REMEDIAL INVESTIGATION: CONFIRMATION SOIL, GROUNDWATER, WATER WELL, AND LANDFILL GAS SAMPLING

NONCD0000544 – Cliffside Mill Dump
Mooresboro, Rutherford County, NC

Pre-Regulatory Landfill Unit
State of North Carolina
State Contract N010002S
W&R Project No. 02100001.04

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Prepared for:
North Carolina Department of Environment and Natural Resources
Division of Waste Management
Superfund Section
Inactive Hazardous Sites Branch
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1. Introduction

1.1 Project Description

This report describes investigation activities completed at the Cliffside Mill Dump (NONCD0000544) as authorized by the North Carolina Division of Waste Management, Pre-Regulatory Landfill Unit (the Unit) in their approval letter dated September 7, 2012. The work was completed in general accordance with the September 4, 2012 Contaminant Delineation Phase Work Plan, Cost Estimate, and Project Schedule for Task Order 544DP-7 and 544DP-8.

Field work associated with Task Order 544DP-8 was initiated on October 1, 2012 and completed on October 3, 2012. The Unit's goals for this stage of the investigation were:

- Further define the waste disposal area limits and thus identify property parcels containing buried waste;
- Provide a description of the current condition of the contaminated media in proximity to the previously delineated boundaries of the landfill through soil, groundwater, and landfill gas review; and,
- Conduct analytical review of one residential water supply well in close proximity to the disposal area.

1.2 Modified Tasks

All successfully completed investigation activities were conducted within the methods and procedures outlined in the approved Work Plan, and the June 21, 2010 Field Protocols & Standard Operating Procedures (SOP) Manual prepared by Withers & Ravenel (W&R) and submitted to the Unit. The following subsections describe field activities conducted in support of, and deviations from the Work Plan.

1.2.1 Substantially Altered Tasks

(Subtask A1) Landfill Gas Probe Installation
Landfill gas (LFG) probe GP-9 was initially installed through the waste that is present at the planned probe location. When informed, the Unit directed that probe GP-9 be relocated outward and beyond the waste. Probe GP-9 was subsequently relocated approximately 82-feet northwest of the planned location; and the original probe was re-designated GP-9A, and remains available for service.

1.2.2 Deleted Tasks

(Subtask B) Temporary Monitoring Well Installation
The planned installation of one (1) temporary groundwater monitoring well identified as TW-15 was not completed due to the existence of shallow rock underlying the vicinity of the planned location.

(Subtask C) Temporary Monitoring Well Sampling and Abandonment
As no temporary monitoring well was installed under Subtask B, no planned groundwater sampling was completed for that well; and thus, no Summary Table of Monitoring Well Data, Groundwater Sample Analytical Results Table, or Groundwater Sample Concentration Map have been prepared. As such, abandonment activities were likewise not completed.

The following paragraphs describe the methods and procedures used in each delineation task accomplished for the site.

2. Soil Boring Discussion

2.1 Clearing

Light hand-clearing was conducted by the driller prior to entry of the drill rig into several of the boring locations, using a chain saw and brush axe.

2.2 Soil Boring Operations

Between October 1 and October 2, 2012 the subcontract drilling contractor, Geologic Exploration, of Statesville, N.C, used a track mounted 6600DT GeoProbe to advance each soil boring to ultimate depth with 2.0-inch MacroCore methods. Hollow stem auger methods were briefly attempted at the planned location of the temporary monitoring well designated TW-15; however, auger refusal upon the underlying rock was observed prior to intercepting the water table in those multiple attempts.

A W&R field technician prepared a field boring and probe construction log for each boring in general accordance with the USCS methods; these logs have been placed in **Appendix A**, Field Documents and Records. Electronic boring logs were subsequently prepared for each boring location; these logs have been placed in **Appendix B,** Soil Boring and Probe Construction Logs. A table of project locations has been prepared as **Appendix C** (Summary of GPS Data), with all boring, LFG probe, and sampling locations presented in the NAD83 State Plane (meters) coordinate system. All boring locations are illustrated in **Figure** 1, Soil Sample Concentration Map, and repeated in **Figure 2**, Landfill Gas Concentration Map.

Several borings (GP-9 through GP-11 and SB-15/TW-15 intercepted partially weathered rock (PWR) or fresh crystalline rock at 6.5 to 11.5-feet below the land surface (BLS). Those borings completed to planned depths were advanced through mostly saprolitic, very fine to fine silty sands, described in boring logs as non-plastic to low plasticity, moist to dry, and red/brown to gray in color. The boring for LFG probe GP-9A was reported to intercept C&D type waste between 3.5 and 5.0-feet BLS. As this area was reported to be free of waste per the August 2010 geophysical survey, the perimeter of the waste has been shifted somewhat outward on all report figures to reflect this new information.

2.3 Soil Sampling

The driller utilized the same GeoProbe equipment and MacroCore methods and to conduct soil sample collection between October 1 and October 2, 2012. Teflon sleeves were used to collect a representative cross section of geologic material. Soils from the 0.5 to 1.0 foot, 4.0 to 5.0 foot, and 10.0 to 11.0 foot BLS intervals were selected per Unit guidance; and, immediately transferred into plastic storage bags prior to ultimate transfer to laboratory-supplied containers. All soil samples were placed into a cooler containing ice, and transported to the laboratory service center in Charlotte, NC for shipment to the laboratory at the conclusion of field operations.

In summary, a total of six (6) soil samples, and one duplicate soil sample were submitted for analytical evaluation under this assessment. The locations of the soil sampling locations are illustrated in **Figure 1**, Soil Sample Concentration Map.

2.4 Results of Soil Sample Analyses

The concentration of soil constituents were compared to the Inactive Hazardous Sites Branch Preliminary Residential Health Based Soil Remediation Goal (PRHSRG) and the Protection of Groundwater Soil Remediation Goal (PGSRG). Contaminants of Interest were identified above established Regulatory Standards, within the following concentration ranges:

- Arsenic - 2.5 to 6.4 mg/Kg
- Iron - 10,300 to 17,600 mg/Kg
- Manganese - 126 to 511 mg/Kg

Table 1, Soil Sample Analytical Results, summarizes the analytical detections for the constituents included within each analytical method. **Figure 1,** Soil Sample Concentration Map, illustrates the location of samples with constituent concentrations (in tabular form) above established Regulatory Standards. A copy of the laboratory analytical report has been included in **Appendix D**, Laboratory Reports.

2.5 Boring Abandonment

Saturated conditions were not encountered during soil boring activities. Therefore, boring abandonment was accomplished by returning soil cuttings removed during the boring process to their respective borehole and tamping to ultimate compaction.

3. Landfill Gas Probe Discussion

3.1 Landfill Gas Probe Installation

The driller utilized the same GeoProbe equipment and MacroCore methods to advance each LFG probe soil boring to 10-feet or push refusal on October 1, and October 2, 2012. A total of five (5) LFG Probes were installed outside the observed perimeter of waste and designated GP-7 through GP-11; and, one (1) additional LFG probe was completed within the perimeter of the observed waste and designated GP-9A (as previously discussed in Section 1.2.1). All LFG probe locations are illustrated in **Figure 2**, Landfill Gas Concentration Map.

With the exception of probe GP-9, each LFG probe was constructed using 5 feet of 1-inch diameter PVC screen, and the annular space between the boring and the casing and screen section was filled with filter sand to the top of the screen interval. GP-9 was constructed using 1.5 feet of 1-inch diameter PVC screen to accommodate the underlying shallow rock conditions existing throughout the vicinity of GP-9. The remainder of the annular space was filled with bentonite pellets to the ground surface; a seal of five (5) or more feet. Per Unit direction, stand-up type locking covers and locks were not installed to secure the PVC probe casings. The construction details for each probe are shown in **Table 2**, Summary of Landfill Gas Probe Construction Data; and the completed logs are included in **Appendix B**, Boring and Probe Construction Logs.

3.2 Landfill Gas Probe Measurement

Probe measurements were conducted by W&R personnel on October 3, 2012 for the existing LFG probes SV-1 through SV-6, and the recently installed probes GP-7 through GP-11 (measurement of GP-9A was not conducted). Vapor probe sampling log forms completed for each location indicate a range of 0.0 to 10.3% by volume and corresponding 0 to >100% LEL of methane, a range of 0.1 to 19.3% by volume of oxygen, a range of 1.4 to 24.6% by volume of carbon dioxide; a range of 0.000 to 9.9 PPM of hydrogen sulfide, and a range of 0.0 to 7496 PPM of VOCs. A Summary of Landfill Gas Probe Field Measurements has been prepared as **Table 3**. Vapor probe sampling logs are also included in **Appendix A**, Field Documents and Records. Weather report data for the day of the LFG measurement activity has been included with the sampling logs and likewise included in **Appendix A.** Measurements were completed using properly calibrated field equipment; and calibration logs are located in **Appendix E**, Calibration Documents.

3.3 Landfill Gas Probe Sampling

Probe sampling was conducted by W&R personnel on October 3, 2012. Existing probe SV-1 was successfully sampled for those parameters designated by the Unit. Recently installed probe GP-8 was likewise sampled due to the high VOC field measurement observed; however, no mercury testing was conducted for this probe per

the Plan. Vapor probe sampling logs are also included in **Appendix A**, Field Documents and Records.

3.4 Results of Landfill Gas Probe Sample Analyses

The concentration of soil vapor constituents were compared to the IHSB Residential and Industrial/Commercial Vapor Intrusion Screening levels. Contaminants of Interest were identified above established regulatory limits, at the following concentrations, or within the following concentration ranges:

- Benzene - 310 ug/m^3 (a single occurrence in probe SV-1)
- 1,4-Dichlorobenzene - 140 ug/m^3 (a single occurrence in probe SV-1)
- Dichlorodifluoromethane (Freon 12) - 1100 ug/m^3 (a single occurrence in probe SV-1)
- Ethylbenzene - 13,000 ug/m^3 (a single occurrence in probe SV-1)
- Naphthalene - 13 to 61 ug/m^3
- 1,2,4-Trichlorobenzene - 18 ug/m^3 (a single occurrence in probe SV-1)
- Trichloroethylene - 68 ug/m^3 (a single occurrence in probe SV-1)
- 1,2,4-Trimethylbenzene - 1600 ug/m^3 (a single occurrence in probe SV-1)
- Vinyl Chloride - 140 ug/m^3 (a single occurrence in probe SV-1)
- m&p-Xylene - 1300 ug/m^3 (a single occurrence in probe SV-1)

Table 4, Summary Landfill Gas Concentrations, describes the analytical detections for the constituents included within each analytical method. **Figure 2**, LFG Concentration Map, illustrates the location of samples with constituent concentrations (in tabular form) above established Regulatory Standards. A copy of the laboratory analytical report has been included in **Appendix D**, Laboratory Reports.

4. Potable Water Supply Well (WSW) Discussion

4.1 WSW Sample Collection

WSW sampling was conducted by W&R personnel on October 3, 2012; a total of one (1) potable water supply point, Well #1 located at the Parker residence 565 S. Pea Ridge Road, was sampled. The submersible well pump was briefly energized (by the owner) to collect the sample. This well is no longer used for drinking purposes; and municipal water is currently available to the home. A field sampling log is included in **Appendix A,** Field Documents and Records. The location of the well is illustrated in **Figure** 1, Soil Sample Concentration Map, and repeated in **Figure 2**, Landfill Gas Concentration Map.

4.2 Results of WSW Sample Analyses

Laboratory analytical results indicate the sample removed from Well #1 contained analytes exceeding their respective groundwater Regulatory Standard established by Title 15A of the North Carolina Administrative Code, Subchapter 2L Standards and/or the US EPA Primary Drinking Water Regulations in the following concentrations:

- Iron - 334 ug/L
- Lead - 15.8 ug/L
- Thallium - 0.31 ug/L

Table 5, Potable Water Sample Analytical Results summarizes the analytical detections for the constituents included within each analytical method. A copy of the laboratory analytical report has been included in **Appendix D**, Laboratory Reports.

5. Quality Assurance Discussion

This assessment was generally conducted under those Quality Assurance / Quality Control (QA/QC) protocols outlined in Appendix 6, Section A.6 of the August 2011 Standard Field Protocols of the Inactive Hazardous Sites Program, Guidelines for Assessment and Cleanup.

One duplicate (soil vapor) sample was collected from existing LFG probe SV-1 and designated Dup-2 (SV). One duplicate sample was prepared from the soil removed from the 0.5 to 1.0 foot interval of boring location SB-15 and designated Dup-1 (Soil). One duplicate sample was prepared from the potable water removed from WSW location Well #1 located at the Parker residence and designated Dup-3 (WSW). A trip blank accompanied the samples during residence in the iced cooler and transport to the laboratory.

The laboratory reported that all samples submitted under Task Order 544DP-8 were received in acceptable condition and within the appropriate holding times. Samples were processed in accordance with previously referenced methods. W&R observed no reportable QA/QC issues associated with the analytical procedures conducted in association with this Report; however, those technical issues considered relevant by the laboratory have been included in the Laboratory Report – QA/QC Data Review form placed as a cover sheet upon the laboratory analytical report included in **Appendix D,** Laboratory Report.

6. Investigative Derived Waste

All soils brought to the surface as a result of drilling activities were utilized to refill their respective borings. No additional investigative derived waste was containerized or transported under this phase field activities.

7. Certification

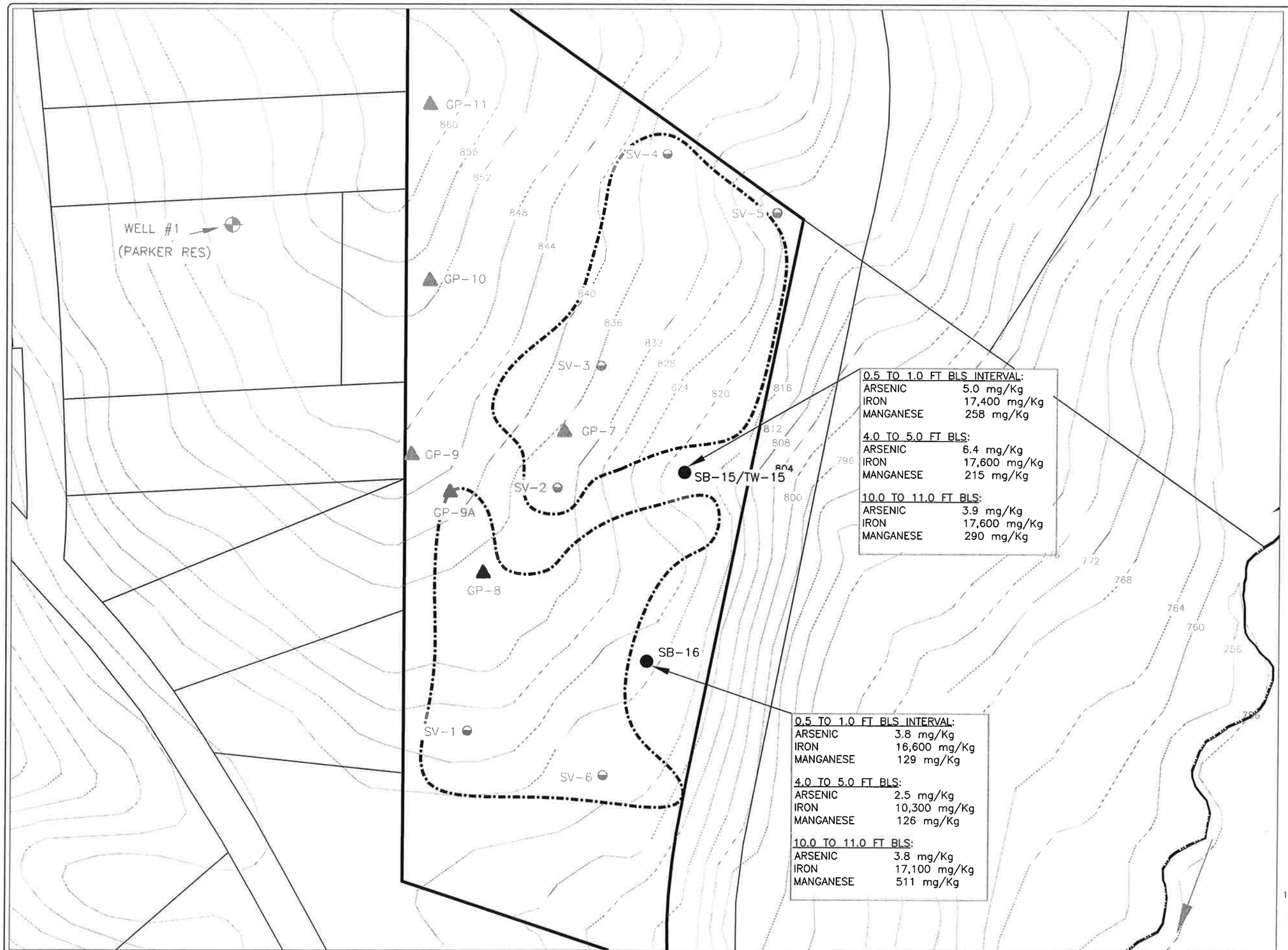
This report has been prepared as outlined in the Task Order 544DP-9. The report has been completed in keeping with direction supplied by the Unit through issuance of investigation and reporting guidelines, and communication with the Unit staff members during completion of requested activities. Questions regarding the information in this report and any related conclusions should be directed to the Unit staff. I certify that, to the best of my knowledge after thorough investigation, the information contained in or accompanying this Report is true, accurate, and complete:

Withers & Ravenel, Inc.

C. Chan Bryant

C. Chan Bryant, P.E.
Contract Manager

FIGURES



LEGEND

- DISPOSAL AREA LIMITS (PER 2011 EM SURVEY AND SUBSEQUENT DELINEATION)
- WASTE DISPOSAL PROPERTY BOUNDARY
- PARCEL BOUNDARY LINE
- 772 — TOPOGRAPHIC CONTOUR INTERVAL LINE
- SB-15 — SOIL SAMPLING LOCATION

NOTES : FT BLS – FEET BELOW LAND SURFACE
mg/Kg – MILLIGRAMS PER KILOGRAM

GRAPHIC SCALE

150 0 75 150 300

1 inch = 150 ft.

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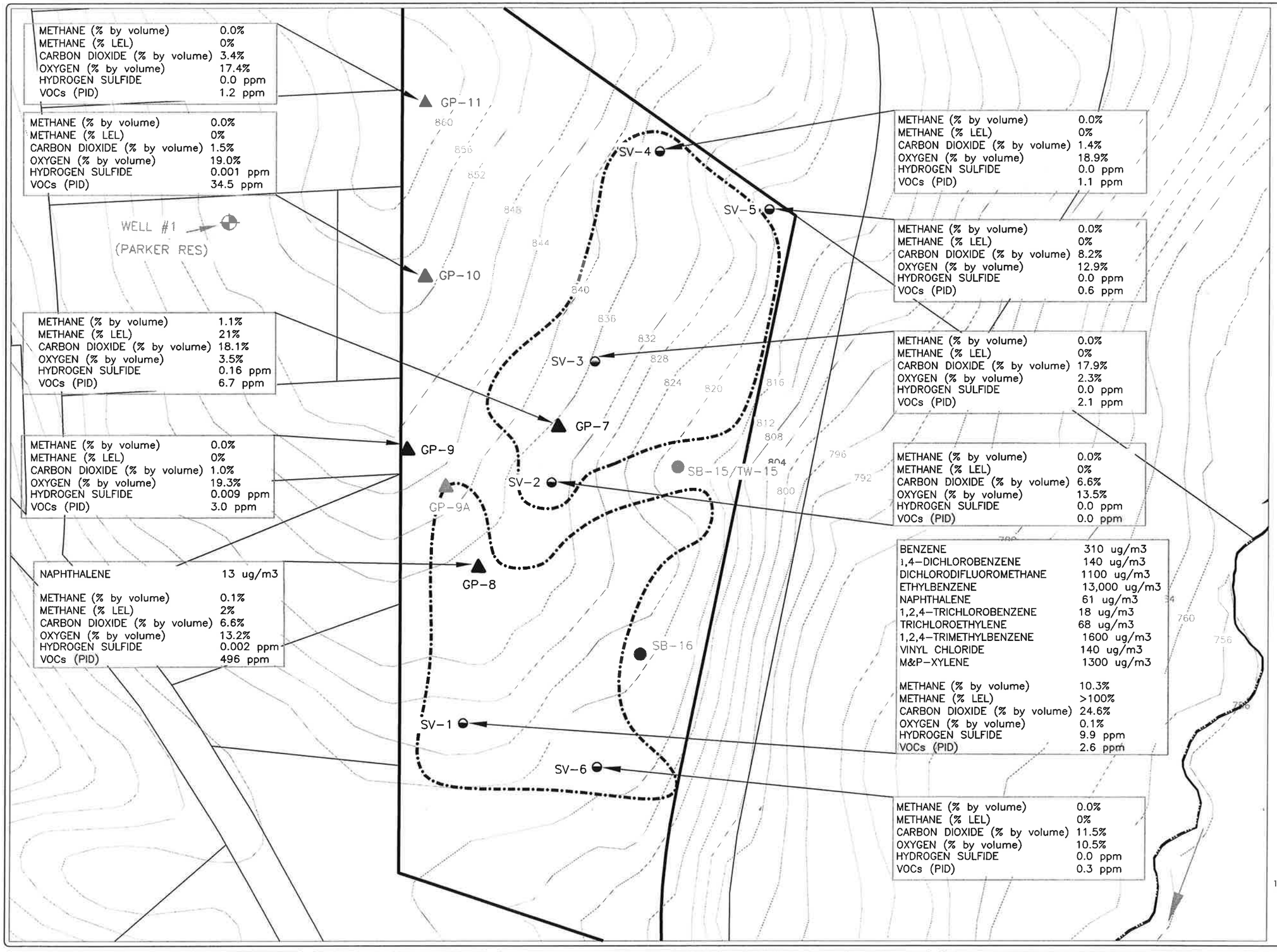
Revisions			
No.	Description	Date	By
1	Unit Changes/Topo ETC.	01/07/13	JMP

CLIFFSIDE MILL DUMP, NONCD0000544
SOUTH PEA RIDGE ROAD
MOORESBORO, NORTH CAROLINA

SOIL SAMPLE CONCENTRATION MAP

Drawn By	Scale
JMP	1"=150'
Checked By	Date
MB	01/07/13

Job No. 02100001.04
Figure No. 1



LEGEND

- DISPOSAL AREA LIMITS (PER 2011 EM SURVEY AND SUBSEQUENT DELINEATION)
- WASTE DISPOSAL PROPERTY BOUNDARY
- PARCEL BOUNDARY LINE
- 772 — TOPOGRAPHIC CONTOUR INTERVAL LINE
- SV-1 — EXISTING LFG PROBE LOCATION
- GP-7 — RECENTLY INSTALLED LFG PROBE LOCATION

NOTES :
VOCs – VOLATILE ORGANIC COMPOUNDS
LEL – LOWER EXPLOSIVE LIMIT
PID – PHOTOIONIZATION DETECTOR
ug/m3 – MICROGRAMS PER CUBIC METER
ppm – PARTS PER MILLION

FIELD MEASUREMENTS PERFORMED ON OCTOBER 3, 2012.

GRAPHIC SCALE
150 0 75 150 300
1 inch = 150 ft.

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Revisions			
No.	Description	Date	By
1	Unit Changes/Topo ETC.	01/07/13	JMP

CLIFFSIDE MILL DUMP, NONCD0000544
SOUTH PEA RIDGE ROAD
MOORESBORO, NORTH CAROLINA

LANDFILL GAS CONCENTRATION MAP

Drawn By	Scale
JMP	1"=150'
Checked By	Date
MB	12/05/12

Job No. 02100001.04
Figure No. 2

TABLES

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS (Detections Only)
CLIFFSIDE MILL DUMP
NONCD0000544

Sample Identification		**NC DENR IHSB Standard**		Dup-1 (Soil)		SB-15 (0.5-1.0)		SB-15 (4-5)		SB-15 (10-11)	
Sample Date				10/02/12		10/02/12		10/02/12		10/02/12	
Comment				Duplicate SB-15 (0.5-1.0)		Soil Sample		Soil Sample		Soil Sample	
Parameter	**Method / Equipment**	Residential Health-Based PSRG	Protection of Groundwater PSRG	Result (mg/kg)	Qual	Result (mg/kg)	Qual	Result (mg/kg)	Qual	Result (mg/kg)	Qual
Arsenic	6020A	0.39	5.8	3.2		5.0		**6.4**		3.9	
Beryllium	6020A	320	63	1.2		1.0		1.0		1.1	
Copper	6020A	620	700	0.79	J	1.5		1.7		1.0	J
Iron	6020A	11000	150	**14200**		**17400**		**17600**		**17600**	
Lead	6020A	400	270	20.4		18.7		20.3		16.5	
Manganese	6020A	360	65	**256**		**258**		**215**		**290**	
Nickel	6020A	300	130	2.2		2.9		4.0		2.0	
Selenium	6020A	78	2.1	0.59		0.31		0.36		0.23	J
Zinc	6020A	4600	1200	39.3		53.8		45.0		58.9	
Mercury	7471B	2.0	1.0	0.022	J	0.021	J	0.028	J	0.017	J

Notes:
Concentrations exceeding the Protection of Groundwater PSRG Standard are shown **BOLDED**
Concentrations exceeding the Residential Health-Based PSRG Standard are shown Underlined
PSRG = Preliminary Soil Remediation Goal
mg/kg = milligrams per kilogram

Qualifiers:
J = The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content where applicable.

TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS (Detections Only)
CLIFFSIDE MILL DUMP
NONCD0000544

Sample Identification		**NC DENR IHSB Standard**		SB-16 (0.5-1.0)		SB-16 (4-5)		SB-16 (14-15)	
Sample Date				10/02/12		10/02/12		10/02/12	
Comment				Soil Sample		Soil Sample		Soil Sample	
Parameter	**Method / Equipment**	Residential Health-Based PSRG	Protection of Groundwater PSRG	Result (mg/kg)	Qual	Result (mg/kg)	Qual	Result (mg/kg)	Qual
Arsenic	6020A	0.39	5.8	3.8		2.5		3.8	
Beryllium	6020A	320	63	0.78		0.58		1.4	
Copper	6020A	620	700	3.6		2.2		0.81	J
Iron	6020A	11000	150	**16600**		**10300**		**17100**	
Lead	6020A	400	270	20.7		21.3		21.7	
Manganese	6020A	360	65	**129**		**126**		**511**	
Nickel	6020A	300	130	5.6		2.6		2.5	
Selenium	6020A	78	2.1	0.48		0.37		0.65	
Zinc	6020A	4600	1200	38.1		81.8		45.5	
Mercury	7471B	2.0	1.0	0.071		0.042		0.020	J

Notes:
Concentrations exceeding the Protection of Groundwater PSRG Standard are shown **BOLDED**
Concentrations exceeding the Residential Health-Based PSRG Standard are shown Underlined
PSRG = Preliminary Soil Remediation Goal
mg/kg = milligrams per kilogram

Qualifiers:
J = The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content where applicable.

TABLE 2
SUMMARY OF LANDFILL GAS PROBE CONSTRUCTION DATA
CLIFFSIDE MILL DUMP
NONCD0000544

Probe Designation	Northing	Easting	Ground Surface Elevation (Ft MSL)	Boring Depth (Ft BLS)	Screen Interval (Ft BLS)	Screen Interval Elevation (Ft MSL)
SV-1	171175.229	356762.529	723.11	6	6.0 To 5.5	717 To 718
SV-2	171290.459	356804.497	729.81	6	6.0 To 5.5	724 To 724
SV-3	171348.193	356824.848	717.24	6	6.0 To 5.5	711 To 712
SV-4	171448.42	356855.363	699.85	6	6.0 To 5.5	694 To 694
SV-5	171420.917	356907.505	666.95	6	6.0 To 5.5	661 To 661
SV-6	171154.231	356826.411	669.7	6	6.0 To 5.5	664 To 664
GP-7	171317.109	356807.698	ND	10	10.0 To 5.0	ND
GP-8	171250.129	356769.822	ND	10	10.0 To 5.0	ND
GP-9	171306.069	356735.835	ND	6.5	6.5 To 5.0	ND
GP-9A	171288.752	356754.043	ND	7	7.0 To 5.0	ND
GP-10	171388.741	356744.113	ND	10	10.0 To 5.0	ND
GP-11	171471.773	356743.939	ND	10	10.0 To 5.0	ND

Locations in State Plane Coordinate System (Meters)
Ft MSL = Feet Mean Sea Level
Ft BLS = Feet Below the Land Surface
ND = Not Determined

TABLE 3
SUMMARY OF LANDFILL GAS PROBE FIELD MEASUREMENTS
CLIFFSIDE MILL DUMP
NONCD0000544

Sample Identification		SV-1	SV-2	SV-3	SV-4	SV-5	SV-6
Sample Date		10/03/12	10/03/12	10/03/12	10/03/12	10/03/12	10/03/12
Comment		Landfill Gas Field Reading	Landfill Gas Field Reading	Landfill Gas Field Reading	Landfill Gas Field Reading	Landfill Gas Field Reading	Landfill Gas Field Reading
Parameter	**Method / Equipment**	Time at Stabilization/ Readings Initiated 11:48	Time at Stabilization/ Readings Initiated 11:16	Time at Stabilization/ Readings Initiated 10:50	Time at Stabilization/ Readings Initiated 10:26	Time at Stabilization/ Readings Initiated 10:37	Time at Stabilization/ Readings Initiated 11:31
		Result	Result	Result	Result	Result	Result
% Methane	GEM 2000 +	10.3	0.0	0.0	0.0	0.0	0.0
% Methane Lower Explosive Limit	GEM 2000 +	> 100	0	0	0	0	0
% Carbon Dioxide	GEM 2000 +	24.6	6.6	17.9	1.4	8.2	11.5
% Oxygen	GEM 2000 +	0.1	13.5	2.3	18.9	12.9	10.5
Hydrogen Sulfide (ppm)	GEM 2000 +	9.9	0.0	0.0	0.0	0.0	0.0
Volatile Organics - PID (ppm)	MiniRAE 2000	2.6	0.0	2.1	1.1	0.6	0.3
Temperature (°F)	TSI 7565	69.3	69.3	69.5	67.2	67.7	70.1
% Humidity	TSI 7565	92	97	98	100	100	91
Barometric Pressure ("HG)	GEM 2000 +	29.14	29.15	29.15	29.16	29.15	29.15

Notes:
ppm = Parts Per Million
"HG = Inches of Mercury

TABLE 3
SUMMARY OF LANDFILL GAS PROBE FIELD MEASUREMENTS
CLIFFSIDE MILL DUMP
NONCD0000544

Sample Identification		GP-7	GP-8	GP-9	GP-10	GP-11
Sample Date		10/03/12	10/03/12	10/03/12	10/03/12	10/03/12
Comment		Landfill Gas Field Reading	Landfill Gas Field Reading	Landfill Gas Field Reading	Landfill Gas Field Reading	Landfill Gas Field Reading
Parameter	**Method / Equipment**	Time at Stabilization/ Readings Initiated 11:07	Time at Stabilization/ Readings Initiated 12:04	Time at Stabilization/ Readings Initiated 9:41	Time at Stabilization/ Readings Initiated 10:02	Time at Stabilization/ Readings Initiated 10:18
		Result	Result	Result	Result	Result
% Methane	GEM 2000 +	1.1	0.1	0.0	0.0	0.0
% Methane Lower Explosive Limit	GEM 2000 +	21	2	0	0	0
% Carbon Dioxide	GEM 2000 +	18.1	6.6	1.0	1.5	3.4
% Oxygen	GEM 2000 +	3.5	13.2	19.3	19.0	17.4
Hydrogen Sulfide (ppm)	GEM 2000 +	0.16	0.002	0.009	0.001	0.0
Volatile Organics - PID (ppm)	MiniRAE 2000	6.7	496	3.0	34.5	1.2
Temperature (°F)	TSI 7565	69.8	71.5	65.7	66.4	67.1
% Humidity	TSI 7565	96	88	100	100	100
Barometric Pressure ("HG)	GEM 2000 +	29.16	29.15	29.15	29.16	29.16

Notes:
ppm = Parts Per Million
"HG = Inches of Mercury

TABLE 4
SUMMARY LANDFILL GAS CONCENTRATIONS (Detections Only)
CLIFFSIDE MILL DUMP
NONCD0000544

Sample Identification		NC DENR IHSB Standard		SV-1		Dup-2 (SV)		GP-8	
Sample Date				10/03/12		10/03/12		10/03/12	
Comment				Landfill Gas Sample		Duplicate SV-1 Sample		Landfill Gas Sample	
Parameter	**Method / Equipment**	Acceptable Residential Vapor Intrusion Screening Levels	Acceptable Industrial/ Commercial Vapor Intrusion Screening Levels	Result ($\mu g/m^3$)	Qual	Result ($\mu g/m^3$)	Qual	Result ($\mu g/m^3$)	Qual
Acetone	EPA TO-15	64000	280000	ND		ND		640	
Benzene	EPA TO-15	31	160	**310**		**330**		ND	
Carbon Disulfide	EPA TO-15	1460	6200	7.7	J	7.2	J	10.0	J
Chloroethane	EPA TO-15	NL	NL	310		340		ND	
Cyclohexane	EPA TO-15	NL	NL	470		510		ND	
1,2-Dichlorobenzene	EPA TO-15	420	1760	51		54		ND	
1,3-Dichlorobenzene	EPA TO-15	NL	NL	7.7	J	ND		ND	
1,4-Dichlorobenzene	EPA TO-15	22	110	**140**		**150**		ND	
Dichlorodifluoromethane (Freon 12)	EPA TO-15	200	880	**1100**		**1100**		38	
1,1-Dichloroethane	EPA TO-15	150	770	53		57		ND	
1,1-Dichloroethylene	EPA TO-15	420	1760	5.4	J	5.1	J	ND	
cis-1,2-Dichloroethylene	EPA TO-15	NL	NL	780		860		ND	
trans-1,2-Dichloroethylene	EPA TO-15	126	520	20		23		ND	
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	EPA TO-15	NL	NL	1400		1500		ND	
Ethylbenzene	EPA TO-15	97	490	**13000**		**13000**		22	
4-Ethyltoluene	EPA TO-15	NL	NL	200		980		ND	
Heptane	EPA TO-15	NL	NL	1600		1600		ND	
Hexane	EPA TO-15	1460	6200	1000		1100		ND	
2-Hexanone (MBK)	EPA TO-15	NL	NL	1500		ND		ND	
Isopropanol	EPA TO-15	NL	NL	9600	E	3100		310	J
Methylene Chloride	EPA TO-15	1300	5300	59	J	54	J	33	J
Naphthalene	EPA TO-15	6.2	26	**61**		**69**		**13**	J
Styrene	EPA TO-15	2000	8800	23		24		83	
Tetrachloroethylene	EPA TO-15	83.4	350	30		36		ND	
Tetrahydrofuran	EPA TO-15	NL	NL	ND		ND		38	
Toluene	EPA TO-15	10400	44000	190		220		37	
1,2,4-Trichlorobenzene	EPA TO-15	4.2	17.6	**18**		**14**	J	ND	
Trichloroethylene	EPA TO-15	4.2	17.6	**68**		**67**		ND	
Trichlorofluoromethane (Freon 11)	EPA TO-15	1460	6200	ND		ND		18	J
1,2,4-Trimethylbenzene	EPA TO-15	14.6	62	**1600**	J	**1700**	J	10	J
1,3,5-Trimethylbenzene	EPA TO-15	NL	NL	1300		1400		ND	
Vinyl Chloride	EPA TO-15	16	280	**140**		**140**		ND	
m&p-Xylene	EPA TO-15	200	880	**1300**		**1300**		13	J
o-Xylene	EPA TO-15	200	880	78		99		ND	
Mercury*	NIOSH 6009	0.62	2.6	ND	Z-01	ND	Z-01	NA	
Reported in ppmv:									
Methane	EPA 3C	NL	NL	67000	R-01	66000		ND	

Notes:
Concentrations exceeding Residential Standards are shown in **BOLD**
Concentrations exceeding Industrial/Commercial Standards are shown Underlined.
Mercury* - Sample concentrations are shown; however, Standards for "Elemental" mercury were used.
NL = Not Listed
ND = Parameter Not Detected above laboratory method detection limits.
µg/m3 = Micrograms per Cubic Meter
ppmv = Parts Per Million by Volume

Qualifiers:
J = The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content where applicable.
E = The reported result is estimated. Value reported over verified calibration range.
R-01 = The duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result.
Z-01 = The reporting limit verification for the AIHA program is outside of control limits for this element. Any reported result at or near the detection limit may be biased on the low side.

TABLE 5
POTABLE WATER SAMPLE ANALYTICAL RESULTS (Detections Only)
CLIFFSIDE MILL DUMP
NONCD0000544

Sample Identification		**Standards**		Well 1		Dup-3 (WSW)		Trip Blank	
Sample Date				10/03/12		10/03/12		10/03/12	
Comment				Water Supply Well Sample		Duplicate Well 1 Sample		Control Blank	
Parameter	**Method / Equipment**	EPA National Primary Drinking Water Regulations	15A NCAC 2L Groundwater Standards	Result (ug/L)	Qual	Result (ug/L)	Qual	Result (ug/L)	Qual
bis(2-Ethylhexyl)phthalate	8270D	NL	3.0	2.4	J	2.2	J	NA	
Arsenic	6020A	10.0	10	0.49	J	0.35	J	NA	
Beryllium	6020A	4	4 (IMAC)	0.11	J	0.11	J	NA	
Chromium	6020A	100	10	1.4	J	1.4	J	NA	
Copper	6020A	1300	1000	118		75.8		NA	
Iron	6020A	NL	300	**334**		107		NA	
Lead	6020A	15	15	**15.8**		8.5		NA	
Manganese	6020A	NL	50	35.2		13.6		NA	
Nickel	6020A	NL	100	6.4		3.5		NA	
Thallium	6020A	2	0.2	**0.31**	J	0.12	J	NA	
Zinc	6020A	NL	1000	154		95		NA	
Reported in mg/L:									
Nitrogen, Nitrate	EPA 300	10000	10000	0.80		0.83		NA	
Sulfate	EPA 300	NL	250000	1.3	J	1.5	J	NA	

Notes:

Concentrations exceeding the 2L Groundwater Standard are shown in **BOLD**
Concentrations exceeding the EPA Drinking Water Standard are shown Underlined.
IMAC = Interim Maximum Allowable Concentration
NL = Not Listed
NA = Parameter Not Analyzed
ug/L = Micrograms per Liter (PPB)
mg/L = Mililgrams per Liter (PPM)

Qualifiers:

J = The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted

APPENDIX A

FIELD DOCUMENTS AND RECORDS

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TEST BORING FIELD REPORT

BORING #: GP-7

Project Name: CLIFFSIDE Project #: 02100001.04 Date: 10/1/12

Field Supervisor: J. PALMER Drilling Company: GEO. EX. Drilling Crew: DANNY SUMMERS + DONNY

Rig Type: 6600DT GEOP. Boring Location: Ground Surface Elevation:

Depth (feet) From	Depth (feet) To	Soil/Lithologic Descriptions and Remarks	Depth From	Depth To	1st 6"	2nd 6"	3rd 6"	4th 6"	Inches Rec.
0.0	3.0	CLAYEY SANDY SILT; HETEROGENEOUS,							
		LOW → MED PLAST, ~20→30 % V.FN → FN							
		SAND, MOIST, ORG/BROWN (FILL)							
3.0	4.0	WASTE; PLASTIC, GLASS, HEAVILY							
		DECOMPOSED WOOD MIXED C+D + MSW-							
		TYPE WASTE							
4.0	6.0	SILTY SAND; HETERO, SOMEWHAT →							
		LOW PLAST, ~60→70 % V.FN→FN SAND,							
		MOIST, RED/BROWN (FILL)							
6.0	10.0	SILTY SAND; HOMO + SAPROLITIC,							
		~60→80 % V.FN→FN MICACEOUS SAND,							
		DRY, RED/BROWN + OKAY							
		1" LFG PROBE							
		SCREEN 10→5' BLS							
		CASING 5→+2.5' "							
		SAND 10→5' "							
		BENTONITE 5→0.0' "							

Total Boring Depth:

Water Level: @ @ @

Comments: (Drill Methods, Boring Diameter, UD Tubes, Well Const, etc)

Test Boring Hole Diameter (ID/ OD) /

Hammer Type: Doughnut/ Safety Hammer/ Automatic

Drilling Times:

Moving:

Drilling:

Standby:

Hauling Water:

Fluid Losses: Depths:

2" MACROCORE
~3.0" BOREHOLE

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TEST BORING FIELD REPORT

BORING #: GP-8

Project Name: CLIFFSIDE
Project #: 02100001.04 Date: 10/1/12
Field Supervisor: J. PALMER Drilling Company: GEO. EX. Drilling Crew: DANNY SUMMERS + DONNY
Rig Type: GOODAT GEOP. Boring Location: Ground Surface Elevation:

Depth (feet) From	Depth (feet) To	Soil/Lithologic Descriptions and Remarks	Depth From	Depth To	1st 6"	2nd 6"	3rd 6"	4th 6"	Inches Rec.
0.0	3.5	SILTY SAND; HETERO, SOMEWHAT → LOW PLAST, ~50 → 70% V.FN → FN MICACEOUS SAND, MOIST, RED/BROWN							
3.5	6.0	WASTE; PLASTIC, MASONRY, METAL, ASPHALT ROOFING MATERIAL (CAD-TYPE WASTE)							
6.0	10.0	SILTY SAND; HOMO + SAPROLITIC SLIGHTLY → NON PLASTIC, ~60 → 80% V.FN → FN SAND, MOIST → DRY, RED/BROWN + GRAY							
		1" LFC PROBE SCREEN 10 → 5' BLS CASING 5 → +2.5' " SAND 10 → 5' " BENTONITE 5 → 0.0 "							
		* POSSIBLE ODOR IN WASTE MATERIAL?							

Total Boring Depth:
Water Level: @
@
@

Drilling Times:
Moving:
Drilling:
Standby:
Hauling Water:
Fluid Losses: Depths:

Comments: (Drill Methods, Boring Diameter, UD Tubes, Well Const, etc)

Test Boring Hole Diameter (ID/ OD) 1
Hammer Type: Doughnut/ Safety Hammer/ Automatic

2" MACROCORE
~3.0" BOREHOLE

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TEST BORING FIELD REPORT

BORING #: GP-9

Project Name: CLIFFSIDE Project #: 0210001.0 Date: 10/2/12

Field Supervisor: J. PALMER Drilling Company: GEO. EX. Drilling Crew: DANNY SUMMERS + DUNN

Rig Type: 66000T GEOPROBE Boring Location: Ground Surface Elevation:

Depth (feet) From	Depth (feet) To	Soil/Lithologic Descriptions and Remarks	Depth From	Depth To	1st 6"	2nd 6"	3rd 6"	4th 6"	Inches Rec.
0.0	5.0	SILTY SAND; HOMO, SOMEWHAT → LOW PLAST, ~60 → 70% V. FN → FN SAND, DRY → MOIST, RED/BROWN, SAPROLITIC BELOW ~1.0' BLS							
5.0	6.5	PWR + SILTY SAND; HOMO + SAPROLITIC, SLIGHTLY → NON-PLASTIC, 70 → 90% V. FN → MED SAND, DRY, GRAY, PWR GRAVEL PRESENT							
		1" LFG PROBE							
		SCREEN 6.5 → 5.0' BLS							
		CASING 5.0 → +2.5' "							
		SAND 6.5 → 5.0' "							
		BENTONITE 5.0 → 0.0' "							
* GP-9		LOCATION IS LOCATED 60' N.E. OF PLANNED LOCATION!							
* MADE		MULTIPLE ATTEMPTS TO PENETRATE ROCK!							

Comments: (Drill Methods, Boring Diameter, UD Tubes, Well Const, etc)

Total Boring Depth:

Water Level: @

@

@

Test Boring Hole Diameter (ID/ OD) /

Hammer Type: Doughnut/ Safety Hammer/ Automatic

2" MACROCORE

~3.0" BOREMAE

Drilling Times:

Moving:

Drilling:

Standby:

Hauling Water:

Fluid Losses: Depths:

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TEST BORING FIELD REPORT

BORING #: CP-9A

Project Name: CLIFFSIDE Project #: 02100001.04 Date: 10/1/12

Field Supervisor: J. PALMER Drilling Company: GEO. EX. Drilling Crew: DAVIN SUMMERS + BONN

Rig Type: 6600 DT GEOP. Boring Location: Ground Surface Elevation:

Depth (feet) From	Depth (feet) To	Soil/Lithologic Descriptions and Remarks	Depth From	Depth To	1st 6"	2nd 6"	3rd 6"	4th 6"	Inches Rec.
0.0	3.5	SILTY SAND; HETERO, SOMEWHAT → LOW PLAST, ~50 → 60% V.FN → FN MICACEOUS SAND, MOIST, RED/BRWN							
3.5	5.0	WASTE; PLASTIC, MASONRY, ASPHALT ROOFING MATERIAL (CHD-TYPE WASTE)							
5.0	6.5	SILTY SAND; HETERO, SLIGHTLY PLASTIC, ~50 → 70% V.FN → FN MICACEOUS SAND, DRY, RED/BRWN							
6.5	7.0	PWR + SILTY SAND; HOMO + SAPROLITIC, NON-PLASTIC, ~60% → 90% V.FN → CS SAND, DRY, GRAY							
		1" LFG PROBE SCREEN 7 → 5' BLS CASING 5 → +2.5' " SAND 7 → 5' " BENTONITE 5 → 0.0' "							
		NOT SAMPLED PER CWS							

* ATTEMPTED MULTIPLE BOREHOLES / OBSERVED PREMATURE REFUSAL ON ROCK!
* PROBE IS LOCATED ~30' EAST OF PLANNED LOCATION!
* STRONG CHEMICAL ODOR IN WASTE MATERIAL (WASTE IN SOIL MATRIX)

Total Boring Depth:

Water Level: @ @ @

Drilling Times:
Moving:
Drilling:
Standby:
Hauling Water:

Fluid Losses: Depths:

Comments: (Drill Methods, Boring Diameter, UD Tubes, Well Const, etc)

Test Boring Hole Diameter (ID/ OD) /

Hammer Type: Doughnut/ Safety Hammer/ Automatic

2" MACROCORE
~3.0" BOREHOLE

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TEST BORING FIELD REPORT

BORING #: GP-40

Project Name: CLIFFSIDE Project #: 02100001.04 Date: 10/1/12

Field Supervisor: J. PALMER Drilling Company: GEO. EX. Drilling Crew: DAVIS SUMMERS + DOME

Rig Type: 6600 DT GEOP. Boring Location: Ground Surface Elevation:

Depth (feet) From	Depth (feet) To	Soil/Lithologic Descriptions and Remarks	Depth From	Depth To	1st 6"	2nd 6"	3rd 6"	4th 6"	Inches Rec.
0.0	8.5	SILTY SAND; HOMO, SOMEWHAT →							
		LOW PLAST, ~50 → 70% V.FN → FN SAND,							
		DRY, RED/BROWN → GRAY, SAPROLITIC							
		BELOW 2.5' BLS							
8.5	10.0	PWR + SILTY SAND; HOMO + SAPROLITIC,							
		SLIGHTLY → NON-PLASTIC, ~60 → 90%							
		V.FN → MED SAND, DRY, GRAY							
		1" PVC LFC PROBE							
		SCREEN 10 → 5' BLS							
		CASING 5 → +2.5' "							
		SAND 10 → 5' "							
		BENTONITE 5 → 0.0 "							

Total Boring Depth:

Water Level: @ @ @

Drilling Times:

Moving:

Drilling:

Standby:

Hauling Water:

Fluid Losses: Depths:

Comments: (Drill Methods, Boring Diameter, UD Tubes, Well Const, etc)

Test Boring Hole Diameter (ID/ OD) /

Hammer Type: Doughnut/ Safety Hammer/ Automatic

2" MACROCORE
~3.0" BOREHOLE

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TEST BORING FIELD REPORT

BORING #: GP-11

Project Name: CLIFFSIDE Project #: 02100001.04 Date: 10/1/12

Field Supervisor: J. PALMER Drilling Company: GED. EX. Drilling Crew: DANNY SUMMERS & DOPPY

Rig Type: 6600 DT GEOP. Boring Location: Ground Surface Elevation:

Depth (feet) From	Depth (feet) To	Soil/Lithologic Descriptions and Remarks	Depth From	Depth To	1st 6"	2nd 6"	3rd 6"	4th 6"	Inches Rec.
0.0	8.0	SILTY SAND; HOMOGENEOUS, SOMEWHAT →							
		LOW PLAST, ~60 → 70% V.FN → FN SAND,							
		DRY, RED/BROWN TO GRAY, SAPROLITIC	BLOW	2.0'	BLS				
8.0	10.0	PWR + SILTY SAND; HOMO, + SAPROLITIC SLIGHTLY →							
		NON-PLASTIC, ~70 → 90% V.FN → MED SAND,							
		DRY, GRAY							
		1" PVC LFG PROBE							
		SCREEN 10 → 5' BLS							
		CASING 5 → +2.5' "							
		SAND 10 → 5 "							
		BENTONITE 5 → 0.0 "							

Total Boring Depth:

Water Level: @ @ @

Drilling Times:

Moving:

Drilling:

Standby:

Hauling Water:

Fluid Losses: Depths:

Comments: (Drill Methods, Boring Diameter, UD Tubes, Well Const, etc)

Test Boring Hole Diameter (ID/ OD) /

Hammer Type: Doughnut/ Safety Hammer/ Automatic

2" MACROCORE
~3.0" BOREHOLE

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TEST BORING FIELD REPORT

BORING #: SB/TW-15

Project Name: CLIFFSIDE Project #: 02100001.04 Date: 10/2/12

Field Supervisor: J. PALMER Drilling Company: GEO, EX. Drilling Crew: DANNY SUMMERS + DONNY

Rig Type: GOODT GEOPROBE Boring Location: Ground Surface Elevation:

Depth (feet) From	Depth (feet) To	Soil/Lithologic Descriptions and Remarks	Depth From	Depth To	1st 6"	2nd 6"	3rd 6"	4th 6"	Inches Rec.
0.0	6.0	SANDY SILT W/CLAY; HOMO, SOMEWHAT →							
		LOW PLAST, ~30→40% V. FN → FN SAND, MOIST							
		RED/BROWN, SAPROLITIC BELOW ~2.0' BLS							
6.0	11.0	SILTY SAND; HOMO + SAPROLITIC, SOMEWHAT							
		→ NON-PLASTIC, ~50→70% V. FN → MED SAND, MOIST, CLAY/BROWN, PWR GRAVEL							
		PRESENT BELOW 11' BLS MOIST → V. MOIST							
11.0	11.5	PWR (PRESENTING AS SILTY SAND; SAME							
		MATERIAL/SAME CHARACTER AS ABOVE							
11.5	—	CRYSTALINE GRANITOID ROCK							

SAMPLES:
0.5 → 1.0' (1050)
4 → 5' (1100)
10 → 11' (1120)

* MADE MULTIPLE ATTEMPTS TO PENETRATE ROCK
* AUGER REFUSAL @ 11.5' BLS ON FRESH ROCK
* MACROCORE REFUSAL @ 11.0' BLS IN PWR

Total Boring Depth:

Water Level: @ @ @

Drilling Times:
Moving:
Drilling:
Standby:
Hauling Water:

Fluid Losses: Depths:

Comments: (Drill Methods, Boring Diameter, UD Tubes, Well Const, etc)

Test Boring Hole Diameter (ID/ OD) /

Hammer Type: Doughnut/ Safety Hammer/ Automatic

(2" MACROCORE W/ TEFLON TO COLLECT SOIL SAMPLES

SWITCH TO 4.25" HSA 11.0 → 11.5' BLS

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TEST BORING FIELD REPORT

BORING #: SB-16

Project Name: CLIFFSIDE **Project #:** 02100001.04 **Date:** 10/2/12

Field Supervisor: J. PALMER **Drilling Company:** GED. EX **Drilling Crew:** DANNY SUMMERS + DOMM

Rig Type: GOODT GEOP. **Boring Location:** BERM STRUCTURE **Ground Surface Elevation:**

Depth (feet) From	Depth (feet) To	Soil/Lithologic Descriptions and Remarks	Depth From	Depth To	1st 6"	2nd 6"	3rd 6"	4th 6"	Inches Rec.
0.0	2.0	SILTY SAND; HETERO, LOW PLAST, ~50 → 60% V. FN → FN SAND, MOIST, GRAY / BROWN, (FILL)							
2.0	4.5	SANDY SILT WITH ORGANICS; LOW → MOD ELASTICITY, ~20 → 30% V. FN → FN SAND, DRY, BROWN, MUCH HUMIC MATERIAL (FILL)							
4.5	15.0	SILTY SAND; HOMO + SAPROLITIC, LOW → NON-PLASTIC, ~50 → 80% V. FN → FN SAND, MOIST, GRAY / BROWN + GRAY							
		SAMPLES:							
		0.5 → 1.0' (0945)							
		4.0 → 5.0' (0955)							
		14.0 → 15.0' (1015)							
		* DOP-1 IS 14.0 → 15.0' BLS MATERIAL							
* 2.0 →		4.5' BLS IS HEAVILY DECOMPOSED WOOD / VEGETATIVE MATERIAL							

Total Boring Depth:

Water Level: @ @ @

Drilling Times:

Moving:

Drilling:

Standby:

Hauling Water:

Fluid Losses: Depths:

Comments: (Drill Methods, Boring Diameter, UD Tubes, Well Const, etc)

Test Boring Hole Diameter (ID/ OD) /

Hammer Type: Doughnut/ Safety Hammer/ Automatic

2" TEFLON MACROCORE TO COLLECT SOIL SAMPLE

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VAPOR PROBE OR INDOOR AIR SAMPLING LOG

PAGE 1 OF 1

PROBE NO: SV-1
TOTAL DEPTH: UPK. feet (TD)
LOCATION:

PROJECT: CLIFFSIDE
PROJECT NO: 02100001.04
DATE: 10/3/12
SAMPLER: J.P + R.P.
LABORATORY: CONTEST

WEATHER CONDITIONS:

Air Temperature 69.3
Barometric Pressure 29.14 Stable, Rising, or Falling (Circle One)
Relative Humidity Ambient Air 92%
Moisture Description Sampling Zone (Dry, Moist, Saturated, or Flooded) (NONE OBSERVED)

PURGING:

Calculated Purge Volume (in CCs) ~100 CM³ PER PURGE
Actual Purge Volume (in CCs)
Headspace Reading VOCs by PID (in PPM) 2.6 / 2.5
LF Gas Meter Readings:
Methane (in %) 10.3
Methane LEL (in %) >100%
Oxygen (in %) 0.1
Carbon Dioxide (in %) 24.6
Hydrogen Sulfide (H2S in PPM) 9.9 / 9.7

PURGE:
START 1145
END 1148
STABILIZED!

SAMPLING MEDIA:

	SV-1	Dup-2 SV
Canister ID #	1526	1435
Regulator ID #	3260	3160
Canister Volume (in Liters)	1	1
Duration and/or Setting	1 hr	1 hr
Starting Vacuum	30" Hg	27" Hg
Starting Time	1340	1452
Ending Vacuum	1" Hg	2" Hg
Ending Time	1454	1610

Vacuum Pre-Test: (Pass) or Fail (Circle One)

COMMENTS:

Sampling Event Successful Yes or No (Circle One)

Other Notes: NIOSH Sampling
SV-1: Tube # 1985501132 Start: 1618 End 1643 Avg Flow 0.2001 L/min
Dup-2 SV: Tube # 3459300677 Start: 1644 End 1709 Avg Flow 0.1998 L/min

* USED WATER FILTERS ON LFG METER + PID

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VAPOR PROBE OR INDOOR AIR SAMPLING LOG

PAGE 1 OF 1

PROBE NO: SV-2

TOTAL DEPTH: UNK. feet (TD)

LOCATION:

PROJECT: CLIFFSIDE

PROJECT NO: 02100001.04

DATE: 10/3/12

SAMPLER: J.P + RLP.

LABORATORY:

WEATHER CONDITIONS:

Air Temperature 69.3

Barometric Pressure 29.15 Stable, Rising, or Falling (Circle One)

Relative Humidity Ambient Air 97%

Moisture Description Sampling Zone (Dry, Moist, Saturated, or Flooded) (NONE OBSERVED)

PURGING:

Calculated Purge Volume (in CCs) 1160 CM³ PER PURGE

Actual Purge Volume (in CCs)

Headspace Reading VOCs by PID (in PPM) 0.0

LF Gas Meter Readings:

Methane (in %) 0.0

Methane LEL (in %) 0

Oxygen (in %) 13.5

Carbon Dioxide (in %) 6.6

Hydrogen Sulfide (H2S in PPM) 0.000/0.000

PURGE:
START 1115
END 1116
STABILIZED!

SAMPLING MEDIA:

Canister ID #

Canister Volume (in Liters)

Regulator ID #

Duration and/or Setting

Vacuum Pre-Test: Pass or Fail (Circle One)

Starting Vacuum

Starting Time

Ending Vacuum

Ending Time

COMMENTS:

Sampling Event Successful Yes or No (Circle One)

Other Notes:

USED WATER FILTERS ON LFG METER + PID

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VAPOR PROBE OR INDOOR AIR SAMPLING LOG

PAGE 1 OF 1

PROBE NO: SV-3

TOTAL DEPTH: UNK. feet (TD)

LOCATION:

PROJECT: CLIFFSIDE

PROJECT NO: 02100001.04

DATE: 10/3/12

SAMPLER: JP + RD

LABORATORY:

WEATHER CONDITIONS:

Air Temperature 69.5

Barometric Pressure 29.15 Stable, Rising, or Falling (Circle One)

Relative Humidity Ambient Air 98%

Moisture Description Sampling Zone (Dry, Moist, Saturated, or Flooded) WATER DROPLETS OBSERVED

PURGING:

Calculated Purge Volume (in CCs) ~160 CC's ~~DEAD DURUP~~

Actual Purge Volume (in CCs)

Headspace Reading VOCs by PID (in PPM) 2.1 / 2.0

LF Gas Meter Readings:

Methane (in %) 0.0

Methane LEL (in %) 0

Oxygen (in %) 2.3

Carbon Dioxide (in %) 17.9

Hydrogen Sulfide (H2S in PPM) 0.000 / 0.000

PURGE:

START 1048

END 1050

STABILIZED!

SAMPLING MEDIA:

Canister ID #

Canister Volume (in Liters)

Regulator ID #

Duration and/or Setting

Vacuum Pre-Test: Pass or Fail (Circle One)

Starting Vacuum

Starting Time

Ending Vacuum

Ending Time

COMMENTS:

Sampling Event Successful Yes or No (Circle One)

Other Notes:

USED WATER FILTS. ON LFG METER + PID

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VAPOR PROBE OR INDOOR AIR SAMPLING LOG

PAGE 1 OF 1

PROBE NO: SV-4

TOTAL DEPTH: UNK. feet (TD)

LOCATION:

PROJECT: CLIFFSIDE

PROJECT NO: 02100001.04

DATE: 10/3/12

SAMPLER: JP + RP

LABORATORY:

WEATHER CONDITIONS:

Air Temperature 67.2

Barometric Pressure 29.16 Stable, Rising, or Falling (Circle One)

Relative Humidity Ambient Air 100%

Moisture Description Sampling Zone (Dry, Moist, Saturated, or Flooded) NONE OBSERVED

PURGING:

Calculated Purge Volume (in CCs) ~100 CM³ PER PURGE

Actual Purge Volume (in CCs) —

Headspace Reading VOCs by PID (in PPM) 1.1

PURGE:

START 1024

END 1026

STABILIZED

LF Gas Meter Readings:

Methane (in %) 0.0

Methane LEL (in %) 0

Oxygen (in %) 18.9

Carbon Dioxide (in %) 1.4

Hydrogen Sulfide (H2S in PPM) 0.000 / 0.000

SAMPLING MEDIA:

Canister ID #

Canister Volume (in Liters)

Regulator ID #

Duration and/or Setting

Vacuum Pre-Test: Pass or Fail (Circle One)

Starting Vacuum

Starting Time

Ending Vacuum

Ending Time

COMMENTS:

Sampling Event Successful Yes or No (Circle One)

Other Notes:

USED WATER FILTERS ON LFG METER + PID

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VAPOR PROBE OR INDOOR AIR SAMPLING LOG

PAGE 1 OF 1

PROBE NO: SV-5

TOTAL DEPTH: UNK feet (TD)

LOCATION:

PROJECT: CLIFFSIDE

PROJECT NO: 02100001.04

DATE: 10/3/12

SAMPLER: JP + RP

LABORATORY:

WEATHER CONDITIONS:

Air Temperature 67.7

Barometric Pressure 29.15 Stable, Rising, or Falling (Circle One)

Relative Humidity Ambient Air 100%

Moisture Description Sampling Zone (Dry, Moist, Saturated, or Flooded) (NONE OBSERVED)

PURGING:

Calculated Purge Volume (in CCs) ~160 CM³ PER PURGE

Actual Purge Volume (in CCs) /

Headspace Reading VOCs by PID (in PPM) 0.6

LF Gas Meter Readings:

Methane (in %) 0.0

Methane LEL (in %) 0

Oxygen (in %) 12.9

Carbon Dioxide (in %) 8.2

Hydrogen Sulfide (H2S in PPM) 0.000 / 0.000

PURGE:
START 1036
END 1037
STABILIZED!

SAMPLING MEDIA:

Canister ID #

Canister Volume (in Liters)

Regulator ID #

Duration and/or Setting

Vacuum Pre-Test: Pass or Fail (Circle One)

Starting Vacuum

Starting Time

Ending Vacuum

Ending Time

COMMENTS:

Sampling Event Successful Yes or No (Circle One)

Other Notes:

WATER FILTERS USED ON LFG METER + PID

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VAPOR PROBE OR INDOOR AIR SAMPLING LOG

PAGE 1 OF 1

PROBE NO: SV-6

TOTAL DEPTH: UNK. feet (TD)

LOCATION:

PROJECT: CLIFFSIDE

PROJECT NO: 02100001.04

DATE: 10/3/12

SAMPLER: JP + RD

LABORATORY:

WEATHER CONDITIONS:

Air Temperature 70.1

Barometric Pressure 29.15 Rising or Falling (Circle One)

Relative Humidity Ambient Air 91%

Moisture Description Sampling Zone (Dry), Moist, Saturated, or Flooded) (NONE OBSERVED

PURGING:

Calculated Purge Volume (in CCs) ~160 CM³ PER PURGE

Actual Purge Volume (in CCs)

Headspace Reading VOCs by PID (in PPM) 0.3

QRAE 4 Gas Meter Readings: CH4 / LEL

LEL for Methane (in %) 0.0 / 0

Oxygen (in %) 10.5

Carbon Dioxide (CO2 in PPM) 11.5

Hydrogen Sulfide (H2S in PPM) 0.000 / 0.000

PURGE:
START 1129
END 1131
STABILIZED!

SAMPLING MEDIA:

Canister ID #

Canister Volume (in Liters)

Regulator ID #

Duration and/or Setting

Vacuum Pre-Test: Pass or Fail (Circle One)

Starting Vacuum

Starting Time

Ending Vacuum

Ending Time

COMMENTS:

Sampling Event Successful Yes or No (Circle One)

Other Notes:

WATER FILTERS USED ON LFG METER + PID

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VAPOR PROBE OR INDOOR AIR SAMPLING LOG

PAGE 1 OF 1

PROBE NO: GP-7

TOTAL DEPTH: 10.0 feet (TD)

LOCATION:

PROJECT: CLIFFSIDE

PROJECT NO: 02100001.04

DATE: 10/3/12

SAMPLER: JP + RP

LABORATORY:

WEATHER CONDITIONS:

Air Temperature 69.8

Barometric Pressure 29.16 Stable, Rising, or Falling (Circle One)

Relative Humidity Ambient Air 96%

Moisture Description Sampling Zone (Dry, Moist, Saturated, or Flooded) (NONE OBSERVED)

PURGING:

Calculated Purge Volume (in CCs) MIN OD CM³ DEN DVALUE

Actual Purge Volume (in CCs) —

Headspace Reading VOCs by PID (in PPM) 6.6/6.7

LF Gas Meter Readings:

Methane (in %) 1.1

Methane LEL (in %) 21

Oxygen (in %) 3.5

Carbon Dioxide (in %) 18.1

Hydrogen Sulfide (H2S in PPM) 0.16/0.15

PURGE:
START 1101
END 1107
STABILIZED!

SAMPLING MEDIA:

Canister ID #

Canister Volume (in Liters)

Regulator ID #

Duration and/or Setting

Vacuum Pre-Test: Pass or Fail (Circle One)

Starting Vacuum

Starting Time

Ending Vacuum

Ending Time

COMMENTS:

Sampling Event Successful Yes or No (Circle One)

Other Notes:

WATER FILTERS USED ON LFG METER + PID

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VAPOR PROBE OR INDOOR AIR SAMPLING LOG

PAGE 1 OF 1

PROBE NO: GP-8

TOTAL DEPTH: 10.0 BLS feet (TD)

LOCATION:

PROJECT: CLIFFSIDE

PROJECT NO: 02100001.04

DATE: 10/3/12

SAMPLER: JP + RP

LABORATORY: CONTEST

WEATHER CONDITIONS:

Air Temperature 71.5

Barometric Pressure 29.15 Stable, Rising, or Falling (Circle One)

Relative Humidity Ambient Air 88%

Moisture Description Sampling Zone (Dry, Moist, Saturated, or Flooded) (NONE OBSERVED)

PURGING:

Calculated Purge Volume (in CCs) ~1700 CM3 PER PURGE

Actual Purge Volume (in CCs)

Headspace Reading VOCs by PID (in PPM) 496/490

LF Gas Meter Readings:

Methane (in %) 0.1

Methane LEL (in %) 2%

Oxygen (in %) 13.2

Carbon Dioxide (in %) 6.6

Hydrogen Sulfide (H2S in PPM) 0.002/0.001

PURGE:
START 1156
END 1204
STABILIZED!

SAMPLING MEDIA:

Canister ID # 1407 Canister Volume (in Liters) 1

Regulator ID # 3289 Duration and/or Setting 1 hr

Vacuum Pre-Test: Pass or Fail (Circle One)

Starting Vacuum 29" hg Starting Time 1524

Ending Vacuum 2" hg Ending Time 1700

COMMENTS:

Sampling Event Successful Yes or No (Circle One)

Other Notes:

WATER FILTERS USED ON LFG METER + PID

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VAPOR PROBE OR INDOOR AIR SAMPLING LOG

PAGE 1 OF 1

PROBE NO: GP-9

TOTAL DEPTH: 6.5 BLS feet (TD)

LOCATION:

PROJECT: CLIFFSIDE

PROJECT NO: 02100001.04

DATE: 10/3/12

SAMPLER: JP + RP

LABORATORY:

WEATHER CONDITIONS:

Air Temperature 65.7

Barometric Pressure 29.15 Stable, Rising, or Falling (Circle One)

Relative Humidity Ambient Air 100 %

Moisture Description Sampling Zone (Dry, Moist, Saturated, or Flooded) (NONE PRESENT)

PURGING:

Calculated Purge Volume (in CCs) ~1100 cm³ PER PURGE

Actual Purge Volume (in CCs) —

Headspace Reading VOCs by PID (in PPM) 3.0

LF Gas Meter Readings:

Methane (in %) 0.0

Methane LEL (in %) 0.0

Oxygen (in %) 19.3

Carbon Dioxide (in %) 1.0

Hydrogen Sulfide (H2S in PPM) 0.009 / 0.009

PURGE
START 0932
END 0941
STABILIZED!

π × (.5²) × (7 × 12) = 66.0 in³
66 ⇒ 1081 cm³
200 ⇒ 3.4 MVS PER

SAMPLING MEDIA:

Canister ID #

Canister Volume (in Liters)

Regulator ID #

Duration and/or Setting

Vacuum Pre-Test: Pass or Fail (Circle One)

Starting Vacuum

Starting Time

Ending Vacuum

Ending Time

COMMENTS:

Sampling Event Successful Yes or No (Circle One)

Other Notes:

WATER FILTERS USED ON LFG METER + PID

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VAPOR PROBE OR INDOOR AIR SAMPLING LOG

PAGE 1 OF 1

PROBE NO: GP-10

TOTAL DEPTH: 10.0 BLS feet (TD)

LOCATION:

PROJECT: CLIFFIDE

PROJECT NO: 0210001.04

DATE: 10/3/12

SAMPLER: JP + RP

LABORATORY:

WEATHER CONDITIONS:

Air Temperature 66.4

Barometric Pressure 29.16 Stable, Rising, or Falling (Circle One)

Relative Humidity Ambient Air 100%

Moisture Description Sampling Zone (Dry, Moist, Saturated, or Flooded) (NONE OBSERVED)

PURGING:

Calculated Purge Volume (in CCs) ~1700 CM³ PER PURGE

Actual Purge Volume (in CCs) —

Headspace Reading VOCs by PID (in PPM) 34.5 / 34.0

LF Gas Meter Readings:

Methane (in %) 0.0

Methane LEL (in %) 0

Oxygen (in %) 19.0

Carbon Dioxide (in %) 1.5

Hydrogen Sulfide (H2S in PPM) 0.001 / 0.000

PURGE:
START 0955
END 1002
STABILIZED!

$\pi \times (.5^2) \times (11 \times 12) = 103.7$ in³

103.7 ⇒ 1698 cm³ / 200 = 8.5 min

SAMPLING MEDIA:

Canister ID #

Canister Volume (in Liters)

Regulator ID #

Duration and/or Setting

Vacuum Pre-Test: Pass or Fail (Circle One)

Starting Vacuum

Starting Time

Ending Vacuum

Ending Time

COMMENTS:

Sampling Event Successful Yes or No (Circle One)

Other Notes:

WATER FILTERS USED ON LFG METER + PID

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VAPOR PROBE OR INDOOR AIR SAMPLING LOG

PAGE 1 OF 1

PROBE NO: GP-11

TOTAL DEPTH: 10.0 BLS feet (TD)

LOCATION:

PROJECT: CLIFFSIDE

PROJECT NO: 0210001.04

DATE: 10/3/12

SAMPLER: JP + RP

LABORATORY:

WEATHER CONDITIONS:

Air Temperature 67.1

Barometric Pressure 29.16 Stable, Rising, or Falling (Circle One)

Relative Humidity Ambient Air 100 %

Moisture Description Sampling Zone (Dry, Moist, Saturated, or Flooded) NONE OB

PURGING:

Calculated Purge Volume (in CCs) ~1700 CM3 PER PURGE

Actual Purge Volume (in CCs)

Headspace Reading VOCs by PID (in PPM) 1.2

LF Gas Meter Readings:

Methane (in %) 0.0

Methane LEL (in %) 0

Oxygen (in %) 17.4

Carbon Dioxide (in %) 3.4

Hydrogen Sulfide (H2S in PPM) 0.000/0.000

PURGE:
START 1012
END 1018
STABILIZED!

SAMPLING MEDIA:

Canister ID #

Canister Volume (in Liters)

Regulator ID #

Duration and/or Setting

Vacuum Pre-Test: Pass or Fail (Circle One)

Starting Vacuum

Starting Time

Ending Vacuum

Ending Time

COMMENTS:

Sampling Event Successful Yes or No (Circle One)

Other Notes:

WATER FILTERS USED ON LFG METER + PID

History for Rutherfordton, NC

Wednesday, October 3, 2012

Wednesday, October 3, 2012

« Previous Day | October | 3 | 2012 | View | Next Day »

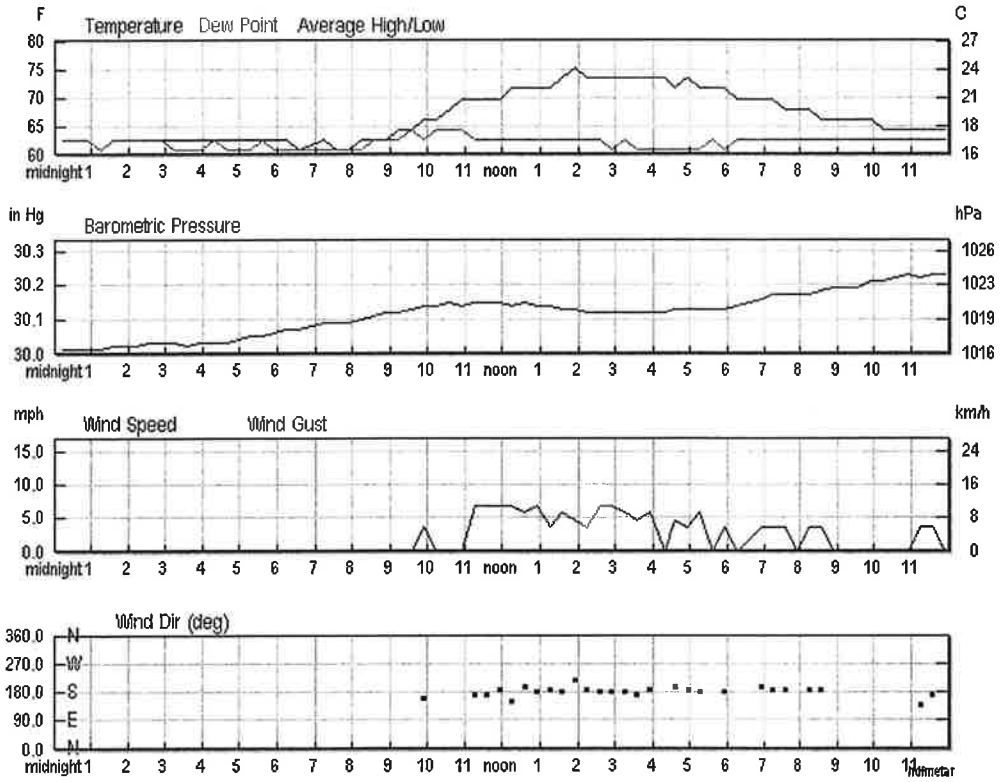
Daily | Weekly | Monthly | Custom

	Actual	Average (KAVL)	Record (KAVL)
Temperature			
Mean Temperature	**68** °F	**60** °F	
Max Temperature	**75** °F	**72** °F	**88** °F (1954)
Min Temperature	**60** °F	**49** °F	**23** °F (1895)
Degree Days			
Heating Degree Days	0	5	
Month to date heating degree days		15	
Since 1 July heating degree days		72	
Cooling Degree Days	2	1	
Month to date cooling degree days		3	
Year to date cooling degree days		855	
Growing Degree Days	18 (Base 50)		
Moisture			
Dew Point	**62** °F		
Average Humidity	86		
Maximum Humidity	100		
Minimum Humidity	65		
Precipitation			
Precipitation	**0.00** in	**0.11** in	**1.66** in (1961)
Month to date precipitation		0.32	
Year to date precipitation		35.74	
Snow			
Snow	**0.00** in	**0.00** in	**0.00** in ()
Month to date snowfall		0.0	
Since 1 July snowfall		0.0	
Since 1 September snowfall		0.0	
Snow Depth	-		
Sea Level Pressure			
Sea Level Pressure	**30.12** in		
Wind			
Wind Speed	**1** mph (South)		
Max Wind Speed	**7** mph		
Max Gust Speed	-		
Visibility	**9** miles		
Events	Rain		

Click here for data from the nearest station with official NWS data (KAVL).

T = Trace of Precipitation, **MM** = Missing Value

Source: NWS Daily Summary



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Hourly Observations

Time (EDT)	Temp.	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
12:15 AM	62.6 °F	62.6 °F	100%	30.01 in	7.0 mi	Calm	Calm	-	N/A		Scattered Clouds
12:35 AM	62.6 °F	62.6 °F	100%	30.01 in	7.0 mi	Calm	Calm	-	N/A		Scattered Clouds
12:55 AM	62.6 °F	62.6 °F	100%	30.01 in	7.0 mi	Calm	Calm	-	N/A		Scattered Clouds
1:15 AM	60.8 °F	60.8 °F	100%	30.01 in	5.0 mi	Calm	Calm	-	N/A		Scattered Clouds
1:35 AM	62.6 °F	62.6 °F	100%	30.02 in	10.0 mi	Calm	Calm	-	N/A		Mostly Cloudy
1:55 AM	62.6 °F	62.6 °F	100%	30.02 in	7.0 mi	Calm	Calm	-	N/A		Overcast
2:15 AM	62.6 °F	62.6 °F	100%	30.02 in	10.0 mi	Calm	Calm	-	N/A		Mostly Cloudy
2:35 AM	62.6 °F	62.6 °F	100%	30.03 in	7.0 mi	Calm	Calm	-	N/A		Mostly Cloudy

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Time (EDT)	Temp.	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
2:55 AM	62.6 °F	62.6 °F	100%	30.03 in	10.0 mi	Calm	Calm	-	N/A		Scattered Clouds
3:15 AM	62.6 °F	60.8 °F	94%	30.03 in	7.0 mi	Calm	Calm	-	N/A		Scattered Clouds
3:35 AM	62.6 °F	60.8 °F	94%	30.02 in	7.0 mi	Calm	Calm	-	N/A		Mostly Cloudy
3:59 AM	62.6 °F	60.8 °F	94%	30.03 in	7.0 mi	Calm	Calm	-	N/A		Overcast
4:19 AM	62.6 °F	62.6 °F	100%	30.03 in	7.0 mi	Calm	Calm	-	N/A		Overcast
4:39 AM	62.6 °F	60.8 °F	94%	30.03 in	7.0 mi	Calm	Calm	-	N/A		Overcast
4:59 AM	62.6 °F	60.8 °F	94%	30.04 in	7.0 mi	Calm	Calm	-	N/A		Overcast
5:18 AM	62.6 °F	60.8 °F	94%	30.05 in	7.0 mi	Calm	Calm	-	N/A		Mostly Cloudy
5:35 AM	62.6 °F	62.6 °F	100%	30.05 in	7.0 mi	Calm	Calm	-	N/A		Overcast
5:55 AM	62.6 °F	60.8 °F	94%	30.06 in	7.0 mi	Calm	Calm	-	N/A		Overcast
6:15 AM	62.6 °F	60.8 °F	94%	30.07 in	7.0 mi	Calm	Calm	-	N/A		Overcast
6:35 AM	60.8 °F	60.8 °F	100%	30.07 in	7.0 mi	Calm	Calm	-	N/A		Scattered Clouds
7:15 AM	62.6 °F	60.8 °F	94%	30.09 in	10.0 mi	Calm	Calm	-	N/A		Scattered Clouds
7:35 AM	60.8 °F	60.8 °F	100%	30.09 in	7.0 mi	Calm	Calm	-	N/A		Clear
7:55 AM	60.8 °F	60.8 °F	100%	30.09 in	5.0 mi	Calm	Calm	-	N/A		Clear
8:15 AM	62.6 °F	60.8 °F	94%	30.10 in	7.0 mi	Calm	Calm	-	N/A		Clear
8:35 AM	62.6 °F	62.6 °F	100%	30.11 in	5.0 mi	Calm	Calm	-	N/A		Clear
8:55 AM	62.6 °F	62.6 °F	100%	30.12 in	5.0 mi	Calm	Calm	-	N/A		Clear
9:15 AM	64.4 °F	62.6 °F	94%	30.12 in	7.0 mi	Calm	Calm	-	N/A		Clear
9:35 AM	64.4 °F	64.4 °F	100%	30.13 in	7.0 mi	Calm	Calm	-	N/A		Clear
9:55 AM	66.2 °F	62.6 °F	88%	30.14 in	10.0 mi	SSE	3.5 mph	-	N/A		Scattered Clouds
10:15 AM	66.2 °F	64.4 °F	94%	30.14 in	10.0 mi	Calm	Calm	-	N/A		Scattered Clouds
10:35 AM	68.0 °F	64.4 °F	88%	30.15 in	10.0 mi	Calm	Calm	-	N/A		Clear
10:55 AM	69.8 °F	64.4 °F	83%	30.14 in	10.0 mi	Calm	Calm	-	N/A		Clear
11:15 AM	69.8 °F	62.6 °F	78%	30.15 in	10.0 mi	South	6.9 mph	-	N/A		Clear
11:35 AM	69.8 °F	62.6 °F	78%	30.15 in	10.0 mi	South	6.9 mph	-	N/A		Clear
11:55 AM	69.8 °F	62.6 °F	78%	30.15 in	10.0 mi	South	6.9 mph	-	N/A		Scattered Clouds
12:15 PM	71.6 °F	62.6 °F	73%	30.14 in	10.0 mi	SSE	6.9 mph	-	N/A		Scattered Clouds
12:35 PM	71.6 °F	62.6 °F	73%	30.15 in	10.0 mi	SSW	5.8 mph	-	N/A		Clear
12:55 PM	71.6 °F	62.6 °F	73%	30.14 in	10.0 mi	South	6.9 mph	-	N/A		Clear
1:15 PM	71.6 °F	62.6 °F	73%	30.14 in	10.0 mi	South	3.5 mph	-	N/A		Clear
1:35 PM	73.4 °F	62.6 °F	69%	30.13 in	10.0 mi	South	5.8 mph	-	N/A		Clear
1:55 PM	75.2 °F	62.6 °F	65%	30.13 in	10.0 mi	SW	4.6 mph	-	N/A		Clear

Show full METARS | METAR FAQ | Comma Delimited File

Time (EDT)	Temp.	Dew Point	Humidity	Pressure	Visibility	Wind Dir	Wind Speed	Gust Speed	Precip	Events	Conditions
2:15 PM	73.4 °F	62.6 °F	69%	30.12 in	10.0 mi	South	3.5 mph	-	N/A		Clear
2:35 PM	73.4 °F	62.6 °F	69%	30.12 in	10.0 mi	South	6.9 mph	-	N/A		Clear
2:55 PM	73.4 °F	60.8 °F	65%	30.12 in	10.0 mi	South	6.9 mph	-	N/A		Clear
3:15 PM	73.4 °F	62.6 °F	69%	30.12 in	10.0 mi	South	5.8 mph	-	N/A		Clear
3:35 PM	73.4 °F	60.8 °F	65%	30.12 in	10.0 mi	South	4.6 mph	-	N/A		Clear
3:55 PM	73.4 °F	60.8 °F	65%	30.12 in	10.0 mi	South	5.8 mph	-	N/A		Clear
4:18 PM	73.4 °F	60.8 °F	65%	30.12 in	10.0 mi	Calm	Calm	-	N/A		Clear
4:35 PM	71.6 °F	60.8 °F	69%	30.13 in	10.0 mi	SSW	4.6 mph	-	N/A		Clear
4:55 PM	73.4 °F	60.8 °F	65%	30.13 in	10.0 mi	South	3.5 mph	-	N/A		Clear
5:15 PM	71.6 °F	60.8 °F	69%	30.13 in	10.0 mi	South	5.8 mph	-	N/A		Clear
5:35 PM	71.6 °F	62.6 °F	73%	30.13 in	10.0 mi	Calm	Calm	-	N/A		Clear
5:55 PM	71.6 °F	60.8 °F	69%	30.13 in	10.0 mi	South	3.5 mph	-	N/A		Clear
6:15 PM	69.8 °F	62.6 °F	78%	30.14 in	10.0 mi	Calm	Calm	-	N/A		Scattered Clouds
6:55 PM	69.8 °F	62.6 °F	78%	30.16 in	10.0 mi	SSW	3.5 mph	-	N/A		Overcast
7:15 PM	69.8 °F	62.6 °F	78%	30.17 in	10.0 mi	South	3.5 mph	-	N/A		Mostly Cloudy
7:35 PM	68.0 °F	62.6 °F	83%	30.17 in	10.0 mi	South	3.5 mph	-	N/A		Light Drizzle
7:55 PM	68.0 °F	62.6 °F	83%	30.17 in	10.0 mi	Calm	Calm	-	N/A		Scattered Clouds
8:15 PM	68.0 °F	62.6 °F	83%	30.17 in	10.0 mi	South	3.5 mph	-	N/A		Scattered Clouds
8:35 PM	66.2 °F	62.6 °F	88%	30.18 in	10.0 mi	South	3.5 mph	-	N/A		Clear
8:55 PM	66.2 °F	62.6 °F	88%	30.19 in	10.0 mi	Calm	Calm	-	N/A	Rain	Light Rain
9:15 PM	66.2 °F	62.6 °F	88%	30.19 in	10.0 mi	Calm	Calm	-	N/A	Rain	Light Rain
9:35 PM	66.2 °F	62.6 °F	88%	30.19 in	10.0 mi	Calm	Calm	-	N/A	Rain	Light Rain
9:56 PM	66.2 °F	62.6 °F	88%	30.21 in	10.0 mi	Calm	Calm	-	N/A		Light Drizzle
10:16 PM	64.4 °F	62.6 °F	94%	30.21 in	10.0 mi	Calm	Calm	-	N/A		Clear
10:36 PM	64.4 °F	62.6 °F	94%	30.22 in	10.0 mi	Calm	Calm	-	N/A		Light Drizzle
10:56 PM	64.4 °F	62.6 °F	94%	30.23 in	10.0 mi	Calm	Calm	-	N/A		Clear
11:16 PM	64.4 °F	62.6 °F	94%	30.22 in	10.0 mi	SE	3.5 mph	-	N/A		Clear
11:36 PM	64.4 °F	62.6 °F	94%	30.23 in	10.0 mi	South	3.5 mph	-	N/A		Clear
11:56 PM	64.4 °F	62.6 °F	94%	30.23 in	10.0 mi	Calm	Calm	-	N/A		Clear

Show full METARS | METAR FAQ | Comma Delimited File

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PRE-SAMPLING WELL PURGING

PROJECT: CLIFFSIDE

WELL NUMBER: WELL #1

WELL INSIDE DIAMETER: N.K. INCHES

DEPTH OF BOTTOM: (245') (PER OWNER) FEET

DEPTH TO WATER: FEET

1 WELL VOLUME: N.A GALLONS

SAMPLED BY: JMP

PROJECT NUMBER: 02100001.04

DATE: 10/3/12 PAGE 1 OF 1

AIR TEMPERATURE (FAHRENHEIT): LOW 70S

WEATHER CONDITIONS: OVERCAST / LT. BRZ.

METHOD OF EVACUATION AND TYPE OF EQUIPMENT USED: SUBMERSIBLE WELL PUMP / HORIBA U-10

WITHDRAWAL OF WELL VOLUMES

	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME	WELL VOLUME
FLUSHING					
WATER LEVEL BEFORE					
WATER LEVEL AFTER					
TIME BEGIN FLUSHING	1540				
TIME END FLUSHING	1600				
ESTIMATED VOLUME FLUSHING (gal)	1542	1545	1550	1555	1600
WELL VOLUMES REMOVED	1	2	3	4	5
FIELD ANALYSIS					
WATER TEMPERATURE (°C)	17.5	17.7	17.9	17.4	17.6
SAMPLE (ph)	4.66	4.79	4.89	4.90	4.87
SAMPLE CONDUCTIVITY (umhos/cm)	92	57	52	47	49
ODOR	NONE	→	→	→	→
COLOR	CLEAR	→	→	→	→
DO					
Redox					
TURBIDITY	16	1	0	1	2

COMMENTS: Sample Time = 1605

DUP-3 (WSW) SAMPLED @ 1610

WELL VOLUME CALCULATIONS (1cf = 7.48 gal)

$\pi r^2 \times h$ = WELL VOLUME IN FT^3

$\pi = 3.14$

R = RADIUS IN INCHES/12 = RADIUS IN FEET

H = HEIGHT OF WATER COLUMN IN WELL IN FEET

CONVERSION FROM FT^3 TO GALLONS = 7.48 gal/ft^3

Well radius = _____ IN/12= _____ FT

h= _____ (WELL DEPTH) - _____ (DEPTH TO WATER) = _____ FT = h

3.14 x _____ (r^2) x h = _____ FT^3 x 7.48 gal/ft^3 = 1 WELL VOLUME IN GAL = _____

APPENDIX B

BORING AND PROBE CONSTRUCTION LOGS

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FIELD BORING LOG

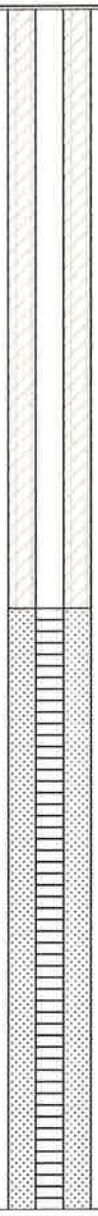
BOREHOLE NO.: GP-7

PROJECT INFORMATION

PROJECT NAME:	Cliffside Mill Dump
ID NO.:	NONCD0000544
JOB NO.:	02100001.04
SITE LOCATION:	Mooresboro
	Rutherford County, NC
LOGGED BY:	John Palmer

DRILLING INFORMATION

DRILLING COMPANY:	Geologic Exploration
METHOD OF DRILLING:	GeoProbe 6600DT
BORING METHOD:	2.0" MacroCore
HOLE DIAMETER:	3.0 Inches
DATES DRILLED:	10/1/12
TOTAL DEPTH:	10 Feet

DEPTH (FEET)	GRAPHIC	SOIL DESCRIPTION	VAPOR PROBE DESCRIPTION	REMARKS
0		CLAYEY SANDY SILT (FILL); Heterogeneous, Low to Medium Elasticity, ~20-30% Very Fine to Fine Sand, Moist, Orange/Brown		SCREEN Interval: 5.0' - 10.0' Opening: 0.010"-slotted CASING Interval: +2.0'-5.0' Material: 1" ID, Sch. 40 PVC Joints: Threaded SAND PACK INTERVAL: 5.0'-10.0' SEAL Interval: 0'-5.0' Seal: Bentonite TOTAL PROBE DEPTH: 10.0 ft Probe was capped and allowed to remain in place.
		WASTE; Plastic, Glass, Heavily Decomposed Wood (Mixed C&D & Municipal Type Waste)		
5		SILTY SAND (FILL); Heterogeneous, Somewhat Plastic to Low Plasticity, ~60-70% Very Fine to Fine Sand, Moist, Red/Brown		
		SILTY SAND; Homogeneous with Saprolitic Texture, ~60-80% Very Fine to Fine Micaceous Sand, Dry, Red/Brown and Gray		
10				

NOTES: Soil Vapor Probe

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FIELD BORING LOG

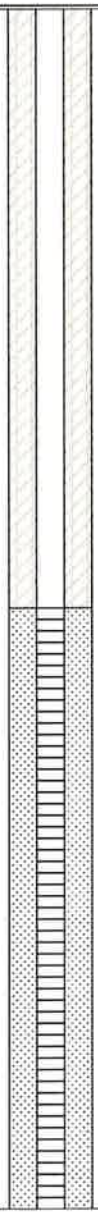
BOREHOLE NO.: GP-8

PROJECT INFORMATION

PROJECT NAME:	Cliffside Mill Dump
ID NO.:	NONCD0000544
JOB NO.:	02100001.04
SITE LOCATION:	Mooresboro
	Rutherford County, NC
LOGGED BY:	John Palmer

DRILLING INFORMATION

DRILLING COMPANY:	Geologic Exploration
METHOD OF DRILLING:	GeoProbe 6600DT
BORING METHOD:	2.0" MacroCore
HOLE DIAMETER:	3.0 Inches
DATES DRILLED:	10/1/12
TOTAL DEPTH:	10 Feet

DEPTH (FEET)	GRAPHIC	SOIL DESCRIPTION	VAPOR PROBE DESCRIPTION	REMARKS
0		SANDY SILT; Heterogeneous Somewhat Plastic to Low Plasticity, ~50-70% Very Fine to Fine Micaceous Sand, Moist, Red/Brown		SCREEN Interval: 5.0' - 10.0' Opening: 0.010"-slotted CASING Interval: +2.0'-5.0' Material: 1" ID, Sch. 40 PVC Joints: Threaded SAND PACK INTERVAL: 5.0'-10.0' SEAL Interval: 0'-5.0' Seal: Bentonite TOTAL PROBE DEPTH: 10.0 ft Probe was capped and allowed to remain in place.
		WASTE; Plastic, Glass, Masonry, Metal, Asphalt Roofing Material (C&D Type Waste)		
5		SILTY SAND; Homogeneous with Saprolitic Texture, Slightly to Non Plastic, ~60-80% Very Fine to Fine Sand, Moist to Dry, Red/Brown and Gray		
10				

NOTES: Soil Vapor Probe, Possible Odor Present in Waste Material

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FIELD BORING LOG

BOREHOLE NO.: GP-9

PROJECT INFORMATION

PROJECT NAME:	Cliffside Mill Dump
ID NO.:	NONCD0000544
JOB NO.:	02100001.04
SITE LOCATION:	Mooresboro
	Rutherford County, NC
LOGGED BY:	John Palmer

DRILLING INFORMATION

DRILLING COMPANY:	Geologic Exploration
METHOD OF DRILLING:	GeoProbe 6600DT
BORING METHOD:	2.0" MacroCore
HOLE DIAMETER:	3.0 Inches
DATES DRILLED:	10/1/12
TOTAL DEPTH:	6.5 Feet

DEPTH (FEET)	GRAPHIC	SOIL DESCRIPTION	VAPOR PROBE DESCRIPTION	REMARKS
0		SILTY SAND; Homogeneous with Saprolitic Texture Present Below 1.0' BLS, Somewhat Plastic to Low Plasticity, ~60-70% Very Fine to Fine Sand, Dry to Moist, Red/Brown		SCREEN Interval: 5.0' - 6.5' Opening: 0.010"-slotted CASING Interval: +2.0'-5.0' Material: 1" ID, Sch. 40 PVC Joints: Threaded SAND PACK INTERVAL: 5.0'-6.5' SEAL Interval: 0'-5.0' Seal: Bentonite TOTAL PROBE DEPTH: 6.5 ft Probe was capped and allowed to remain in place.
5		PWR and SILTY SAND; Homogeneous with Saprolitic Texture, Slightly to Non Plastic, 70-90% Very Fine to Medium Sand, Dry, Gray, PWR Gravel Present		

NOTES: Soil Vapor Probe
Made Multiple Attempts to Penetrate Rock

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FIELD BORING LOG

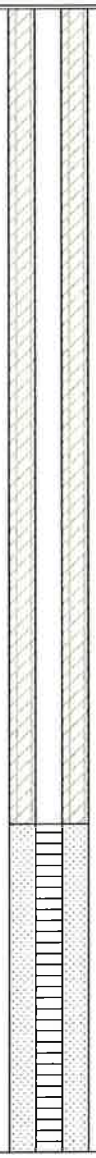
BOREHOLE NO.: GP-9A

PROJECT INFORMATION

PROJECT NAME:	Cliffside Mill Dump
ID NO.:	**NONCD0000544**
JOB NO.:	02100001.04
SITE LOCATION:	Mooresboro
	Rutherford County, NC
LOGGED BY:	John Palmer

DRILLING INFORMATION

DRILLING COMPANY:	Geologic Exploration
METHOD OF DRILLING:	GeoProbe 6600DT
BORING METHOD:	2.0" MacroCore
HOLE DIAMETER:	3.0 Inches
DATES DRILLED:	10/1/12
TOTAL DEPTH:	7.0 Feet

DEPTH (FEET)	GRAPHIC	SOIL DESCRIPTION	VAPOR PROBE DESCRIPTION	REMARKS
0		SANDY SILT; Heterogeneous, Somewhat Plastic to Low Plasticity, ~50-60% Very Fine to Fine Micaceous Sand, Moist, Red/Brown		SCREEN Interval: 5.0' - 7.0' Opening: 0.010"-slotted CASING Interval: +2.0'-5.0' Material: 1" ID, Sch. 40 PVC Joints: Threaded SAND PACK INTERVAL: 5.0'-7.0' SEAL Interval: 0'-5.0' Seal: Bentonite TOTAL PROBE DEPTH: 7.0 ft
		WASTE; Plastic, Masnry, Asphalt Roofing Material (C&D Type Waste)		
5		SILTY SAND; Heterogeneous, Slightly Plastic, ~50-70% Very Fine to Fine Micaceous Sand, Dry, Red/Brown		Probe was capped and allowed to remain in place.
		PWR and SILTY SAND; Homogeneous with Saprolitic Texture, Non Plastic, ~60-90% Very Fine to Coarse Sand, Dry, Gray		

NOTES: Soil Vapor Probe, Attempted Multiple Borings to Penetrate Rock
Some Chemical Odor Present in Waste Material (Waste in Soil Matix)

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FIELD BORING LOG

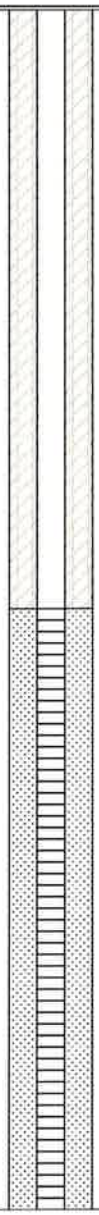
BOREHOLE NO.: GP-10

PROJECT INFORMATION

PROJECT NAME:	Cliffside Mill Dump
ID NO.:	NONCD0000544
JOB NO.:	02100001.04
SITE LOCATION:	Mooresboro
	Rutherford County, NC
LOGGED BY:	John Palmer

DRILLING INFORMATION

DRILLING COMPANY:	Geologic Exploration
METHOD OF DRILLING:	GeoProbe 6600DT
BORING METHOD:	2.0" MacroCore
HOLE DIAMETER:	3.0 Inches
DATES DRILLED:	10/1/12
TOTAL DEPTH:	10 Feet

DEPTH (FEET)	GRAPHIC	SOIL DESCRIPTION	VAPOR PROBE DESCRIPTION	REMARKS
0		SANDY SILT; Homogeneous with Saprolitic Texture Present Below 2.5' BLS, Somewhat Plastic to Low Plasticity, ~50-70% Very Fine to Fine Sand, Dry, Red/Brown to Gray		SCREEN Interval: 5.0' - 10.0' Opening: 0.010"-slotted CASING Interval: +2.0'-5.0' Material: 1" ID, Sch. 40 PVC Joints: Threaded SAND PACK INTERVAL: 5.0'-10.0' SEAL Interval: 0'-5.0' Seal: Bentonite TOTAL PROBE DEPTH: 10.0 ft
5				Probe was capped and allowed to remain in place.
		PWR and SILTY SAND; Homogeneous with Saprolitic Texture, Slightly to Non Plastic, ~60-90% Very Fine to Medium Sand, Dry, Gray		
10				

NOTES: Soil Vapor Probe

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FIELD BORING LOG

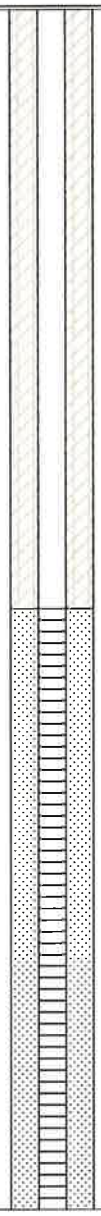
BOREHOLE NO.: GP-11

PROJECT INFORMATION

PROJECT NAME:	Cliffside Mill Dump
ID NO.:	NONCD0000544
JOB NO.:	02100001.04
SITE LOCATION:	Mooresboro
	Rutherford County, NC
LOGGED BY:	John Palmer

DRILLING INFORMATION

DRILLING COMPANY:	Geologic Exploration
METHOD OF DRILLING:	GeoProbe 6600DT
BORING METHOD:	2.0" MacroCore
HOLE DIAMETER:	3.0 Inches
DATES DRILLED:	10/1/12
TOTAL DEPTH:	10 Feet

DEPTH (FEET)	GRAPHIC	SOIL DESCRIPTION	VAPOR PROBE DESCRIPTION	REMARKS
0		SANDY SILT; Homogeneous with Saprolitic Texture Present Below 2.0' BLS, Somewhat Plastic to Low Plasticity, ~60-70% Very Fine to Fine Sand, Dry, Red/Brown to Gray		SCREEN Interval: 5.0' - 10.0' Opening: 0.010"-slotted CASING Interval: +2.0'-5.0' Material: 1" ID, Sch. 40 PVC Joints: Threaded SAND PACK INTERVAL: 5.0'-10.0' SEAL Interval: 0'-5.0' Seal: Bentonite TOTAL PROBE DEPTH: 10.0 ft Probe was capped and allowed to remain in place.
5				
		PWR and SILTY SAND; Homogeneous with Saprolitic Texture, Slightly to Non Plastic, ~70-90% Very Fine to Medium Sand, Dry, Gray		
10				

NOTES: Soil Vapor Probe

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FIELD BORING LOG

BOREHOLE NO.: **SB-15**

PROJECT INFORMATION

PROJECT NAME:	Cliffside Mill Dump
ID NO.:	NONCD0000544
JOB NO.:	02100001.04
SITE LOCATION:	Mooresboro
	Rutherford County, NC
LOGGED BY:	John Palmer

DRILLING INFORMATION

DRILLING COMPANY:	Geologic Exploration
METHOD OF DRILLING:	GeoProbe 6600DT
BORING METHOD:	4.25" Hollow Stem Augers
HOLE DIAMETER:	~4.5 Inches
DATES DRILLED:	10/2/12
TOTAL DEPTH:	11.5 Feet

DEPTH (FEET)	GRAPHIC	SOIL DESCRIPTION	VAPOR PROBE DESCRIPTION	REMARKS
0		SANDY SILT with CLAY; Homogeneous with Saprolitic Texture Present Below 2.0' BLS, Somewhat Elastic to Low Elasticity, ~30-40% Very Fine to Fine Sand, Moist, Red/Brown		Soil sample retrieved using 2" MacroCore teflon sleeves from 0.5' to 1.0' BLS and submitted for laboratory analysis.
5				Soil sample retrieved using 2" MacroCore teflon sleeves from 4.0' to 5.0' BLS and submitted for laboratory analysis.
		SILTY SAND; Homogeneous with Saprolitic Texture, Somewhat to Non Plastic, ~50-70% Very Fine to Medium Sand, Moist, Gray/Brown, PWR Gravel Present		
10		PWR (Presenting as Silty Sand); Homogeneous with Saprolitic Texture, Somewhat to Non Plastic, ~50-70% Very Fine to Medium Sand, Moist, Gray/Brown		Soil sample retrieved using 2" MacroCore teflon sleeves from 10.0' to 11.0' BLS and submitted for laboratory analysis.

NOTES: Soil Boring, Made Multiple Attempts to Penetrate Rock
MacroCore Refusal at 11.0' BLS in PWR, Auger Refusal at 11.5' BLS on Crystaline Granitoid ROCK

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FIELD BORING LOG

BOREHOLE NO.: **SB-16**

PROJECT INFORMATION

PROJECT NAME:	Cliffside Mill Dump
ID NO.:	NONCD0000544
JOB NO.:	02100001.04
SITE LOCATION:	Mooresboro
	Rutherford County, NC
LOGGED BY:	John Palmer

DRILLING INFORMATION

DRILLING COMPANY:	Geologic Exploration
METHOD OF DRILLING:	GeoProbe 6600DT
BORING METHOD:	2.0" MacroCore
HOLE DIAMETER:	~3.0 Inches
DATES DRILLED:	10/1/12
TOTAL DEPTH:	15.0 Feet

DEPTH (FEET)	GRAPHIC	SOIL DESCRIPTION	VAPOR PROBE DESCRIPTION	REMARKS
0		SILTY SAND (FILL); Heterogeneous, Low Plasticity, ~50-60% Very Fine to Fine Sand, Moist, Gray/Brown		Soil sample retrieved using 2" MacroCore teflon sleeves from 0.5' to 1.0' BLS and submitted for laboratory analysis.
		SANDY SILT with Organics; Low to Medium Elasticity, ~20-30% Very Fine to Fine Sand, Dry, Brown, Humic Material Present		Soil sample retrieved using 2" MacroCore teflon sleeves from 4.0' to 5.0' BLS and submitted for laboratory analysis.
5		SILTY SAND; Homogeneous with Saprolitic Texture, Low Plasticity to Non Plastic, ~50-80% Very Fine to Fine Sand, Moist, Gray/Brown and Gray		
10				
15				Soil sample retrieved using 2" MacroCore teflon sleeves from 14.0' to 15.0' BLS and submitted for laboratory analysis.

NOTES: Soil Boring
2.0' to 4.5' BLS is heavily decomposed wood/vegatative material

APPENDIX C

SUMMARY OF GPS DATA

Appendix C
Summary of GPS Data
Cliffside Mills Dump - NONCD0000544
Mooresboro, Rutherford County, NC

Boring ID	Northing	Easting
1st Round LFG Probes		
SV1	171175.229	356762.529
SV2	171290.459	356804.497
SV3	171348.193	356824.848
SV4	171448.42	356855.363
SV5	171420.917	356907.505
SV6	171154.231	356826.411
2nd Round LFG Probes		
GP7	171317.109	356807.698
GP8	171250.129	356769.822
GP9	171306.069	356735.835
GP9A	171288.752	356754.043
GP10	171388.741	356744.113
GP11	171471.773	356743.939
Soil Borings/Attempted Temporary Wells		
SB15/TW15	171297.657	356863.954
SB16	171208.367	356847.009

Notes:
State Plane Coordinate System (Meters)
All Locations Collected with Hand-Held GPS Equipment

APPENDIX D

LABORATORY REPORTS

Laboratory Report – QA/QC Data Review

Project Name:	Cliffside Mill Dump NONCD0000544
Project Number:	02100001.04
Laboratory Name:	ACCUTEST Laboratories (Southeast), Contest Analytical Laboratory
Laboratory Report Date:	ACCUTEST: 10/26/2012, Contest: 10/17/2012
Laboratory Sample IDs:	ACCUTEST: **F97599**, Contest: **12J0342**
Media Subjected to Analyses (preceded by sampling date):	ACCUTEST: (10/2/2012) 6 Soil Samples, 1 Duplicate. (10/3/2012) 1 WSW Sample, 1 Duplicate. (10/2&3/2012) 1 Trip Blank. Contest: (10/3/2012) 2 Soil Vapor Samples, 1 Duplicate (TO15). (10/3/2012) 1 Soil Vapor Sample, 1 Duplicate (3C).

QA/QC Checklist:

1. Samples Analyzed Outside of Holding Time? (y/n) – If yes identify sample.	No.
2. Samples Preserved Per Method Requirements? (y/n) – If no identify sample.	Yes.
3. Samples Received Below 4° C? (y/n)	Yes.
4. Did Blanks Contain Analytes Identified in Sample Media (B-Flags)? (y/n) – if yes identify sample.	No.
5. Were matrix – spike duplicates included in analyses? (y/n)	Yes, the laboratory reported the following issues: ACCUTEST: 8270D: Matrix Spike Recovery(s) for 3,3'-Dichlorobenzidine, Caprolactam are outside control limits. Probable cause is due to matrix interference. For method performance in a clean matrix, refer to Blank Spike. Matrix Spike Duplicate Recovery(s) for 4,6-Dinitro-o-cresol, 4-Nitrophenol, Atrazine, Caprolactam are outside control limits. Probable cause is due to matrix interference. 6020A: Matrix Spike Duplicate Recovery(s) for Manganese are outside control limits. Spike amount low relative to the sample amount.

	Matrix Spike Recovery(s) for Iron are outside control limits. Spike amount low relative to the sample amount. Matrix Spike Recovery(s) for Iron, Manganese are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity. Matrix Spike Duplicate Recovery(s) for Manganese, Zinc are outside control limits. Spike recovery indicates possible matrix interference and/or sample homogeneity. 7471B: Matrix Spike Recovery(s)/Matrix Spike Duplicate Recovery(s) for Mercury are outside control limits. Spike recovery indicates possible matrix interference and/or sample non-homogeneity. 9056A: Matrix Spike Recovery(s) for Nitrogen, Nitrate and Sulfate are outside control limits. Spike recovery indicates possible matrix interference. 7196A: Matrix Spike Recovery(s) for Chromium, Hexavalent are outside control limits. Spike recovery indicates possible matrix interference.
6. Did the laboratory report any analyses as "rejected"? (y/n) - If yes identify sample.	No
7. Did the laboratory provide explanation of any technical issues regarding the analyses of a samples(s) on the laboratory report? (y/n) – If yes summarize.	Yes, the laboratory reported the following issues: <u>ACCUTEST</u>: 8260B: Multiple Blank Spike Recovery(s) for Acetone are outside control limits. Recovery biased high, but samples are ND for Acetone (F97599-8, F97599-9, F97599-10). 8270D: RPD(s) for MSD for 3,3'-Dichlorobenzidine, 3-Nitroaniline, 4-Chloroaniline, 4-Nitroaniline, Atrazine are outside control limits for sample OP43846-MSD. Probable cause is due to sample non-homogeneity. Sample(s) OP43846-MSD has surrogates outside control limits. Probable cause is due to matrix interference. 9056A: A total of seven (7) iterations of dilution were required for nitrogen/nitrate and sulfate due to matrix interference.

	6020A: RPD(s) for MS/MSD for Beryllium are outside control limits for sample MP67205-S2. High rpd due to possible sample matrix interference. RPD(s) for Serial Dilution for Antimony, Beryllium, Cadmium, Copper, Nickel, Selenium, Silver, Thallium, Zinc are outside control limits for sample MP67205-SD1. Percent difference acceptable due to low initial sample concentration (< 50 times IDL). RPD(s) for Serial Dilution for Arsenic are outside control limits for sample MP67207-SD1. Serial dilution indicates possible matrix interference. <u>Contest</u>: Methane, 12J0342-01[SV-1], B060985-DUP1: Duplicate RPD is outside of control limits. Reduced precision is anticipated for reported result. Isopropanol, 12J0342-01[SV-1]: Reported result is estimated. Value reported over verified calibration range. 1,2,4-Trichlorobenzene, 12J0342-01[SV-1]: Reported result is estimated. Value reported over verified calibration range. 1,2,4-Trichlorobenzene, B060974-BS1: Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side. Mercury, 12J0342-04[SV-1], 12J0342-05[Dup-2SV], B060661-BS2: The reporting limit verification for the AIHA program is outside of control limits for this element. Any reported result at or near the detection limit may be biased on the low side.
8. Comments:	<u>ACCUTEST</u>: The laboratory reports that one metal in solid media samples has a range of MDLs which is above the IHSB PSRG Standard (i.e., current IHSB PSRG Standard is not attainable). That compound, the range of laboratory reported MDLs from this report, and the IHSB PSRG Standard follows: -Chromium, Hexavalent (MDL is 0.90 to 1.2 mg/Kg, the PSRG is 0.29 mg/Kg)

	The laboratory also reports certain VOCs and SVOCs in aqueous samples have MDLs which are above NC2L Standards (i.e., current NC2L Standards are not attainable). A list of the known compounds, a laboratory reported MDL from this report, and the NC2L Standard follows: -Carbon tetrachloride (MDL is 0.31 ug/L, the NC2L is 0.3 ug/L) -1,2-Dibromo-3-Chloropropane (MDL is 0.71 ug/L, the NC2L is 0.04 ug/L) -Vinyl chloride (MDL is 0.44 ug/L, the NC2L is 0.03 ug/L) -2-Chlorophenol (MDL is 0.68 ug/L, the NC2L is 0.4 ug/L) -Benzo(a)anthracene (MDL is 0.52 ug/L, the NC2L is 0.05 ug/L) -Benzo(a)pyrene (MDL is 0.55 ug/L, the NC2L is 0.005 ug/L) -Benzo(b)fluoranthene (MDL is 0.73 ug/L, the NC2L is 0.05 ug/L) -bis(2-Chloroethyl)ether (MDL is 0.69 ug/L, the NC2L is 0.03 ug/L) -Dibenzo(a,h)anthracene (MDL is 0.56 ug/L, the NC2L is 0.005 ug/L) -Hexachlorobenzene (MDL is 0.66 ug/L, the NC2L is 0.02 ug/L) -Indeno[1,2,3-cd]pyrene (MDL is 0.55 ug/L, the NC2L is 0.05 ug/L) -Pentachlorophenol (MDL is 4.8 ug/L, the NC2L is 0.3 ug/L) The laboratory also reports a certain soil vapor compound above IHSB Industrial/Commercial Vapor Intrusion Screening Levels (i.e., current Screening Level is not attainable). That compound, the laboratory reported MDL from this report, and the IHSB Screening Level follows: <u>Contest</u>: -1,1,2-Trichloroethane (MDL is 8.9 ug/M3, the IHSB Screening Level is 1.80 ug/M3)

Reviewer:	John Palmer, P.G.
Date of Review:	10/25/2012
Data Suitable For Intended Use:	Yes