79.0	J	103	J	104	J
BERYLLIUM	0.5	1.0		1.4		1.2		1.1		1.1	
CADMIUM	0.5	0.630	J	0.66	J	0.57	J	0.73	J	0.4	J
CALCIUM	500	7860	J	10400	J	3910	J	7860	J	17400	J
CHROMIUM	1	19.5	J	19.6	J	19.0	J	17.7	J	20.4	J
COBALT	5	26.8	J	41.9	J	23.2	J	32.5	J	7.6	J
COPPER	2.5	26.8		40.4		23.0		31.0		27.0	
IRON	10	31900	J	30200	J	38300	J	30700	J	18500	J
LEAD	1.2	28.2		43.2		21.9		26.6		58.6	
MAGNESIUM	500	2990	J	2990	J	2510	J	2940	J	3700	J
MANGANESE	1.5	2360	J	6500	J	3270	J	3560	J	948	J
MERCURY	0.1	0.094	B	0.18	B	0.11	B	0.10	B	0.14	B
NICKEL	4	44.4	J	73.8	J	39.6	J	54.3	J	15.3	J
POTASSIUM	500	1070	J	1140	J	993	J	1140	J	1260	J
SELENIUM	0.5	1.5	UL	1.5	UL	1.5	UL	1.5	UL	1.5	UL
SILVER	1	0.92	J	0.98	J	1.2	J	1.0	J	0.69	J
SODIUM	500	505	J	583	J	433	J	480	J	802	J
THALLIUM	2.5	2.8	J	2.0	J	2.2	J	2.4	J		UL
VANADIUM	5	18.2	J	19.9	J	17.6	J	17.9	J	19.3	J
ZINC	6	125	J	141	J	87.2	J	115	J	167	J

CRQL = Contract Required Quantitation Limit — SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100) — Revised 09/99

"+" = Result is reported from diluted analysis.

DATA SUMMARY FORM: INORGANIC

Case #: 36279 SDG : MC2108
Site : BROOKE COUNTY GLASS DUMP
Lab. : SENTIN

Sample Number :		MC2117		MC2118		MC2119		MC2121		MC2122	
Sampling Location :		SS10		SS11		SS12		SS14		SS15	
Field QC :											
Matrix :		Soil		Soil		Soil		Soil		Soil	
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :		3/27/2007		3/27/2007		3/27/2007		3/27/2007		3/27/2007	
Time Sampled :		11:45		13:20		13:27		11:50		11:22	
%Solids :		61.5		50.8		75.9		32.2		38.5	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0 / 2.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	1810	J	20100	J	4410	J	2700	J	2230	J
ANTIMONY	6	5.2	J	17.3	L	15.1	L	12.9	J	12.2	J
ARSENIC	1	104	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
BARIUM	20	359	J	102	J	60.7	J	1150	J	755	J
BERYLLIUM	0.5	0.069	J	0.16	J	0.20	J	[illegible]	[illegible]	0.14	[illegible]
CADMIUM	0.5	66.4		180		302		37.7		8310 +	
CALCIUM	500	4270	J	12500	J	11200	J	19400	J	17500	J
CHROMIUM	1	43.1	J	18.5	J	40.6	J	130	J	26.7	J
COBALT	5	4.4	J	[illegible]	J	[illegible]	[illegible]	12.4	J	[illegible]	J
COPPER	2.5	53.4		68.9		160		105		72.9	
IRON	10	35400	J	21900	J	26400	J	109000	J	8780	J
*LEAD	1	3710		138		361		3370		763	
MAGNESIUM	500	524	J	[illegible]	J	[illegible]	J	1840	J	2690	J
MANGANESE	1.5	298	J	425	J	311	J	1590	J	401	J
MERCURY	0.1	[illegible]		0.25	B	0.38		0.56	B	0.40	B
NICKEL	4	14.8	J	13.5	J	31.8	J	28.2	J	20.8	J
POTASSIUM	500	606	J	562	J	536	J	677	J	641	J
SELENIUM	3.5	24.6	L	96.6	L	284	L	45.3	L	569	L
SILVER	1	1.5	J	0.90	J	1.0	J	2.5	J	0.84	J
SODIUM	500	13600		1260		5520		19000		2690	
THALLIUM	2.5	1.4	J	[illegible]	UL	1.7	J	6.3	J	[illegible]	UL
VANADIUM	5	4.6	J	5.4	J	9.4	J	7.8	J	5.7	J
ZINC	6	6370	J	544	J	2700	J	9240	J	1290	J

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS

To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100) Revised 09/99

"+" = Result is reported from diluted analysis.

Case #: 36279 SDG : MC2108
Site : BROOKE COUNTY GLASS DUMP
Lab. : SENTIN

Sample Number :		MC2123		MC2124							
Sampling Location :		SS16		SS17							
Field QC :											
Matrix :		Soil		Soil							
Units :		mg/Kg		mg/Kg							
Date Sampled :		3/27/2007		3/27/2007							
Time Sampled :		11:18		11:15							
%Solids :		42.3		69.5							
Dilution Factor :		1.0		1.0							
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	4090	J	7030	J						
ANTIMONY	6	18.0	L	11.3	L						
ARSENIC	1	181		113							
BARIUM	20	276	J	273	J						
BERYLLIUM	0.5	0.25	B	0.69	J						
CADMIUM	0.5	0.25	U	41.0							
CALCIUM	500	14200	J	17500	J						
CHROMIUM	1	69.9		18.6	J						
COBALT	5	51.2	J	11.9	J						
COPPER	2.5	97.7		61.5							
IRON	10	27800	J	24300	J						
LEAD	1	343		43.1							
MAGNESIUM	500	3090	J	2810	J						
MANGANESE	1.5	445		354							
MERCURY	0.1	0.79		0.15	B						
NICKEL	4	48.4	J	121.6	J						
POTASSIUM	500	625	J	1620	J						
SELENIUM	3.5	186	L	19.6	L						
SILVER	1	1.1	J	0.78	J						
SODIUM	500	3640		1600							
THALLIUM	2.5		UL		UL						
VANADIUM	5	43.1		16.9	J						
ZINC	6	1760	J	723	J						

CRQL = Contract Required Quantitation Limit
To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100)

SEE NARRATIVE FOR CODE DEFINITIONS
Revised 09/99

Appendix C

Chain-of-Custody Records

U.S. EPA Region III Analytical Request Form

9TS 3-14-27

[redacted]

36279

Date: 03/14/2007	Site Activity: Site Inspection Reassessment		
Site Name: Brooke County Glass Dump		Street Address: Washington Pike	
City: Wellsburg	State: WV	Latitude: 40°16'5"	Longitude: 80°35'18"
Program: Superfund	Acct. #: 2007 T 03N 302DD2C B398 QB00	CERCLIS #: WV0002456275	
Site ID:	Spill ID:	Operable Unit: 0	
Site Specific QA Plan Submitted: ☐ No ☒ Yes	Title: Sampling and Analysis Plan, Brooke County Glass Dump, Rev. 2 September 2006	Date Approved: October 2006	
EPA Project Leader: James Hargett 3HS12	Phone#: 215-814-3305	Cell Phone #:	E-mail: Hargett.James@epa.gov
Request Preparer: Carol Phillips	Phone#: 304-296-2562	Cell Phone #:	E-mail: cphillips@triadeng.com
Site Leader: Pam Hayes, WVDEP	Phone#: 304-926-0499	Cell Phone #:	E-mail: pdhayes@wvdep.org

Contractor: Triad Engineering, Inc.		EPA CO/PO:	
#Samples 23	Matrix: soil	Parameter: TAL Metals RL's present	Method: ILM05.3
#Samples 6	Matrix: sediment	Parameter: TAL Metals	Method: ILM05.3
#Samples 6	Matrix: water-non potable	Parameter: TAL Metals	Method: ILM05.3
#Samples 9	Matrix: water-non potable	Parameter: TAL Metals, Dissolved	Method: ILM05.3
#Samples 7	Matrix: water-drinking	Parameter: TAL Metals	Method: ILM05.3
#Samples	Matrix:	Parameter:	Method:
#Samples	Matrix:	Parameter:	Method:
#Samples	Matrix:	Parameter:	Method:
#Samples	Matrix:	Parameter:	Method:

Ship Date From: 3/26/2007	Ship Date To: 3/26/2007	Org. Validation Level N/A	Inorg. Validation Level IM1

Unvalidated Data Requested: ☒ No ☐ Yes If Yes, TAT Needed: ☐ 24hrs ☐ 48hrs ☐ 72hrs ☐ 7days ☐ Other (Specify)

Validated Data Package Due: ☐ 14 days ☒ 21 days ☐ 30days ☐ 42 days ☐ Other (Specify) 14/7

Electronic Data Deliverables Required: ☐ No ☒ Yes (EDDs will be provided in Region 3 EDD Format)

Special Instructions:

FORM ARF- 03/05

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

Case No: 36279 **R**
DAS No:

Region:	3	Date Shipped:	3/30/2007	Chain of Custody Record	Sampler Signature:
Project Code:	CT3907	Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	2007T03W302DD2CB399QB00	Airbill:	860576507063	Lydia Work 3/30/07 1200	
CERCLIS ID:	WV0002456275	Shipped to:	Sentinel Inc. 116 Washington Street, NE Huntsville AL 35801 (256) 534-9800	2	
Spill ID:				3	
Site Name/State:	Brooke County Glass/WV			4	
Project Leader:	Lydia Work				
Action:	Brownfields Site				
Sampling Co:	Triad Engineering				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC2101	Ground Water/ Gary Hilgar	M/G	TM (21)	31 (1)	GW1	S: 3/27/2007 11:05		–
MC2102	Ground Water/ Gary Hilgar	M/G	TM (21)	32 (1)	GW2	S: 3/27/2007 11:15		–
MC2103	Ground Water/ Gary Hilgar	M/G	TM (21)	33 (1)	GW3	S: 3/27/2007 12:30		–
MC2108	Sediment/ Carol Phillips	M/G	TM (21)	310 (1)	SED1	S: 3/26/2007 11:20		–
MC2109	Sediment/ Carol Phillips	M/G	TM (21)	311 (1)	SED2	S: 3/26/2007 11:05		–
MC2110	Sediment/ Lydia Work	M/G	TM (21)	312 (1)	SED3	S: 3/26/2007 10:55		–
MC2111	Sediment/ Carol Phillips	M/G	TM (21)	313 (1)	SED4	S: 3/26/2007 11:05		Field Duplicate of MC2109
MC2112	Surface Water/ Carol Phillips	M/G	TM (21)	314 (1)	SW1	S: 3/26/2007 11:20		–
MC2113	Surface Water/ Carol Phillips	M/G	TM (21)	317 (1)	SW2	S: 3/26/2007 11:10		–
MC2114	Surface Water/ Lydia Work	M/G	TM (21)	318 (1)	SW3	S: 3/26/2007 10:50		–
MC2115	Surface Water/ Carol Phillips	M/G	TM (21)	319 (1)	SW4	S: 3/26/2007 11:10		Field Duplicate of MC2113

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
	MC2103, MC2111, MC2112, MC2120	Lydia M. Work	
Analysis Key: TM = CLP TAL Total Metals	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-043013577-033007-0001

REGION COPY

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

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax

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

Case No: 36279
DAS No:
R

Region:	3	Date Shipped:	3/30/2007	Chain of Custody Record	Sampler Signature
Project Code:	CT3907	Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	2007T03W302DD2CB398QB00	Airbill:	860576507083	1 Lydia Work 3/30/07 1200	
CERCLIS ID:	WV0002456275	Shipped to:	Sentinel Inc. 116 Washington Street, NE Huntsville AL 35801 (256) 534-9600	2	
Spill ID:				3	
Site Name/State:	Brooke County Glass/WV			4	
Project Leader:	Lydia Work				
Action:	Brownfields Site				
Sampling Co:	Triad Engineering				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC2116	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	320 (1)	SS1	S: 3/26/2007 11:55		-
MC2117	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	321 (1)	SS10	S: 3/27/2007 11:45		-
MC2118	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	322 (1)	SS11	S: 3/27/2007 13:20		-
MC2119	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	323 (1)	SS12	S: 3/27/2007 13:27		-
MC2120	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	324 (1)	SS13	S: 3/27/2007 11:55		-
MC2121	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	325 (1)	SS14	S: 3/27/2007 11:50		-
MC2122	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	326 (1)	SS15	S: 3/27/2007 11:22		-
MC2123	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	327 (1)	SS16	S: 3/27/2007 11:18		-
MC2124	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	328 (1)	SS17	S: 3/27/2007 11:15		-
MC2125	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	329 (1)	SS18	S: 3/27/2007 11:10		-

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
	MC2103, MC2111, MC2112, MC2120	Lydia M. Work	
Analysis Key: TM = CLP TAL Total Metals	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-043013577-033007-0001

REGION COPY

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

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

TABLE 2. SOIL LABORATORY ANALYSIS SUMMARY

Brooke County Glass Dump CERCLIS Site (WV0002456275)
Wellsburg, Brooke County, West Virginia

Target Analyte	CAS Number	Screening Criteria	Project Quantitation Limit
Metals (mg/Kg)			
ALUMINUM	7429905	1,000,000	20
ANTIMONY	7440360	410	6
ARSENIC	7440382	1.9	1
BARIUM	7440393	72,000	20
BERYLLIUM	7440417	2,000	0.5
CADMIUM	7440439	510	0.5
CALCIUM	7440702	NV	500
CHROMIUM	18540299	3,100	1
COBALT	7440484	20,000	5
COPPER	7440508	41,000	2.5
IRON	7439896	310,000	10
LEAD	7439921	1,000	1
MAGNESIUM	7439954	NV	500
MANGANESE	7439965	20,000	1.5
MERCURY	7439976	NV	0.1
NICKEL	7440020	20,000	4
POTASSIUM	7440097	NV	500
SELENIUM	7782492	5,100	3.5
SILVER	7440224	5,100	1
SODIUM	7440235	NV	500
THALLIUM	7440280	72	2.5
VANADIUM	7440622	1,000	5
ZINC	7440666	310,000	6

Notes

Surface and subsurface soil samples will be compared to the EPA Region III RBC Table (04/07/2005) Industrial soil values.

NV - No Value Available for compound

TABLE 3. SEDIMENT LABORATORY ANALYSIS SUMMARY

Brooke County Glass Dump CERCLIS Site (WV0002456275)
Wellsburg, Brooke County, West Virginia

Target Analyte	CAS Number	Screening Criteria	Project Quantitation Limit
Metals (mg/Kg)			
ALUMINUM	7429905	78,000	20
ANTIMONY	7440360	31	6
ARSENIC	7440382	0.43	1
BARIUM	7440393	5,500	20
BERYLLIUM	7440417	160	0.5
CADMIUM	7440439	39	0.5
CALCIUM	7440702	NV	500
CHROMIUM	18540299	230	1
COBALT	7440484	1,600	5
COPPER	7440508	3,100	2.5
IRON	7439896	23,000	10
LEAD	7439921	400	1
MAGNESIUM	7439954	NV	500
MANGANESE	7439965	1,600	1.5
MERCURY	7439976	NV	0.1
NICKEL	7440020	1,600	4
POTASSIUM	7440097	NV	500
SELENIUM	7782492	390	3.5
SILVER	7440224	390	1
SODIUM	7440235	NV	500
THALLIUM	7440280	5.5	2.5
VANADIUM	7440622	78	5
ZINC	7440666	23,000	6

Notes

Sediment samples will be compared to the EPA Region III RBC Table (04/07/2005) residential soil values.

NV - No Value Available for compound

Appendix D

Laboratory Case Narrative

USEPA - CLP

COVER PAGE

Lab Name: Sentinel, Inc. Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2108

SOW No.: ILM05.4

EPA SAMPLE NO.	Lab Sample ID.
MC2108	30207
MC2109	30208
MC2110	30209
MC2111	30210
MC2111D	30210S2
MC2111S	30210MS
MC2116	30211
MC2117	30212
MC2118	30213
MC2119	30214
MC2121	30216
MC2122	30217
MC2123	30218
MC2124	30219

Were ICP interelement corrections applied?	Yes/No	YES
Were ICP background corrections applied?	Yes/No	YES
If yes-were raw data generated before application of background corrections?	Yes/No	NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: BARLOW

Date: 4/6/07 Title: QA Chemist

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2108

SAMPLE RECEIPT: Temperature Blank: PRESENT____ ABSENT ✓
If a blank is absent, a non-invasive laser measurement is taken using a sample.
Cooler temperature(s) recorded via laser measurement were: 18.0°C
Refer to Record of Communication (ROC) regarding EPA Sample # discrepancies for samples:

Refer to ROC regarding tag discrepancies for samples:

Refer to ROC regarding sample preservation discrepancies for samples:

Refer to ROC regarding:
analysis + TAT discrepancies on COC/TR
percent solids less than 50 percent

QC Specified: Yes ✓ No____ If no, chose:____

ANALYSIS: The following analyte(s) were estimated due to possible matrix interferences:
Al, Ba, Ca, Cr, Co, Fe, Mg, Mn, Ni, K, Y, +Zn

DOCUMENT CONTROL: The following invalid defects resulted due to CCS program anomalies:
Initial Assessment:
Full Assessment:

OTHER: 1. ICP-MS Mean Values in the raw data are incorrect due to TJA software anomalies.
2. Internal Standard calculations in the raw data are reported as the reciprocal values of the %RI (decimal form-not a percentage) with the control limits as stated in the SOW Exhibit D (ICP-MS) Section 12.11.1.

Signature:

Name & Title: Brian Lowe Chemist Date: 4/6/07

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2108

EQUATIONS:

HW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

HS1 Method: Concentration (dry wt.) (mg/kg) = ((C x V)/(W x S)) X DF

WHERE, C = Concentration (mg/L)
V = Final sample volume in Liters (L)
W = Wet sample weight (kg)
S = % Solids/100
DF = Dilution Factor

CW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

CS1 Method: Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = Concentration in µg/L
B = Weight in g
D = Dilution Factor
E = % Solids/100
F = Final Volume (0.100 L)

Signature: _____

Name & Title: _____ Date: 4/6/07

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2108

EQUATIONS:

DW2 Method: CN Concentration (µg/L) = (A x D x F)/ B

WHERE, A = µg/L CN of sample from regression analysis
B = volume of original sample for distillation (0.050 L)
D = any dilution factor necessary to bracket sample values within standard values
F = sample receiving solution volume (0.050 L)

DS2 Method: CN Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = µg/L CN of sample from regression analysis
B = wet weight of original sample (g)
D = any dilution factor necessary to bracket sample values within standard values
E = % solids/100
F = sample receiving solution volume (0.050 L)

HW2 Method: Concentration (µg/L) = C x (V_f/V_i) x (V_f/20) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (50 mL)
V_i = Initial digestion volume (100 mL)
DF = Dilution Factor

HW3 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

Signature: _____

Name & Title: _____ Date: 4/6/07

SAMPLE LOG-IN SHEET

Lab Name Sentinel, Inc.	Page 1 of 1
Received By (Print Name) Lindsey Cholewa	Log-in Date 04/02/2007
Received By (Signature) LCholewa	
Case Number 36279	Sample Delivery Group No. MC2108 / NRAS Number

Remarks:

1. Custody Seal(s) (Present)/Absent* (Intact)/Broken
2. Custody Seal Nos. ———
3. Traffic Reports/Chain of Custody Records or Packing Lists (Present)/Absent*
4. Airbill (Airbill)/Sticker Present/Absent*
5. Airbill No. 860575507063
6. Sample Tags (Present)/Absent*
   Sample Tag Numbers (Listed)/Not Listed on Traffic Report/Chain of Custody Record
7. Sample Condition (Intact)/Broken*/Leaking
8. Cooler Temperature Indicator Bottle Present/(Absent)*
9. Cooler Temperature 18.0°C
10. Does information on Traffic Reports/Chain of Custody Records and sample tags agree? Yes/(No)*
11. Date Received at Lab 04/02/2007
12. Time Received 0911

Sample Transfer	
Fraction All	Fraction
Area # Cooler	Area #
By LC	By
On 04/02/07	On

EPA Sample #	Aqueous Sample pH	Corresponding Sample Tag #	Corresponding Assigned Lab #	Remarks: Condition of Sample Shipment, etc.
MC2108	NA	310	30207	
MC2109	↓	311	30208	
MC2110		312	30209	
MC2111		313	30210	QC
MC2116		320	30211	
MC2117		321	30212	
MC2118		322	30213	
MC2119		323	30214	
MC2121		325	30216	
MC2122		326	30217	
MC2123		327	30218	
MC2124	↓	328	30219	

* Contact SMO and attach record of resolution

Reviewed By			Logbook No. 1
Date	4/6/07		Logbook Page No. 11

FORM DC-1 ILM05.4 5

%S

Sentinel, Inc. Sample Analysis

% SOLIDS BATCH SHEET

DATE: 04/04/07 ANALYST: RR/SAS

SDG NO: MC2108 EPA Batch No.: 4 EPA Run No: 4

	Lab ID No.	Sample Description	Pan Weight, g	Soil & Pan Initial Wt., g	Soil & Pan Final Wt., g	Result, %	Date Analyzed	Analyst Initials
1	30210	MC2111	0.99	7.75	5.54	67.3	04/05/07	RR/SAS
2	30210D	MC2111D	1.02	8.06	5.64	65.6		
3	30207	MC2108	1.02	7.00	4.83	63.7		
4	30208	MC2109	1.00	6.99	4.43	57.3		
5	30209	MC2110	1.01	7.78	5.63	68.2		
6	30211	MC2116	1.03	7.26	5.37	69.7		
7	30212	MC2117	1.01	7.06	4.73	61.5		
8	30213	MC2118	0.99	7.05	4.07	50.8		
9	30214	MC2119	1.01	6.99	5.55	75.9		
10	30216	MC2121	1.01	7.87	3.22	32.2		
11	30217	MC2122	1.02	6.99	3.32	38.5		
12	30218	MC2123	1.02	7.71	3.85	42.3		
13	30219	MC2124	1.01	7.77	5.71	69.5	↓	↓
14								
15								
16								
17								
18								
19								
20								
21								

Reviewed By:

D. Hood 04/05/07
Analyst/Date for S. Slade

Reviewed By:

4/5/07
QA Officer/Supervisor/Date

206

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
ENVIRONMENTAL SCIENCE CENTER
701 MAPES ROAD
FORT MEADE, MARYLAND 20755-5350

DATE : April 19, 2007

SUBJECT: Region III Data QA Review

FROM : Khin-Cho Thaung KCT
Region III ESAT RPO (3EA20)

TO : James Hargett
Regional Project Manager (3HS12)

Attached is the inorganic data validation report for the Brooke County Glass Dump site (Case # 36279; SDG #MC2120) completed by the Region III Environmental Services Assistance Team (ESAT) contractor under the direction of Region III EAID.

If you have any questions regarding this review, please call me at (410) 305-2743.

Attachment

cc: Pam Hayes/Lydia Work WVDEP/TRIAD

TO File #: 0007 TDF#: 0452

ANALYTICAL SERVICES AND QUALITY ASSURANCE BRANCH

LOCKHEED MARTIN
We never forget who we're working for™

Lockheed Martin Information Technology
ESAT Region 3
US EPA Environmental Science Center
701 Mapes Road Ft. Meade, MD 20755-5350
Telephone 410-305-3037 Facsimile 410-305-3597

DATE: April 17, 2007

SUBJECT: Inorganic Data Validation (IM1 Level)
Case: 36279
SDG: MC2120
Site: Brooke County Glass Dump

FROM: Donald M. Brown DMB
Inorganic Data Reviewer

Mahboobeh Mecanic MM
Senior Oversight Chemist

TO: Khin-Cho Thaung
ESAT Region 3 Project Officer

OVERVIEW

Case 36279, Sample Delivery Group (SDG) MC2120, consisted of thirteen (13) soil samples analyzed for total metals by Sentinel, Inc. (SENTIN). The sample set contained one (1) field duplicate pair. Samples were analyzed in accordance with Contract Laboratory Program (CLP) Statement of Work (SOW) ILM05.4 through Routine Analytical Services (RAS) program.

SUMMARY

Data were validated according to EPA Region III Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995, which includes review of all Forms but excludes review of raw data. Areas of concern with respect to data usability are listed below.

Data in this case have been impacted by outliers present in the laboratory blanks as well as the matrix spike, laboratory duplicate and ICP serial dilution analyses. Details of these outliers are discussed under "Minor Problems" and qualified analytical results for all samples are summarized on the Data Summary Forms (DSFs).

MINOR PROBLEMS

Continuing calibration (CCB) and/or preparation (PB) blanks had reported results greater than the Method Detection Limits (MDLs) for the analytes listed below. Positive results in affected samples which are less than or equal to five times ($\leq$5X) the blank concentrations may be biased high and have been qualified "B" on the DSFs.

Blank	Affected Analytes
CCB	beryllium (Be)
PB	mercury (Hg)

The matrix spike recovery was low (<75% but >30%) for manganese (Mn). The low recovery may be attributed to matrix interferences or analyte lost during the digestion process. Positive results for this analyte in all samples may be biased low and have been qualified "L" on the DSFs.

The relative percent difference (RPD) in the laboratory duplicate analysis was outside control limits (35% RPD, ±2XCRQL) for cadmium (Cd). Positive results for this analyte in all samples are estimated and have been qualified "J" on the DSFs.

The percent difference (%D) in the ICP serial dilution analysis was outside control limits (>10%) for sodium (Na). Positive results for this analyte in all samples are estimated due to possible matrix interferences and have been qualified "J" on the DSFs.

NOTES

Reported results between MDLs and Contract Required Quantitation Limits (CRQLs) were qualified "J" on the DSFs unless superseded by "B".

Several samples in this SDG were reported with percent solids less than fifty percent (<50%). CRQLs are elevated in these samples due to low percent solids.

One (1) of the cooler chests used to transport samples in this SDG had an interior temperature of 18.0°C, which is outside the control limit (4°C ± 2°C). Due to the thermostability of metals, no data were qualified based on this cooler temperature.

RPDs in the laboratory duplicate analysis were outside contractual control limits (20% RPD, ±CRQL) for aluminum (Al), iron (Fe) and lead (Pb). However, RPDs for these analytes were within Region III established control limits (35% RPD, ±2XCRQL) for soil analysis. No data were qualified for these analytes based on laboratory duplicate imprecision.

Reported results for field duplicate pair MC2129/MC2132 were within 35% RPD, ±2XCRQL for all analytes except Cd, copper (Cu) and lead (Pb).

The following samples were reanalyzed at dilutions for the analytes listed below in order to bring concentrations of these analytes within the linear range of the instrument. Results for these analytes in these samples were reported from the diluted analyses and annotated with a "+" on the DSFs.

Sample ID	Analyte	Dilution Factor
MC2133	Mn	2X
MC2135	Fe	2X
MC2136	Cd	2X

Data for Case 36279, SDG MC2120, were reviewed in accordance with EPA Region 3 Innovative Approaches (Level IM1) for Validation of Inorganic Data, June 1995.

ATTACHMENTS

INFORMATION REGARDING REPORT CONTENT

APPENDIX A	GLOSSARY OF DATA QUALIFIER CODES
APPENDIX B	DATA SUMMARY FORM(S)
APPENDIX C	CHAIN OF CUSTODY RECORD(S)
APPENDIX D	LABORATORY CASE NARRATIVE(S)

DCN: 36279.MC2120IM1.doc

Appendix A

Glossary of Data Qualifier Codes

GLOSSARY OF DATA QUALIFIER CODES (INORGANIC)

CODES RELATED TO IDENTIFICATION

(confidence concerning presence or absence of analytes):

U = Not detected. The associated number indicates approximate sample concentration necessary to be detected.

(NO CODE) = Confirmed identification.

B = Not detected substantially above the level reported in laboratory or field blanks.

R = Unreliable result. Analyte may or may not be present in the sample. Supporting data necessary to confirm result.

CODES RELATED TO QUANTITATION

(can be used for both positive results and sample quantitation limits):

J = Analyte Present. Reported value may not be accurate or precise.

K = Analyte present. Reported value may be biased high. Actual value is expected to be lower.

L = Analyte present. Reported value may be biased low. Actual value is expected to be higher.

UJ = Not detected, quantitation limit may be inaccurate or imprecise.

UL = Not detected, quantitation limit is probably higher.

OTHER CODES

Q = No analytical result.

Appendix B

Data Summary Forms

DATA SUMMARY FORM: INORGANIC

Case #: 36279
Site :
Lab. :

SDG : MC2120
BROOKE COUNTY GLASS DUMP
SENTIN

Number of Soil Samples : 13
Number of Water Samples : 0

Sample Number :		MC2120		MC2125		MC2126		MC2127		MC2128	
Sampling Location :		SS13		SS18		SS19		SS2		SS20	
Matrix :		Soil		Soil		Soil		Soil		Soil	
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :		3/27/2007		3/27/2007		3/27/2007		3/26/2007		3/27/2007	
Time Sampled :		11:55		11:10		13:55		11:45		13:20	
%Solids :		42.6		65.6		85.8		74.1		69.2	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	3520		5610		1440		6290		6950	
ANTIMONY	6	19.1		[illegible]		5.8		[illegible]		[illegible]	
ARSENIC	1	229		42.0		34.8		5.5		8.7	
BARIUM	20	190		104		78.2		110		103	
BERYLLIUM	0.5	0.24	B	0.68	J	0.12	B	1.0		1.0	
CADMIUM	0.5	1350		2.3		[illegible]		[illegible]		[illegible]	
CALCIUM	500	14800		52700		3890		50600		6890	
CHROMIUM	[illegible]	457		[illegible]		[illegible]		24.9		[illegible]	
COBALT	5	7.1	J	9.5		2.0	J	9.1		16.8	
COPPER	2.5	182		23.9		25.0		237		29.9	
IRON	10	41500		19400		4700		21800		23700	
LEAD	1	[illegible]		38.4		124		30.5		42.5	
MAGNESIUM	500	2730		4460		709		4510		1700	
MANGANESE	1.5	[illegible]		1040		170		720		1410	
MERCURY	0.1	0.39		0.18		0.17		0.18		0.13	J
NICKEL	4	31.7		16.9		3.8		16.9		20.8	
POTASSIUM	500	376	J	1330		274	J	1060		1710	
SELENIUM	3.5	27.1		3.3	J	35.7		[illegible]		1.7	J
SILVER	1	1.5	J	0.48	J					0.62	J
SODIUM	500	7270	J	441	J	966		407	J	417	
THALLIUM	2.5	3.0	J					1.2	J	1.5	J
VANADIUM	5	7.5		13.1		2.9	J	19.8		15.3	
ZINC	6	3720		134		446		71.6		117	

CRQL = Contract Required Quantitation Limit
To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100)

SEE NARRATIVE FOR CODE DEFINITIONS
Revised 09/99

Case #: 36279 SDG : MC2120
Site : BROOKE COUNTY GLASS DUMP
Lab. : SENTIN

Sample Number :		MC2129		MC2130		MC2131		MC2132		MC2133	
Sampling Location :		SS21		SS3		SS4		SS5		SS6	
Field QC :		Dup of MC2132						Dup of MC2129			
Matrix :		Soil		Soil		Soil		Soil		Soil	
Units :		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :		3/27/2007		3/26/2007		3/27/2007		3/27/2007		3/27/2007	
Time Sampled :		13:10		11:50		13:02		13:08		13:15	
%Solids :		77.8		65.6		84.3		78.4		82.6	
Dilution Factor :		1.0		1.0		1.0		1.0		1.0 / 2.0	
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	11000		8050		27600		10800		20100	
ANTIMONY	6	[illegible]		[illegible]		[illegible]		[illegible]		6.3	J
ARSENIC	1	9.0		7.8		7.7		7.7		47.1	
BARIUM	20	113		90.0		278		112		257	
BERYLLIUM	0.5	1.2		0.90		3.3		1.2		2.2	
CADMIUM	0.5	12.7	J	13.2	J	14.2	J	7.5	J	54.1	J
CALCIUM	500	27000		5780		90200		29200		82400	
CHROMIUM	1	14.8		16.2		11.9		15.5		36.0	
COBALT	5	10.6		12.9		3.7	J	8.7		7.9	
COPPER	2.5	62.5		93.0		17.1		95.5		71.5	
IRON	10	24700		25700		8640		20800		26800	
LEAD	1	28.7		43.7		180		59.6		48	
MAGNESIUM	500	4130		2290		11700		3970		6350	
MANGANESE	15	1250		712		11400		3101		1402	
MERCURY	0.1	0.10	J	0.17		0.083	B	0.12	J	0.16	
NICKEL	4	23.5		23.5		6.8		19.4		18.0	
POTASSIUM	500	1560		2310		2410		1450		2130	
SELENIUM	3.5	[illegible]		[illegible]		2.8	J	3.4		42.3	
SILVER	1	0.33	J	0.69	J						
SODIUM	500	552		608		962	J	542	J	1320	J
THALLIUM	2.5	1.4	J	2.0	J			1.2	J	1.3	J
VANADIUM	15	21.8		17.1		14.5		20.1		36.2	
ZINC	6	128		170		101		118		350	

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100) Revised 09/99
+ = Result reported from diluted analysis.

Case #: 36279 SDG : MC2120
Site : BROOKE COUNTY GLASS DUMP
Lab. : SENTIN

Sample Number :		MC2134		MC2135		MC2136					
Sampling Location :		SS7		SS8		SS9					
Matrix :		Soil		Soil		Soil					
Units :		mg/Kg		mg/Kg		mg/Kg					
Date Sampled :		3/27/2007		3/27/2007		3/27/2007					
Time Sampled :		13:48		13:36		13:15					
%Solids :		92.9		93.4		85.0					
Dilution Factor :		1.0		1.0 / 2.0		1.0 / 2.0					
ANALYTE	CRQL	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	20	1020		2380		20600					
ANTIMONY	5	3.4	J	87.6		4.6	J				
ARSENIC	1	92.9		330		1010					
BARIUM	20	24.2		611		280					
BERYLLIUM	0.5	0.091	J	0.047	J	0.076	J				
CADMIUM	0.5	9.2		10.0		2.6					
CALCIUM	500	2950		9910		4220					
CHROMIUM	1	12.7		6.7		11.1					
COBALT	5	1.1	J	9.7		2.8	J				
COPPER	2.5	12.0		1280		142					
IRON	10	3190		192000+		9350					
LEAD	1	116		980		351					
MAGNESIUM	500	609		782		480	J				
MANGANESE	1.5	305		693		106					
MERCURY	0.1	0.71		0.16		0.23					
NICKEL	4	3.0	J	27.7		5.6					
POTASSIUM	500	194	J	109	J	4390					
SELENIUM	3.5	22.0		333		225					
SILVER	1			3.2							
SODIUM	500	386	J	5810+		26200					
THALLIUM	2.5			9.3							
VANADIUM	5	5.1	J	29		12.6					
ZINC	6	122		3140		6000					

CRQL = Contract Required Quantitation Limit SEE NARRATIVE FOR CODE DEFINITIONS
To calculate sample quantitation limits: (CRQL * Dilution Factor) / (%Solids/ 100) Revised 09/99
+ = Result reported from diluted analysis.

Appendix C

Chain-of-Custody Records

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

Case No: 36279
DAS No:
R

Region:	3	Date Shipped:	3/30/2007	Chain of Custody Record	Sampler Signature
Project Code:	CT3907	Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	2007T03W302DD2CB396QB00	Airbill:	880576507063	1 Lydia M. Work 3/30/07 1200	
CERCLIS ID:	WV0002456275	Shipped to:	Sentinel Inc. 116 Washington Street, NE Huntsville AL 35801 (256) 534-9800	2	
Spill ID:				3	
Site Name/State:	Brooke County Glass/WV			4	
Project Leader:	Lydia Work				
Action:	Brownfields Site				
Sampling Co:	Triad Engineering				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC2116	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	320 (1)	SS1	S: 3/26/2007 11:55		-
MC2117	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	321 (1)	SS10	S: 3/27/2007 11:45		-
MC2118	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	322 (1)	SS11	S: 3/27/2007 13:20		-
MC2119	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	323 (1)	SS12	S: 3/27/2007 13:27		-
MC2120	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	324 (1)	SS13	S: 3/27/2007 11:55		-
MC2121	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	325 (1)	SS14	S: 3/27/2007 11:50		-
MC2122	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	326 (1)	SS15	S: 3/27/2007 11:22		-
MC2123	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	327 (1)	SS16	S: 3/27/2007 11:18		-
MC2124	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	328 (1)	SS17	S: 3/27/2007 11:15		-
MC2125	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	329 (1)	SS18	S: 3/27/2007 11:10		-

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: MC2103, MC2111, MC2112, MC2120	Additional Sampler Signature(s): Lydia M. Work	Chain of Custody Seal Number:
Analysis Key: TM = CLP TAL Total Metals	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced?

TR Number: 3-043013577-033007-0001

REGION COPY

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

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4202

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

Case No: 36279
DAS No:
R

Region:	3	Date Shipped:	3/30/2007	Chain of Custody Record	Sampler Signature:
Project Code:	CT3907	Carrier Name:	FedEx	Relinquished By (Date / Time)	Received By (Date / Time)
Account Code:	2007T03W302DD2CB398QB00	Airbill:	860575507063	1 Lydia Work 3/30/07 1200	
CERCLIS ID:	WV0002456275	Shipped to:	Sentinel Inc. 116 Washington Street, NE Huntsville AL 35801 (256) 534-9800	2	
Spill ID:				3	
Site Name/State:	Brooke County Glass/WV			4	
Project Leader:	Lydia Work				
Action:	Brownfields Site				
Sampling Co:	Triad Engineering				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC2126	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	330 (1)	SS19	S: 3/27/2007 13:55		–
MC2127	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	331 (1)	SS2	S: 3/26/2007 11:45		–
MC2128	Surface Soil (0"-12")/ Gary Hilgar	M/G	TM (21)	332 (1)	SS20	S: 3/27/2007 13:20		–
MC2129	Surface Soil (0"-12")/ Gary Hilgar	M/G	TM (21)	333 (1)	SS21	S: 3/27/2007 13:10		Field Duplicate of MC2132
MC2130	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	334 (1)	SS3	S: 3/26/2007 11:50		–
MC2131	Surface Soil (0"-12")/ Gary Hilgar	M/G	TM (21)	335 (1)	SS4	S: 3/27/2007 13:02		–
MC2132	Surface Soil (0"-12")/ Gary Hilgar	M/G	TM (21)	336 (1)	SS5	S: 3/27/2007 13:08		–
MC2133	Surface Soil (0"-12")/ Gary Hilgar	M/G	TM (21)	337 (1)	SS6	S: 3/27/2007 13:15		–
MC2134	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	338 (1)	SS7	S: 3/27/2007 13:48		–
MC2135	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	339 (1)	SS8	S: 3/27/2007 13:36		–

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: MC2103, MC2111, MC2112, MC2120	Additional Sampler Signature(s): Lydia M. Work	Chain of Custody Seal Number:
Analysis Key: TM = CLP TAL Total Metals	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Shipment Iced? _____

TR Number: 3-043013577-033007-0001

REGION COPY

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

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax

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

Case No: 36279 **R**
DAS No:

Region:	3	**Date Shipped:**	3/30/2007	**Chain of Custody Record**	**Sampler Signature:**
Project Code:	CT3907	**Carrier Name:**	FedEx	**Relinquished By (Date / Time)**	**Received By (Date / Time)**
Account Code:	2007T03W302DD2CB398QB00	**Airbill:**	860575507063	1 Lydia Work 3/30/07 1200	
CERCLIS ID:	WV0002466275	**Shipped to:**	Sentinel Inc. 116 Washington Street, NE Huntsville AL 35801 (256) 534-9600	2	
Spill ID:				3	
Site Name/State:	Brooke County Glass/WV			4	
Project Leader:	Lydia Work				
Action:	Brownfields Site				
Sampling Co:	Triad Engineering				

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	QC Type
MC2135	Surface Soil (0"-12")/ Carol Phillips	M/G	TM (21)	340 (1)	SS9	S: 3/27/2007 13:15 ✓		-

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Chain of Custody Seal Number:
	MC2103, MC2111, MC2112, MC2120	Lydia M Work	
Analysis Key:	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G	**Shipment Iced?** _____
TM = CLP TAL Total Metals			

TR Number: 3-043013577-033007-0001

REGION COPY

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

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4607

U.S. EPA Region III Analytical Request Form

9TS 3-14-27

[redacted]

36279

Date: 03/14/2007	Site Activity: Site Inspection Reassessment		
Site Name: Brooke County Glass Dump		Street Address: Washington Pike	
City: Wellsburg	State: WV	Latitude: 40°16'5"	Longitude: 80°35'18"
Program: Superfund	Acct. #: 2007 T 03N 302DD2C B398 QB00	CERCLIS #: WV0002456275	
Site ID:	Spill ID:	Operable Unit: 0	
Site Specific QA Plan Submitted: ☐ No ☒ Yes	Title: Sampling and Analysis Plan, Brooke County Glass Dump, Rev. 2 September 2006	Date Approved: October 2006	
EPA Project Leader: James Hargett 3HS12	Phone#: 215-814-3305	Cell Phone #:	E-mail: Hargett.James@epa.gov
Request Preparer: Carol Phillips	Phone#: 304-296-2562	Cell Phone #:	E-mail: cphillips@triadeng.com
Site Leader: Pam Hayes, WVDEP	Phone#: 304-926-0499	Cell Phone #:	E-mail: pdhayes@wvdep.org
Contractor: Triad Engineering, Inc.		EPA CO/PO:	
#Samples 23	Matrix: soil	Parameter: TAL Metals QL's present	Method: ILM05.3
#Samples 6	Matrix: sediment	Parameter: TAL Metals	Method: ILM05.3
#Samples 6	Matrix: water-non potable	Parameter: TAL Metals	Method: ILM05.3
#Samples 9	Matrix: water-non potable	Parameter: TAL Metals, Dissolved	Method: ILM05.3
#Samples 7	Matrix: water-drinking	Parameter: TAL Metals	Method: ILM05.3
#Samples	Matrix:	Parameter:	Method:
#Samples	Matrix:	Parameter:	Method:
#Samples	Matrix:	Parameter:	Method:
#Samples	Matrix:	Parameter:	Method:
Ship Date From: 3/26/2007	Ship Date To: 3/26/2007	Org. Validation Level N/A	Inorg. Validation Level IM1
Unvalidated Data Requested: ☒ No ☐ Yes	If Yes, TAT Needed: ☐ 24hrs ☐ 48hrs ☐ 72hrs ☐ 7days ☐ Other (Specify)		
Validated Data Package Due: ☐ 14 days ☒ 21 days ☐ 30days ☐ 42 days ☐ Other (Specify) 14/7			
Electronic Data Deliverables Required: ☐ No ☒ Yes	(EDDs will be provided in Region 3 EDD Format)		
Special Instructions:			

FORM ARF- 03/05

TABLE 2. SOIL LABORATORY ANALYSIS SUMMARY

Brooke County Glass Dump CERCLIS Site (WV0002456275)
Wellsburg, Brooke County, West Virginia

Target Analyte	CAS Number	Screening Criteria	Project Quantitation Limit
Metals (mg/Kg)			
ALUMINUM	7429905	1,000,000	20
ANTIMONY	7440360	410	6
ARSENIC	7440382	1.9	1
BARIUM	7440393	72,000	20
BERYLLIUM	7440417	2,000	0.5
CADMIUM	7440439	510	0.5
CALCIUM	7440702	NV	500
CHROMIUM	18540299	3,100	1
COBALT	7440484	20,000	5
COPPER	7440508	41,000	2.5
IRON	7439896	310,000	10
LEAD	7439921	1,000	1
MAGNESIUM	7439954	NV	500
MANGANESE	7439965	20,000	1.5
MERCURY	7439976	NV	0.1
NICKEL	7440020	20,000	4
POTASSIUM	7440097	NV	500
SELENIUM	7782492	5,100	3.5
SILVER	7440224	5,100	1
SODIUM	7440235	NV	500
THALLIUM	7440280	72	2.5
VANADIUM	7440622	1,000	5
ZINC	7440666	310,000	6

Notes

Surface and subsurface soil samples will be compared to the EPA Region III RBC Table (04/07/2005) industrial soil values.

NV - No Value Available for compound

Appendix D

Laboratory Case Narrative

USEPA - CLP

COVER PAGE

Lab Name: Sentinel, Inc. Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2120

SOW No.: ILM05.4

EPA SAMPLE NO.	Lab Sample ID.
MC2120	30240
MC2120D	30240S2
MC2120S	30240MS
MC2125	30241
MC2126	30242
MC2127	30243
MC2128	30244
MC2129	30245
MC2130	30246
MC2131	30247
MC2132	30248
MC2133	30249
MC2134	30250
MC2135	30251
MC2136	30252

Were ICP interelement corrections applied? Yes/No YES
Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: _____ Name: Brad Igwe

Date: 4/6/07 Title: QA Officer

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2120

SAMPLE RECEIPT: Temperature Blank: PRESENT____ ABSENT ✓
If a blank is absent, a non-invasive laser measurement is taken using a sample.
Cooler temperature(s) recorded via laser measurement were: 18.0°C
Refer to Record of Communication (ROC) regarding EPA Sample # discrepancies for samples:

Refer to ROC regarding tag discrepancies for samples:

Refer to ROC regarding sample preservation discrepancies for samples:

Refer to ROC regarding:

- TAT, analysis discrepancies on COC
  percent solids less than 50 percent

QC Specified: Yes ✓ No____ If no, chose:____

ANALYSIS: The following analyte(s) were estimated due to possible matrix interferences:
Na

DOCUMENT CONTROL: The following invalid defects resulted due to CCS program anomalies:
Initial Assessment:
Full Assessment:

OTHER: 1. ICP-MS Mean Values in the raw data are incorrect due to TJA software anomalies.
2. Internal Standard calculations in the raw data are reported as the reciprocal values of the %RI (decimal form-not a percentage) with the control limits as stated in the SOW Exhibit D (ICP-MS) Section 12.11.1.

Signature:

Name & Title: Barbara Gore QAO Date: 4/6/07

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2120

EQUATIONS:

HW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

HS1 Method: Concentration (dry wt.) (mg/kg) = ((C x V)/(W x S)) X DF

WHERE, C = Concentration (mg/L)
V = Final sample volume in Liters (L)
W = Wet sample weight (kg)
S = % Solids/100
DF = Dilution Factor

CW1 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

CS1 Method: Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = Concentration in µg/L
B = Weight in g
D = Dilution Factor
E = % Solids/100
F = Final Volume (0.100 L)

Signature: _____

Name & Title: Brian Gwin QA Chem Date: 4/6/07

U.S. EPA - CLP

SDG NARRATIVE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: Sentinel, Inc. SOW No.: ILM05.4 Contract: EPW06059

Lab Code: SENTIN Case No.: 36279 NRAS No.: SDG No.: MC2120

EQUATIONS:

DW2 Method: CN Concentration (µg/L) = (A x D x F)/ B

WHERE, A = µg/L CN of sample from regression analysis
B = volume of original sample for distillation (0.050 L)
D = any dilution factor necessary to bracket sample values within standard values
F = sample receiving solution volume (0.050 L)

DS2 Method: CN Concentration (mg/kg) = (A x D x F)/ (B x E)

WHERE, A = µg/L CN of sample from regression analysis
B = wet weight of original sample (g)
D = any dilution factor necessary to bracket sample values within standard values
E = % solids/100
F = sample receiving solution volume (0.050 L)

HW2 Method: Concentration (µg/L) = C x (V_f/V_i) x (V_f/20) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (50 mL)
V_i = Initial digestion volume (100 mL)
DF = Dilution Factor

HW3 Method: Concentration (µg/L) = C x (V_f/V_i) x DF

WHERE, C = Instrument value in µg/L (The average of all replicate integrations).
V_f = Final digestion volume (mL)
V_i = Initial digestion volume (mL)
DF = Dilution Factor

Signature: _____

Name & Title: _____ Date: 4/6/07

Lindsey Cholewa

From: "Berardino, Michelle" <mberardino@fedcsc.com>
To: <bkilgore@sentinellab.com>; "Daphne" <dwoods@sentinellab.com>; "Lindsey" <lcholewa@sentinellab.com>; <sample_receipt@sentinellab.com>
Cc: "Carroll" <harris.carroll@epa.gov>; "Dan Slizys" <slizys.dan@epa.gov>; "John" <kwedar.john@epa.gov>; "Khin-Cho" <thaung.khin-cho@epa.gov>
Sent: Thursday, April 05, 2007 6:52 AM
Subject: Region 03 | Case 36279 | Lab SENTIN | Issue Multiple | FINAL

Lindsey,

Summary Start
-Missing temperature blank-
Issue 1: There was no temperature blank in the cooler. The temperature of a sample was 18 C.
Resolution 1: Per Region 3, the issue must be documented in the SDG/Case Narrative.

-Discrepancies with tags, jars, and/or TR/COC-
Issue 2: The TR/COC does not list HG as a required analysis, however, the Case is scheduled for it per the Scheduling Notification Form.
Resolution 2: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, perform the analyses as indicated on the Scheduling Notification Form, and proceed with the analysis of the samples.

Issue 3: The TR/COC lists the TAT as 21 days, however, per the Scheduling Notification Form this Case has a 14 day TAT.
Resolution 3: In accordance with previous direction from Region 3, the laboratory will proceed with the turnaround time indicated on the Scheduling Notification Form, note the issue in the Case/SDG Narrative, and proceed with the analysis of the samples.

Issue 4: The Case was scheduled for both filtered and non-filtered water samples, however, the Case is complete and the TR/COC does not designate any samples as filtered.
Resolution 4: Per Region 3, filtered samples for this Case is no longer needed. Please note the issue in the Case/SDG Narrative.

-pH outside allowable limits-
Issue 5: Sample MC2102 has a pH of 6 and sample MC1203 has a pH of 5.
Resolution 5: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, adjust the pH, and proceed with the analysis of the samples.
Summary End

Please let me know if you have any further questions or problems.
Thanks,
Michelle Berardino
Computer Sciences Corporation
CLP Coordinator for Regions 1 & 3
mberardino@fedcsc.com
703.818.5264

From: Lydia M. Work [mailto:lwork@triadeng.com]
Sent: Wednesday, April 04, 2007 3:41 PM
To: Slizys.Dan@epamail.epa.gov; Berardino, Michelle; Carroll Harris
Cc: Carol Phillips; Pam Hayes; Heather A. Napier
Subject: RE: RE: NEW ISSUE | Case 36279 | Lab SENTIN | Issue Multiple|
Hi, All-

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Thank you for addressing the issues listed. Please see my responses to the remaining items.

Item 1: Since the samples were metals only, we did not feel a temperature blank was technically

warranted (i.e., metals don't volatilize). For clarification, should we provide a temperature blank every time, even if it is metals only?

Item 2: We were able to collect groundwater samples from clear flowing springs, as a result, filtering was not performed. All waters are for total metals only.

Another clarification; I thought "TM" on the Traffic Report/COC included Hg? I thought you specify only when Hg is not included. See http://www.epa.gov/superfund/programs/clp/download/trs/inlabins.pdf. If we need to list Hg separately every time, please let us know. I would hate for the lab to miss an analytical request over a simple miscommunication.

Thanks,
-Lydia

>>> <Slizys.Dan@epamail.epa.gov> 4/4/2007 2:38 PM >>>

Michelle, Carol and Pam,

Issue 1: the lab must document that no temperature blank was submitted and temperature of the sample cooler in the case narrative.

Issue 4: The field personnel must reply and provide the identificaction of the filtered samples.

Issues 2, 3, and 5 were acceptable responses to the lab.

(See attached file: CT3907.doc)

"Berardino, Michelle" <mberardino@fedcsc.com>	To	Dan Slizys/ESC/R3/USEPA/US@EPA
04/04/2007 01:51 PM	cc	
	Subject	RE: NEW ISSUE | Case 36279 | Lab SENTIN | Issue Multiple |

Dan,

Have you had a chance to look into issues 1 and 4 below yet? The CT number is 3907. Thanks!

-Michelle

-----Original Message-----
From: Berardino, Michelle
Sent: Wednesday, April 04, 2007 8:15 AM
To: 'Slizys.Dan@epamail.epa.gov'
Subject: RE: NEW ISSUE | Case 36279 | Lab SENTIN | Issue Multiple |

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Dan,

It is CT3907. Please let me know if you need any more information.
Thanks,

Michelle Berardino
Computer Sciences Corporation

-----Original Message-----
From: Slizys.Dan@epamail.epa.gov [mailto:Slizys.Dan@epamail.epa.gov]
Sent: Wednesday, April 04, 2007 7:18 AM
To: Berardino, Michelle
Cc: harris.carroll@epa.gov; slizys.dan@epa.gov; kwedar.john@epa.gov
Subject: Re: NEW ISSUE | Case 36279 | Lab SENTIN | Issue Multiple |

Michelle,

What is the "CT" number. I can not find 36279 in our database.

Michelle,

Please advise on issues 1 and 4. The remaining issues have been resolved using standard answers.

-Missing temperature blank-
Issue 1: There was no temperature blank in the cooler. The temperature of a sample was 18 C.
The issue must be documented in the case narrative.
-Discrepancies with tags, jars, and/or TR/COC- Issue 2: The TR/COC does not list HG as a required analysis, however, the Case is scheduled for it per the Scheduling Notification Form.
Resolution 2: In accordance with previous direction from Region 3, the laboratory will note the issue in the Case/SDG Narrative, perform the analyses as indicated on the Scheduling Notification Form, and proceed with the analysis of the samples.
The response is acceptable.
Issue 3: The TR/COC lists the TAT as 21 days, however, per the Scheduling Notification Form this Case has a 14 day TAT.
Resolution 3: In accordance with previous direction from Region 3, the laboratory will proceed with the turnaround time indicated on the Scheduling Notification Form, note the issue in the Case/SDG Narrative, and proceed with the analysis of the samples.
The response is acceptable.
Issue 4: The Case was scheduled for both filtered and non-filtered water samples, however, the Case is complete and the TR/COC does not designate any samples as filtered.
I will have to contact the field personnel for clarification.
-pH outside allowable limits-
Issue 5: Sample MC2102 has a pH of 6 and sample MC1203 has a pH of 5.
Resolution 5: In accordance with previous direction from Region 3, the

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laboratory will note the issue in the Case/SDG Narrative, adjust the pH, and proceed with the analysis of the samples.
The response is acceptable.
Please let me know if you have any questions.
Thanks,

Michelle Berardino
Computer Sciences Corporation
CLP Coordinator for Regions 1 & 3
mberardino@fedcsc.com
703.818.5264

From: Lindsey Cholewa [mailto:lcholewa@sentinellab.com]
Sent: Monday, April 02, 2007 1:46 PM
To: Berardino, Michelle
Subject: case 36279

Michelle-

Today the lab received samples for case 36279.

1.There was no temp blank in the cooler. Using a non invasive laser thermometer, the temperature of a sample was 18.0C.

2.The TR/COC does not list Hg as a required analysis, however the case is scheduled for it. The lab assumes that this is an error on the TR/COC and will proceed with the scheduled analysis.

3.The TR/COC lists the TAT as 21 days, however the case is listed as a 14 day TAT. The lab assumes that this is an error on the TR/COC and will proceed with the scheduled TAT.

4.The case was scheduled for both filtered and nonfiltered water samples, however we only received samples listed for total metal analysis. Are we to expect the additional water samples?

5.Sample MC2102 has pH of 6 and sample MC1203 has pH of 5.

Thanks,

Lindsey Cholewa

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Sample Receipt Coordinator/Environmental Scientist Sentinel,Inc.
256-534-9800 Ex.22

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4/5/2007

Daphne Woods

From: "Berardino, Michelle" <mberardino@fedcsc.com>
To: "Daphne Woods" <dwoods@sentinellab.com>
Cc: "Carroll" <harris.carroll@epa.gov>; "Dan Silzys" <silzys.dan@epa.gov>; "John" <kwedar.john@epa.gov>; "Khin-Cho" <thaung.khin-cho@epa.gov>
Sent: Thursday, April 05, 2007 9:28 AM
Subject: Region 03 | Case 36279 | Lab SENTIN | Issue Non-standard matrix | FINAL

Daphne,

Summary Start
Issue: The following samples have percent solids less than 50 percent:
SDG MC2108:

MC2121 32.2%
MC2122 38.5%
MC2123 42.3%

SDG MC2120:

MC2120 42.6%
MC2120D 40.7%

Resolution: Per the ILM05.3 Statement of Work, Exhibit D (Introduction Section 1.6.7), the Laboratory will proceed with the analysis of the samples and note the issue in the SDG Narrative. In addition, the Laboratory will report the results on a dry weight basis using the percent solids determined by the Laboratory.
Summary End

Michelle Berardino
Computer Sciences Corporation
CLP Coordinator for Regions 1 & 3
mberardino@fedcsc.com
703.818.5264

From: Daphne Woods [mailto:dwoods@sentinellab.com]
Sent: Thursday, April 05, 2007 9:59 AM
To: Berardino, Michelle
Subject: Percent Solids for Case 36279

Hi. I just wanted to let you know that the following samples for Case 36279 have percent solids less than 50%:

SDG MC2108:

MC2121 32.2%
MC2122 38.5%
MC2123 42.3%

SDG MC2120:

MC2120 42.6%

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MC2120D 40.7%

Per the SOW, the lab will proceed with analysis. Thanks!

Daphne Woods
Document Control Officer/Chemical Engineer
Sentinel, Inc.
(256) 534-9800 ext. 18

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Appendix 4

2007 HRS Site Score Package

Confidential document not submitted