
**Semi-Annual Water Quality Monitoring Report
with Corrective Action Update**

Prepared for

Greene County Active C&D over Closed Unlined Landfill
Walstonburg, North Carolina

September 2013

Permit Number: 40-02

MESCO Project Number: G13010.0

Submittal: March 14, 2014

P.O. Box 97
Garner, NC 27529
License No. C-0281



Municipal Engineering Services Company, P.A.
Garner and Boone, North Carolina

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

Notice: This form and any information attached to it are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Instructions:

- Prepare one form for each individually monitored unit.
- Please type or print legibly.
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i)).
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner):

Municipal Engineering Services Co., PA

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:

Name: Jonathan Pfohl Phone: (919)772-5393

E-mail: jpfohl@mesco.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Greene County Active C&D and Closed MSWLF	105 Landfill Road Walstonburg, NC 27888	40-02	.1600	September 19, 2013

Environmental Status: (Check all that apply)

- Initial/Background Monitoring Detection Monitoring Assessment Monitoring Corrective Action

Type of data submitted: (Check all that apply)

- Groundwater monitoring data from monitoring wells Methane gas monitoring data
 Groundwater monitoring data from private water supply wells Corrective action data (specify) MNA Paramaters MW-1R & MW-4
 Leachate monitoring data Other(specify) _____
 Surface water monitoring data

Notification attached?

- No. No groundwater or surface water standards were exceeded.
 Yes, a notification of values exceeding a groundwater or surface water standard is attached. It includes a list of groundwater and surface water monitoring points, dates, analytical values, NC 2L groundwater standard, NC 2B surface water standard or NC Solid Waste GWPS and preliminary analysis of the cause and significance of any concentration.
 Yes, a notification of values exceeding an explosive methane gas limit is attached. It includes the methane monitoring points, dates, sample values and explosive methane gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

Steven R. Gandy, Ph.D., P.E. Senior Project Manager (919) 772-5393
 Facility Representative Name (Print) Title (Area Code) Telephone Number
Steven R. Gandy P.E. 3/14/14
 Signature Date Affix NC Licensed/ Professional Geologist Seal

P.O. Box 97, Garner, NC 27529

Facility Representative Address

C-0281

NC PE Firm License Number (if applicable effective May 1, 2009)

Revised 6/2009



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March 14, 2014

Ms. Jaclynne Drummond
 Solid Waste Section (SWS)
 NCDENR Division of Waste Management
 217 West Jones Street
 Raleigh, NC 27603

Subject: ***Semi-Annual Water Quality Monitoring Report with Corrective Action Update***
 Greene County Active C&D and Closed Unlined Landfill
 Event Date: September 19, 2013
 Permit No. 40-02
 MESCO Project No. G13010.0

Dear Ms. Drummond:

Introduction

On behalf of Greene County, Municipal Engineering Services Company, P.A. (MESCO) is pleased to present this *Semi-Annual Water Quality Report with Corrective Action Update* for fall 2013 at the Active Construction and Demolition (C&D) Landfill and Closed Unlined Sanitary Landfill. NCDENR Solid Waste Rules 15ANCAC13B.1630 through .1637 requires that Greene County provide this report to the SWS on a semi-annual basis. This report documents the quality of the ground and surface waters during this monitoring event performed on September 19, 2013. A brief corrective action update and qualitative evaluation comparing current and historical data is also presented. During this event the only constituents attributed to landfill activities in concentrations above North Carolina Groundwater Standards (2L) was benzene and vinyl chloride from samples collected within the compliance boundary at MW-4.

Background

The Greene County Active Construction and Demolition (C&D) Landfill and Closed Unlined Sanitary Landfill is located off Fire Tower Road (SR 1239), Walstonburg, Greene County, North Carolina and operates under permit #40-02. A topographic map showing the facility location is included as **Figure 1**.

Prior to operating as a C&D landfill, the site operated as an approximate 13-acre unlined sanitary landfill which stopped receiving waste prior to January 1, 1998 in accordance with the *Greene County Transition Plan*. The C&D landfill is operating on a portion of the top of the MSW unit which are monitored together.

Water quality has been monitored at this facility on at least a semi-annual basis since 1994. MESCO submitted an *Assessment and Corrective Action (ACM)* [DIN:8776] report dated August 30, 2007. MESCO then developed a *Corrective Action Plan (CAP)* which was revised on February 12, 2010 (*CAP-Rev. 5*) [DIN:9670] and subsequently approved on February 16, 2010 [DIN:671]. Groundwater remediation using monitored natural attenuation (MNA) was initiated on March 30, 2010 and has continued on a semi-annual basis since. A *Corrective Action Evaluation Report (CAER)* was submitted to the SWS on October 16, 2012 (DIN:17502) which was reviewed by the SWS and responded to on December 6, 2012 (DIN:17837).

As specified within rule 15A NCAC 13B.1632(i) and the SWS Environmental Monitoring Report Form, this report contains sampling procedures, field and laboratory results, corrective action update, groundwater and surface water characterization, and findings. Detections compared to Standards tables, hydrogeologic properties table, MNA parameters table, histograms of historical detections, potentiometric map, field parameters, and laboratory analytical reports with chains-of-custody (C-O-C) and quality assurance/quality control data.

Sampling Procedures

Environment 1 (E1) of Greenville, NC, reportedly performed this monitoring event utilizing portable monitoring methodology in accordance with the approved Sampling & Analysis Plan (SAP) contained in the *CAP-Rev.5*. E1 reportedly collected groundwater samples from five downgradient groundwater monitoring wells (MW-4, MW-5, MW-6, MW-7 and MW-8), one background well (MW-1R), and one surface water point (Upstream). Quality control measures included submittal and analysis of an equipment blank (EB), field blank (FB) and trip blank (TB). The designated surface water point located (Downstream) of the facility was reported to be dry. Surface water and groundwater monitoring locations are depicted on **Figure 1** and **Figure 2** respectively.

Static water levels in each well were measured electronically prior to purging. Samples were transported under C-O-C protocol and analyzed within the hold times specified for each method.

Field Parameter Data

E1 quantified the field parameters pH, specific conductance, temperature, turbidity, oxidation reduction potential (ORP) and dissolved oxygen (DO) which is presented in the laboratory analysis report in **Appendix A**.

Laboratory Results

E1 performed analysis of water samples for the constituents listed in Appendix II of 40 CFR 258. Both total and dissolved metals were reported as requested by the SWS in the *CAER* response (DIN 17837). In addition, samples from MW-4 and background well MW-1, were analyzed for the full suite of MNA performance parameters as part of corrective action. MNA analysis was conducted for volatile fatty acids, methane, ethane, ethene, and dissolved hydrogen by Microseeps Inc. of Pittsburgh, PA. A sampling and analysis table summarizing the locations, constituents, and methods is presented on **Table 1**. Laboratory results and C-O-Cs are contained in **Appendix A**.

Water samples were analyzed to the laboratory-established Method Detection Limits (MDL), which are at or below current Solid Waste Section Limits (SWSL). **Table 2** summarizes Appendix I contaminant constituents detected in groundwater and surface water samples above the current SWSL, Groundwater Protection Standards (GWP), North Carolina Groundwater Standards (2L) or the applicable Class C North Carolina Surface Water Standards (2B). **Table 3** summarizes Appendix II exclusive detections (defined in this report as not also listed in Appendix I) above the MDL.

Quality Control Samples

Four of the nineteen (21%) targeted total metals were detected in low non-quantifiable (“j” qualified) concentrations in the EB. Tin and vanadium were detected in the EB and most of the other water samples at comparable levels. Therefore it is likely the reported levels of tin and vanadium are either false positives or high bias attributed to lab or field induced artifact contamination.

Groundwater Samples

Metals were not detected in any sample above 2L Standards.

VOCs benzene and vinyl chloride have consistently been detected in concentrations above their respective 2L Standards in samples collected from MW-4 since the detection levels were reduced in March 2007. VOCs remain absent from samples collected from MW-7 and MW-8, delineation wells located east of MW-4.

Targeted Appendix II exclusive parameters were not detected in levels above the SWSL nor established applicable Standards.

A site map spatially depicting contaminants detected in excess of the 2L Standard during this event is presented on **Figure 2**.

Surface Water Samples

Dissolved mercury was detected below the SWSL (0.04 ug/L) but above the applicable 2B Standard (0.012 ug/L) in the surface water sample collected from an unnamed tributary of Sandy Run upstream of the facility. Dissolved tin was also detected in a non-quantifiable (“j-qualified”) concentration in the sample collected upstream from the facility.

Groundwater Characterization

A single-day potentiometric map of the uppermost aquifer is presented on **Figure 2**, using ground water elevation data reported by E1 for this event. Reported groundwater elevations were all within their respective historically identified range. Groundwater flow direction and rates were calculated based on reported data and are included in **Table 4**. Estimated flow flow rates, quantified through modified Darcy's equation, ranged from about 9 ft/yr (MW-4) to 274 ft/yr (MW-8) for a site-wide average of approximately 64 ft/yr.

Corrective Action Update

Groundwater remediation measures utilizing MNA per *CAP-Rev. 5* continues to be implemented at the facility. This is the eighth consecutive semi-annual event that MNA monitoring has been performed at MW-4 and background well MW-1R. MNA data presented in **Table 5** continues to indicate that favorable geochemical conditions exist for continued natural attenuation.

Findings

The laboratory results continue to indicate the surficial aquifer near MW-4 has been impacted by low level dissolved phase Appendix I VOCs (benzene and vinyl chloride) in concentrations above the 2L Standard. Quantitative evaluations reveal concentrations of constituents detected above the 2L Standard during this event remain within their own respective historically identified range and an increasing trend is not evident (**Figure 3**). Compared to it's respective baseline averages established during the initial four corrective action events MW-4 has exhibited a reduction of total VOCs (-29%), reduction of benzene (-10%) and an increase of vinyl chloride (+2%) (**Figure 4**). The horizontal plume extent beyond MW-4 is likely defined within the review boundary as evidenced by the continued lack of detections in sentinel wells MW-7 and MW-8.

The detection of the low level ("j-qualified") constituents tin, mercury and vanadium are not attributed to landfill activities but rather natural or field/lab induced artifact contamination as evidenced by comparable levels reported in upgradient background well MW-1R, surface water point located upstream of the facility and quality control blank EB.

Consistent with the findings of the *CAER*, targeted contaminant concentrations are not increasing and there is adequate evidence that natural attenuation is occurring in the groundwater at the facility.

Closing

Semi-annual water quality and MNA monitoring is planned to continue at the facility with the next event scheduled for March 2014. If you have any questions or comments regarding this report, please contact us at (919) 772-5393 or by email at jpfohl@mesco.com or sgandy@mesco.com.

Sincerely,

MUNICIPAL ENGINEERING SERVICES CO., P.A.



Jonathan Pfohl
Environmental Specialist



Steven R. Gandy, Ph.D, P.E.
Senior Project Manager

Enclosures

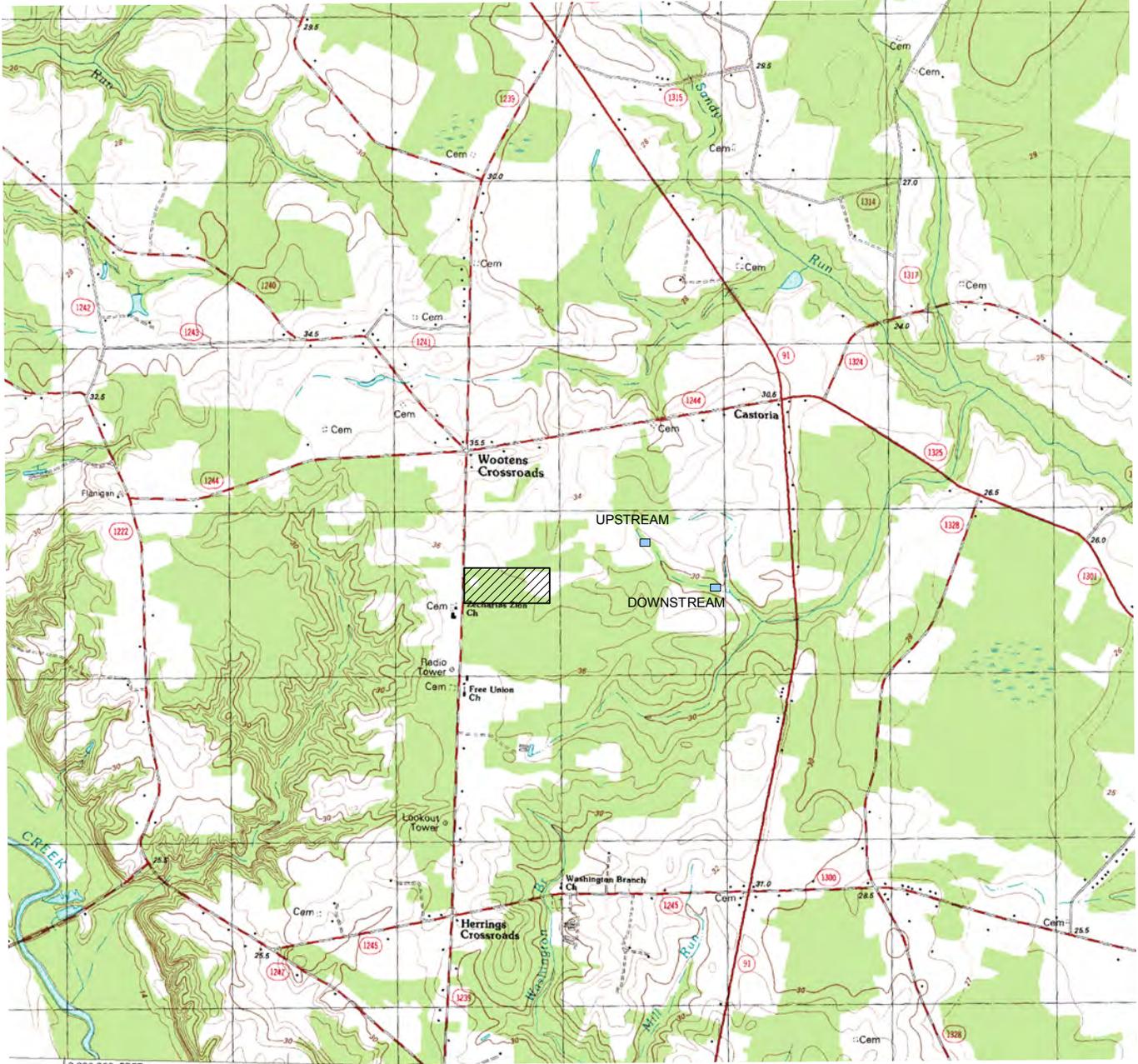
cc: Mr. David Jones
Greene County

Ms. Christine Ritter
NC Solid Waste Section

Figures

Topographic Map with Site Location

Greene County Active C&D over Closed MSWLF



QUADRANGLE LEGEND

ROAD CLASSIFICATION

- | | | | |
|------------------------------------|------------------|--|-------------|
| Primary highway,
hard surface | | Light-duty road, hard or
improved surface | |
| Secondary highway,
hard surface | | Unimproved road | |
| | Interstate Route | | U. S. Route |
| | State Route | | |

NOTE: Topographical map assembled from corresponding USGS 7.5-min. quadrangles of the subject region.

105 Landfill Road (SR1257)
Walstonburg, NC
Lat:35-31-29.7520
Long:-77-41-49.4325
Northing:648520.2533
Easting:2387660.4409

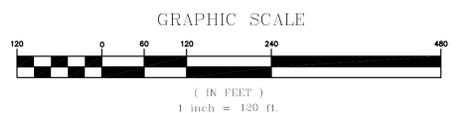
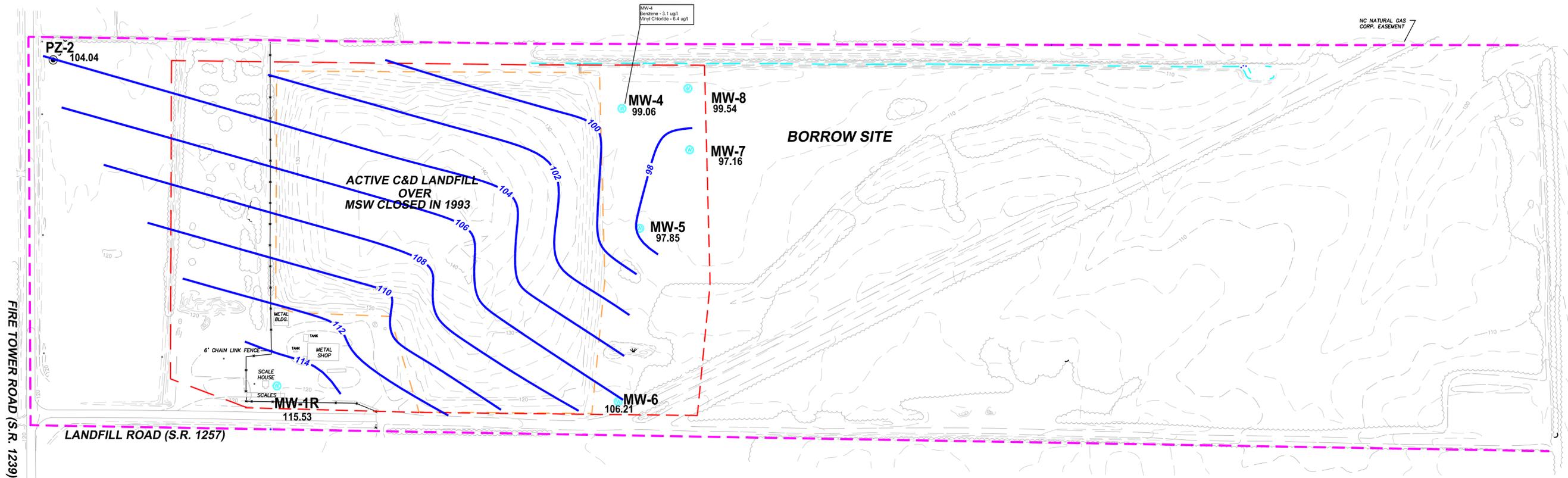
0 ————— 3,334'

FIGURE 1

- LEGEND**
- RELEVANT COMPLIANCE BOUNDARY (250' FROM WASTE OR 50' FROM PROPERTY LINE)
 - EXISTING EROSION CONTROL DIVERSION DITCH
 - 120 — EXISTING TOPOGRAPHIC CONTOURS
 - PROPERTY LINE
 - WASTE LIMIT OF UNLINED MSWLF
 - MW-1R ● MONITORING WELL
 - PZ-2 ● PIEZOMETER
 - 99.54 GROUNDWATER POTENTIOMETRIC ELEVATION
 - 112 — GROUNDWATER CONTOUR

NOTES

THIS MAP WAS GENERATED FROM AERIAL PHOTOS
 FLOWN ON 2-22-94 BY TRIANGLE AERIAL MAPPING,
 SUPPLEMENTED WITH SURVEYS BY MUNICIPAL ENGINEERING
 SERVICES CO., PA.



Groundwater Levels & VOCs Detected Above 2L Standards
 September 19, 2013

WELL #	TOP OF CASING ELEVATION	DEPTH TO WATER	GROUNDWATER POTENTIOMETRIC ELEVATION	BENZENE (ug/l)	VCM (ug/l)
				1.0	0.03
15A NCAC 2L Groundwater Quality Standard					
MW-1R	121.78	6.25	115.53		
MW-4	117.89	18.83	99.06	3.1	6.4
MW-5	115.76	17.91	97.85		
MW-6	117.41	11.20	106.21		
MW-7	110.48	13.32	97.16		
MW-8	111.36	11.82	99.54		

Municipal Engineering Services
 Company, P.A.

P.O. BOX 97, GARNER, N.C. 27529
 P.O. BOX 349, BOONE, N.C. 28607
 (919) 772-5393 (828) 262-1767
 LICENSE NUMBER: C-0281

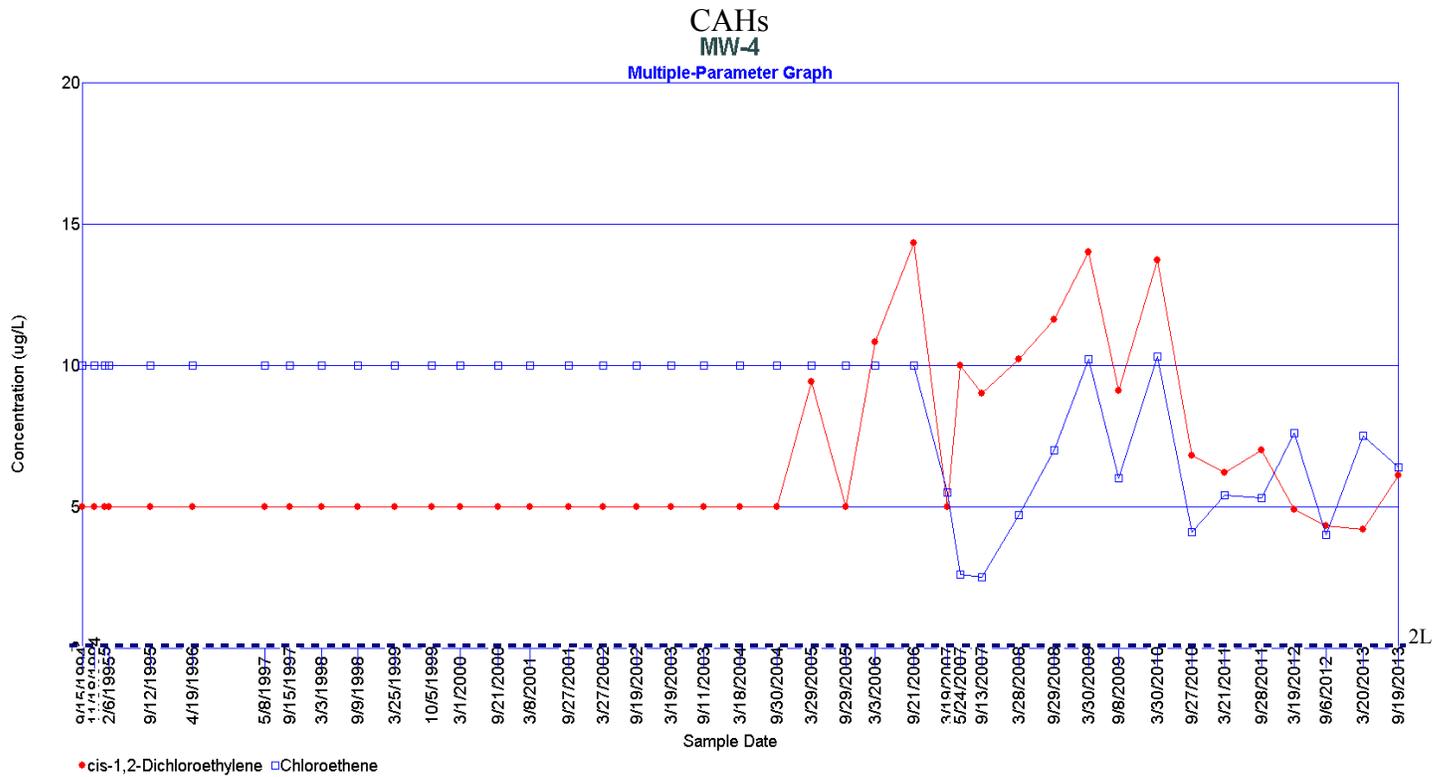
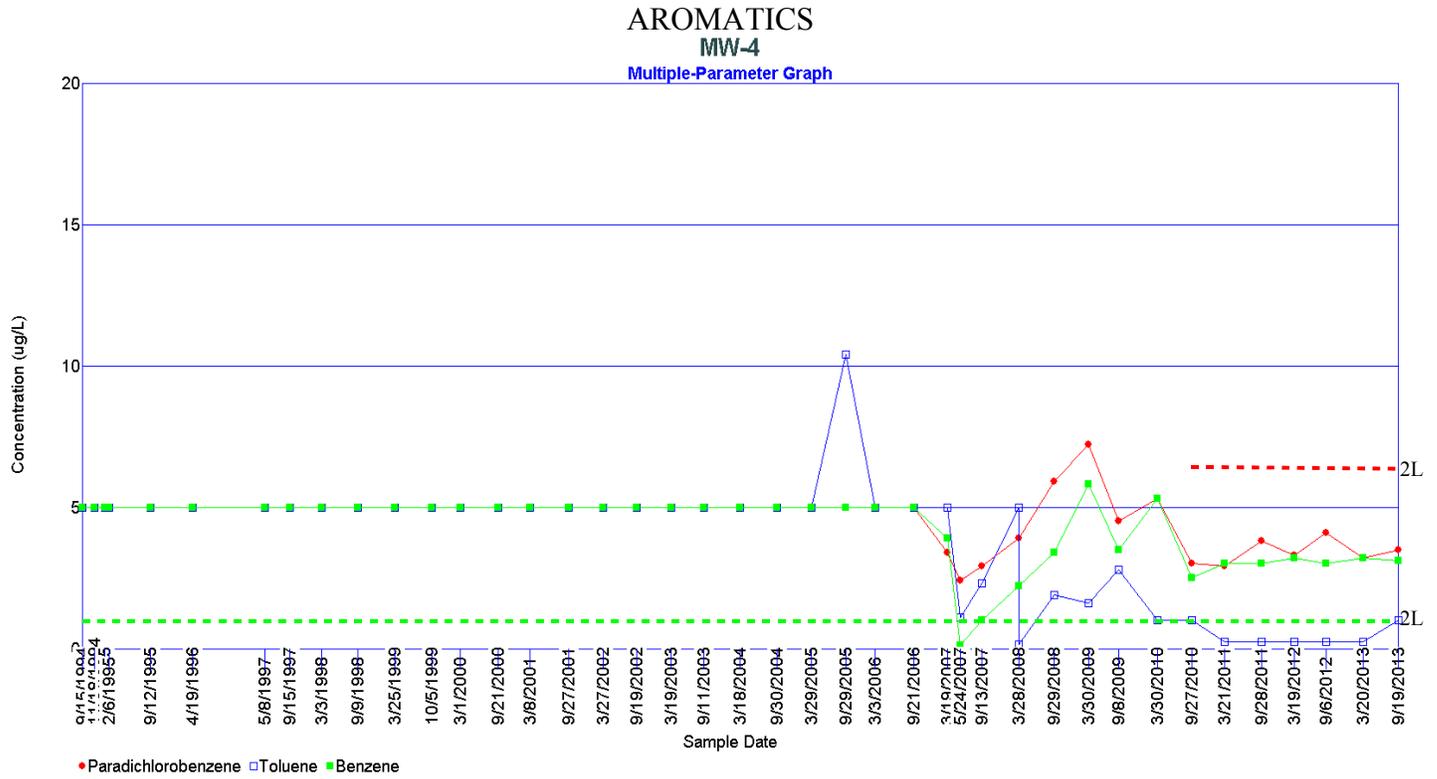
**ACTIVE C&D OVER CLOSED UNLINED
 LANDFILL FACILITY
 GREENE COUNTY
 NORTH CAROLINA**

**POTENTIOMETRIC MAP OF UPPERMOST AQUIFER
 WITH DETECTIONS ABOVE 2L STANDARDS**

SCALE:	SEE SCALEBAR
DATE:	2/1/14
DRWN. BY:	J. PFOHL
CHKD. BY:	S. CANDY
PROJECT NUMBER:	G13010.0
DRAWING NO.:	FIGURE 2
SHEET NO.:	1 OF 1

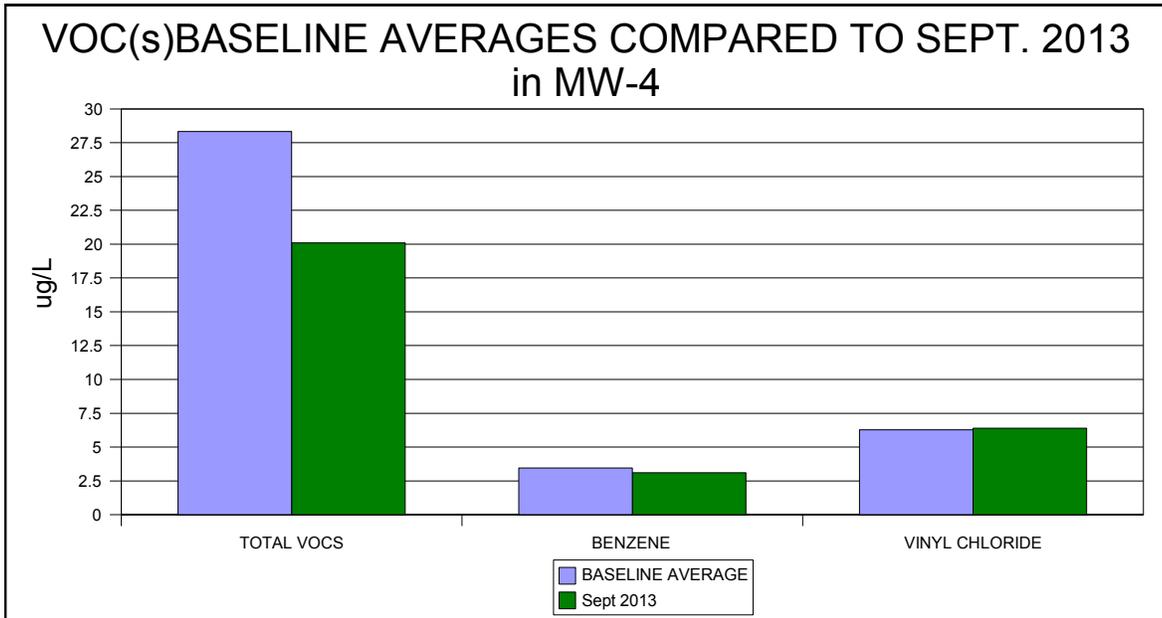
FIGURE 2

Figure 3
Time-Series Graphs of Select Constituents
March 20, 2013



Non-Detects Represented at Detection Limit

Figure 4
Histograms of VOC Concentrations in MW-4
(March 30, 2010-September 28, 2011) Compared to September 19, 2013



	TOTAL VOCS (ug/l)	BENZENE (ug/l)	VINYL CHLORIDE (ug/l)
BASELINE			
MARCH 2010	59.30	5.30	10.30
SEPT. 2010	17.40	2.50	4.10
MARCH 2011	17.50	3.00	5.40
SEPT. 2011	19.10	3.00	5.30
BASELINE AVERAGE	28.33	3.45	6.28

	TOTAL VOCS (ug/l)	BENZENE (ug/l)	VINYL CHLORIDE (ug/l)
CURRENT			
SEPT. 2013	20.10	3.10	6.40

	TOTAL VOCS (ug/l)	BENZENE (ug/l)	VINYL CHLORIDE (ug/l)
COMPARISON			
DIFFERENCE (ug/l)	-8.23	-0.35	+0.13
DIFFERENCE (%)	-29	-10	+2

Tables

**Table 1
Sampling and Analysis Summary
September 19, 2013**

	Reason Not Sampled	App. II														MNA											Field Parameter					
		VOCs (App II)	Total Metals (App II)	Metals, Total Dissolved (App II)	Pesticides	Herbicides-Chlorinated	Polychlorinated biphenyl (PCB)	Semivolatile Organics (SVOCs)	Total Cyanide	Sulfide	VFA	Hydrogen	Methane/Ethane/Ethane	Dissolved CO2	Alkalinity	Sulfate	Sulfide	Chloride	TOC	COD	BOD	Iron, total	Iron, total dissolved	Iron, Ferrous	Nitrate	Turbidity	Dissolved Oxygen (DO)	Oxidation Reduction Potential (ORP)	Temperature	Conductivity	pH	
		Lab EPA 8260B	Lab EPA 6000/7000	Lab EPA200.8	Lab EPA 8081B	Lab SW8151A	Lab EPA 8082A	Lab EPA 8270D	Lab EPA 9014	Lab SM18 4500-S D	Lab AM23G	Lab AM20GAX	Lab AM20GAX	Lab SM4500CO2C	Lab SM2320B	Lab SM426C	Lab SM18 4500-S2D	Lab SM4500-CLB	Lab SM 5310C	Lab HACH8000	Lab SM5210B	Lab SM3111B	Lab 3111B-99	Lab SM3111B	Lab EPA353.2	Lab SM2130B	Field Meter	Field Meter	Field Meter	Field Meter	Field Meter	
MW-1R		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW-4		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
MW-5		x	x	x	x	x	x	x	x	x																						
MW-6		x	x	x	x	x	x	x	x	x																						
MW-7		x	x	x	x	x	x	x	x	x																						
MW-8		x	x	x	x	x	x	x	x	x																						
Downstream	Dry																															
Upstream		x	x	x																												
EB		x	x		x	x	x	x	x	x													x	x								
TB		x																														
FB		x	x																													

App I & II = Appendix Lists from current 40 CFR 258

Table 2
Detections in Water Samples Above SWSL, GWP, 2L, or 2B (Appendix I)
September 19, 2013

Sample ID	Parameter Name ¹	Sample Date	Result	Unit	MDL ²	SWSL ³	2L ⁴	2B ⁵	GWP ⁶	Exceedance Amount	Preliminary Cause ⁷
MW-4	Vinyl Chloride	09/19/13	6.4	ug/l	0.63	1	0.03			6.37	L &/or LFG
MW-4	Benzene	09/19/13	3.1	ug/l	0.24	1	1			2.1	L &/or LFG
MW-4	Cis-1,2-Dichloroethene	09/19/13	6.1	ug/l	0.25	5	70				
MW-4	Toluene	09/19/13	1	ug/l	0.23	1	600				
MW-4	1,4-Dichlorobenzene	09/19/13	3.5	ug/l	0.39	1	6				
MW-8	Vanadium, total	09/19/13	8.4 j	ug/l	0.07	25	NE		3.5	4.9	
MW-8	Vanadium, total dissolved	09/19/13	ND <0.07	ug/l	0.07	25	NE		3.5		
Upstream	Vanadium, total	09/19/13	0.88 j	ug/l	0.07	25		NE			
Upstream	Vanadium, total dissolved	09/19/13	0.37 j	ug/l	0.07	25		NE			
EB	Vanadium, total	09/19/13	0.08 j	ug/l	0.07	25	NE		3.5		

¹ MDL = Method Detection Limit

² SWSL = Solid Waste Section Reporting Limit

³ 2L = North Carolina 15A NCAC 2L Groundwater Quality Standard

⁴ 2B = North Carolina 15 NCAC 2B Surface Water Quality Standard for the Applicable Stream Classification

⁵ GWP = Groundwater Protection Standard

⁷ Preliminary Cause = Refers to a preliminary analysis of the cause and/or source of a detection over the respective 2L/2B Standard.

A definitive source of the detection was not determined as part of this report.

j = Defined by laboratory as Between MDL and SWSL

NE = Not Established

L = Leachate

LFG = Landfill Gas

BOLD = Concentration > 2L, or 2B Standard

Table 3
Detections in Water Samples Above MDL (Appendix II Exclusive)
September 19, 2013

Sample ID	Parameter Name	Sample Date	Result	Unit	MDL ¹	SWSL ²	2L ³	2B ⁴	GWP ⁵	Exceedance
MW-1R	Tin, total	09/19/13	0.13j	ug/l	0.06	100	NE		2000	
MW-1R	Mercury, total dissolved	09/19/13	0.05j	ug/l	0.01	0.2	1			
MW-4	Tin, total	09/19/13	0.13j	ug/l	0.06	100	NE		2000	
MW-4	Tin, total Dissolved	09/19/13	0.3j	ug/l	0.06	100	NE		2000	
MW-4	Mercury, total dissolved	09/19/13	0.03j	ug/l	0.01	0.2	1			
MW-5	Tin, total	09/19/13	0.24j	ug/l	0.06	100	NE		2000	
MW-5	Tin, total Dissolved	09/19/13	0.12j	ug/l	0.06	100	NE		2000	
MW-5	Mercury, total dissolved	09/19/13	0.03j	ug/l	0.01	0.2	1			
MW-6	Tin, total	09/19/13	0.5j	ug/l	0.06	100	NE		2000	
MW-6	Tin, total Dissolved	09/19/13	0.12j	ug/l	0.06	100	NE		2000	
MW-6	Mercury, total dissolved	09/19/13	0.06j	ug/l	0.01	0.2	1			
MW-7	Mercury, total dissolved	09/19/13	0.05j	ug/l	0.01	0.2	1			
MW-7	Tin, total	09/19/13	0.12j	ug/l	0.06	100	NE		2000	
MW-7	Tin, total Dissolved	09/19/13	0.19j	ug/l	0.06	100	NE		2000	
MW-8	Mercury, total dissolved	09/19/13	0.04j	ug/l	0.01	0.2	1			
MW-8	Tin, total	09/19/13	0.65j	ug/l	0.06	100	NE		2000	
Upstream	Mercury, total dissolved	09/19/13	0.04j	ug/l	0.01	0.2		0.012		0.028
Upstream	Tin, total Dissolved	09/19/13	0.36j	ug/l	0.06	100		NE		
EB	Tin, total	09/19/13	0.06j	ug/l	0.06	100	NE		2000	

¹ MDL = Method Detection Limit

² SWSL = Solid Waste Section Reporting Limit

³ 2L = North Carolina 15A NCAC 2L Groundwater Quality Standard

⁴ 2B = North Carolina 15 NCAC 2B Surface Water Quality Standard for the Applicable Stream Classification

⁵ GWP = Groundwater Protection Standard

j = Defined by laboratory as Between MDL and SWSL

BOLD = Concentration >2L, or 2B Standard

Table 4
Hydrologic Properties at Monitoring Well Locations
September 19, 2013

Monitoring Well	Hydraulic Conductivity (cm/sec)	Effective Porosity (%)	Hydraulic Gradient (ft/ft)	Linear Velocity (ft/yr)	Flow Direction	Depth to Groundwater (ft btoc)	Groundwater Potentiometric Elevation (ft amsl)
MW-1R	1.20E-04	15	0.021	17	N39E	6.25	115.53
MW-4	1.10E-04	15	0.019	14	S40E	18.83	99.06
MW-5	1.40E-04	15	0.018	18	N89E	17.91	97.85
MW-6	1.90E-04	15	0.022	29	N28E	11.2	106.21
MW-7	1.98E-04	7	0.013	39	S52E	13.32	97.16
MW-8	1.14E-03	7	0.016	274	S01E	11.82	99.54
Minimum	1.10E-04	7	0.013	14	-	6.25	97.16
Average	3.16E-04	12	0.018	65	-	13.22	102.56
Maximum	1.14E-03	15	0.022	274	-	18.83	115.53

NOTE: Data for hydraulic conductivities for wells except MW-7 & MW-8 obtained from GAI Consultants' *Water Quality Modifications* (October, 1994)
 Data for hydraulic conductivities for MW-7 & MW-8 obtained from slug tests performed by MESCO (June, 2007)
 Hydrologic gradient from water level elevations on September 19, 2013
 Flow rate (Q) is defined by modified Darcy's equation:

where

$$Q = -\frac{K}{n_e} \cdot \frac{dh}{dl}$$

K = hydraulic conductivity

n_e = effective porosity

dh = head difference

dl = horizontal distance

Table 5
MNA Parameters at Monitoring Well Locations Summary
September 19, 2013

Parameters	Method	mdl*	Units	MW-1R	MW-4
				09/19/13	09/19/13
VFA – Acetic Acid	AM23G	5	ug/l	100	94
VFA – Butyric Acid	AM23G	11	ug/l	58	57
VFA – Hexanoic Acid	AM23G	220	ug/l	<220	230j
VFA – i-Hexanoic Acid	AM23G	29	ug/l	<29	<29
VFA – i-Pentanoic Acid	AM23G	9	ug/l	<9	<9
VFA – Lactic Acid	AM23G	13	ug/l	160	70j
VFA – Pentaonic Acid	AM23G	11	ug/l	<11	<11
VFA – Propionic Acid	AM23G	8	ug/l	42j	45j
VFA – Pyruvic Acid	AM23G	14	ug/l	<14	<14
Hydrogen	AM20GAX	0.05	nM	0.47j	0.78
Methane	AM20GAX	0	ug/l	7.5	4900
Ethene	AM20GAX	0.01	ug/l	<0.006	0.14
Ethane	AM20GAX	0	ug/l	<0.002	<0.002
CO2-Dissolved	SM4500CO2C	1000	ug/l	113000	658000
Alkalinity	SM2320B	1000	ug/l	3000	154000
Sulfate	SM426C	5000	ug/l	5000j	12300j
Sulfide	SM4500-S2D	100	ug/l	<100	<100
Chloride	SM4500-CLB	5000	ug/l	73000	10000
TOC	SM5310C	300	ug/l	1460	6750
COD	HACH8000	20000	ug/l	<20000	35000
BOD	SM5210B	2000	ug/l	<2000	14000
Iron, Total	SM3111B	13.6	ug/l	85	58350
Iron, Ferrous	3500FEB-97	50	ug/l	<50	56520
Nitrate	EPA353.2	30	ug/l	4660 j	<30
Temperature	SM2550B	0.10	C	21	20
ORP	SM2580B	0.0	mV	337.3	48
DO	SM4500OG	100	mg/l	700	600
pH	SM4500HB	0.10	SU	4.7	5.7
Specific Conductance	SM2510B	1	Umhos/cm	324	364
Turbidity	SM2130B	0.0	NTU	<1	5.44

Notes:

VFA = Volatile Fatty Acids

mdl* = Lowest Method Detection Limit for Lab Parameters or Lowest Field Measurement Possible

Appendix A
Laboratory Analysis Report
Field Analysis Report
Chains of Custody

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

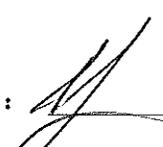
P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
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ID#: 6005

GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

DATE COLLECTED: 09/19/13
DATE REPORTED : 10/30/13

REVIEWED BY: 

PARAMETERS	MDL	Upstream		Well	Well	Well	Well	Analysis		Method		
		SWSL		#4	#5	#6	#7	Date	Analyst	Code		
PH (field measurement), Units			5.3	5.7	4.5	4.5	4.3	09/19/13BF		4500HB-00		
BOD, mg/l	2.0	2.0		14				09/20/13TRB		5210B-01		
COD, mg/l	20.0	20.0		35				09/23/13TRB		H8000-79		
Nitrate Nitrogen as N, mg/l	0.03	10.0		---	U			09/20/13ANO		353.2 R2-93		
Total Organic Carbon, mg/l	0.30	1.0		6.75				09/19/13SEJ		5310C-00		
Total Alkalinity (to pH 4.5), mg/l	1.0	1.0		154				09/19/13TRB		2320B-97		
Chloride, mg/l	5.0	5.0		10				10/01/13HMB		4500CLB-97		
Cyanide, ug/l	5.0	10.0		---	U	---	U	---	U	09/26/13SEJ	4500CNE-99	
Sulfate, mg/l	5.0	250.0		12.3 J				09/27/13TRB		4500SO42E97		
Antimony, ug/l	0.02	6.0	0.06 J	0.04 J	0.05 J	0.08 J	0.05 J	10/11/13LFJ		EPA200.8		
Arsenic, ug/l	0.05	10.0	2.4 J	2.7 J	0.22 J			10/09/13LFJ		EPA200.8		
Arsenic, ug/l	0.05	10.0				0.08 J	---	U		10/01/13LFJ	EPA200.8	
Barium, ug/l	0.06	100.0	29.2 J	45.9 J	47.0 J			10/09/13LFJ		EPA200.8		
Barium, ug/l	0.06	100.0				16.1 J	31.1 J	10/01/13LFJ		EPA200.8		
Beryllium, ug/l	0.03	1.0	---	U	---	U	0.16 J	10/09/13LFJ		EPA200.8		
Beryllium, ug/l	0.03	1.0				0.11 J	0.10 J	10/01/13LFJ		EPA200.8		
Cadmium, ug/l	0.05	1.0	---	U	0.10 J	0.05 J		10/09/13LFJ		EPA200.8		
Cadmium, ug/l	0.05	1.0				0.11 J	---	U		10/01/13LFJ	EPA200.8	
Cobalt, ug/l	0.02	10.0	0.50 J	0.38 J	0.64 J			10/09/13LFJ		EPA200.8		
Cobalt, ug/l	0.02	10.0				0.12 J	0.42 J	10/01/13LFJ		EPA200.8		
Copper, ug/l	0.06	10.0	0.48 J	0.56 J	0.31 J			10/09/13LFJ		EPA200.8		
Copper, ug/l	0.06	10.0				0.64 J	0.74 J	10/01/13LFJ		EPA200.8		
Total Chromium, ug/l	0.04	10.0	0.27 J	0.18 J	---	U		10/09/13LFJ		EPA200.8		
Total Chromium, ug/l	0.04	10.0				0.41 J	0.23 J	10/01/13LFJ		EPA200.8		
Iron, ug/l	13.6	300.0		58350				10/03/13ADD		3111B-99		
Lead, ug/l	0.02	10.0	0.60 J	0.32 J	0.29 J			10/09/13LFJ		EPA200.8		
Lead, ug/l	0.02	10.0				0.58 J	0.17 J	10/01/13LFJ		EPA200.8		
Mercury, ug/l	0.01	0.20		---	U	---	U	---	U	10/10/13ADD	245.1 R3-94	
Nickel, ug/l	2.81	50.0	---	U	---	U	---	U	---	U	10/23/13LFJ	EPA200.7
Selenium, ug/l	0.06	10.0	0.40 J	0.87 J	0.38 J			10/09/13LFJ		EPA200.8		
Selenium, ug/l	0.06	10.0				0.32 J	0.10 J	10/01/13LFJ		EPA200.8		
Silver, ug/l	0.03	10.0	---	U	---	U	---	U	---	U	10/09/13LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	---	U	---	U	---	U	---	U	10/09/13LFJ	EPA200.8
Thallium, ug/l	0.02	5.5				0.20 J	0.05 J	10/01/13LFJ		EPA200.8		
Tin, ug/l	0.06	100.0		0.13 J	0.24 J			10/04/13LFJ		EPA200.8		
Tin, ug/l	0.06	100.0				0.50 J	0.12 J	10/01/13LFJ		EPA200.8		
Vanadium, ug/l	0.07	25.0	0.88 J	1.8 J	0.31 J			10/09/13LFJ		EPA200.8		
Vanadium, ug/l	0.07	25.0				0.34 J	---	U		10/01/13LFJ	EPA200.8	
Zinc, ug/l	0.47	10.0	2.6 J	8.1 J	8.9 J			10/09/13LFJ		EPA200.8		
Zinc, ug/l	0.47	10.0				4.6 J	4.8 J	10/01/13LFJ		EPA200.8		
Sulfide, ug/l	100	1000		---	U	---	U	---	U	09/23/13LFJ	4500S2D-00	
Conductivity (at 25c), uMhos/cm	1.0	1.0	121	364	77	52	52	09/19/13BF		2510B-97		

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6005

GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

DATE COLLECTED: 09/19/13
DATE REPORTED : 10/30/13

REVIEWED BY: 

PARAMETERS	MDL	Upstream		Well	Well	Well	Well	Analysis	
		SWSL		#4	#5	#6	#7	Date	Analyst
Dissolved Oxygen, mg/l	0.1	0.1	0.63	0.60	3.84	1.21	4.17	09/19/13BF	4500OG-01
Temperature, °C			18	20	20	18	18	09/19/13BF	2550B-00
Iron, Ferrous, ug/l	50.00	300.0		56520				09/19/13SEJ	3500FEB-97
Static Water Level, feet				18.83	17.91	11.20	13.32	09/19/13BF	
Well Depth, feet				26.16	28.34	26.87	21.38	09/19/13BF	
Carbon Dioxide, mg/l	1.0	1.0		658				09/19/13TRB	4500C02C
ORP, mv			+140.2	+48.0	+387.5	+400.8	+460.7	09/19/13BF	2580B
Turbidity (Field), NTU	1.0	1.0	13.5	5.44	1.40	6.13	1.30	09/19/13BF	2130B-01

Environment 1, Incorporated

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GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL ,NC 28580

DATE COLLECTED: 09/19/13
DATE REPORTED : 10/30/13

REVIEWED BY: 

PARAMETERS	MDL	Well SWSL #8	Well #1R	Piezometer #2	Equipment Blank	Trap Blank	Analysis Date	Method Analyst Code
PH (field measurement), Units			4.4	4.7			09/19/13BF	4500HB-00
BOD, mg/l	2.0	2.0		---	U		09/19/13TRB	5210B-01
COD, mg/l	20.0	20.0		---	U		09/23/13TRB	H8000-79
Nitrate Nitrogen as N, mg/l	0.03	10.0		4.66	J		09/20/13ANO	353.2 R2-93
Total Organic Carbon, mg/l	0.30	1.0		1.46			09/19/13SEJ	5310C-00
Total Alkalinity (to pH 4.5), mg/l	1.0	1.0		3			09/19/13TRB	2320B-97
Chloride, mg/l	5.0	5.0		73			10/01/13HMB	4500CLB-97
Cyanide, ug/l	5.0	10.0	---	---	U	---	09/26/13SEJ	4500CNE-99
Sulfate, mg/l	5.0	250.0		5.0	J		09/27/13TRB	4500SO42E97
Antimony, ug/l	0.02	6.0	0.15	0.12	J	---	10/11/13LFJ	EPA200.8
Arsenic, ug/l	0.05	10.0	0.60	0.44	J		10/01/13LFJ	EPA200.8
Arsenic, ug/l	0.05	10.0				---	10/09/13LFJ	EPA200.8
Barium, ug/l	0.06	100.0	36.1	83.0	J		10/01/13LFJ	EPA200.8
Barium, ug/l	0.06	100.0				0.07	10/09/13LFJ	EPA200.8
Beryllium, ug/l	0.03	1.0	0.18	0.07	J		10/01/13LFJ	EPA200.8
Beryllium, ug/l	0.03	1.0				---	10/09/13LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0	0.08	0.07	J		10/01/13LFJ	EPA200.8
Cadmium, ug/l	0.05	1.0				---	10/09/13LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	0.46	0.23	J		10/01/13LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0				---	10/09/13LFJ	EPA200.8
Copper, ug/l	0.06	10.0	1.4	1.4	J		10/01/13LFJ	EPA200.8
Copper, ug/l	0.06	10.0				---	10/09/13LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0	3.8	0.56	J		10/01/13LFJ	EPA200.8
Total Chromium, ug/l	0.04	10.0				---	10/09/13LFJ	EPA200.8
Iron, ug/l	13.6	300.0		85	J		10/23/13ADD	3111B-99
Lead, ug/l	0.02	10.0	4.9	0.78	J		10/01/13LFJ	EPA200.8
Lead, ug/l	0.02	10.0				---	10/09/13LFJ	EPA200.8
Mercury, ug/l	0.01	0.20	---	---	U	---	10/10/13ADD	245.1 R3-94
Nickel, ug/l	2.81	50.0	---	---	U	---	10/23/13LFJ	EPA200.7
Selenium, ug/l	0.06	10.0	0.36	0.49	J		10/01/13LFJ	EPA200.8
Selenium, ug/l	0.06	10.0				---	10/09/13LFJ	EPA200.8
Silver, ug/l	0.03	10.0	---	---	U	---	10/11/13LFJ	EPA200.8
Silver, ug/l	0.03	10.0				---	10/09/13LFJ	EPA200.8
Thallium, ug/l	0.02	5.5	0.05	0.16	J		10/01/13LFJ	EPA200.8
Thallium, ug/l	0.02	5.5				---	10/09/13LFJ	EPA200.8
Tin, ug/l	0.06	100.0	0.65	0.13	J		10/01/13LFJ	EPA200.8
Tin, ug/l	0.06	100.0				0.06	10/04/13LFJ	EPA200.8
Vanadium, ug/l	0.07	25.0	8.4	---	U		10/01/13LFJ	EPA200.8
Vanadium, ug/l	0.07	25.0				0.08	10/09/13LFJ	EPA200.8
Zinc, ug/l	0.47	10.0	8.5	6.9	J		10/01/13LFJ	EPA200.8
Zinc, ug/l	0.47	10.0				1.2	10/09/13LFJ	EPA200.8
Sulfide, ug/l	100	1000	---	---	U	---	09/23/13LFJ	4500S2D-00

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6005

GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL ,NC 28580

DATE COLLECTED: 09/19/13
DATE REPORTED : 10/30/13

REVIEWED BY: 

PARAMETERS	MDL	Well SWSL #8	Well #1R	Piezometer #2	Equipment Blank	Trip Blank	Analysis Date Analyst	Method Code
Conductivity (at 25c), uMhos/cm	1.0	1.0	36	324			09/19/13BF	2510B-97
Dissolved Oxygen, mg/l	0.1	0.1	4.84	0.70			09/19/13BF	45000G-01
Temperature, °C			20	21			09/19/13BF	2550B-00
Iron, Ferrous, ug/l	50.00	300.0		---	U		09/19/13SEJ	3500FEB-97
Static Water Level, feet			11.82	6.25	15.55		09/19/13BF	
Well Depth, feet			20.24	19.51			09/19/13BF	
Carbon Dioxide, mg/l	1.0	1.0		113			09/19/13TRB	4500CO2C
ORP, mv			+435.4	+337.3			09/19/13BF	2580B
Turbidity (Field), NTU	1.0	1.0	---	---	U		09/19/13BF	2130B-01

Environment 1, Incorporated

Drinking Water ID: 17715
Wastewater ID: 10

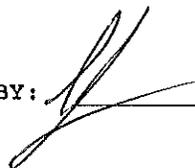
P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

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GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL ,NC 28580

DATE COLLECTED: 09/19/13
DATE REPORTED : 10/30/13

REVIEWED BY: 

PARAMETERS	MDL	Field		Analysis		Method
		SWSL	Blank	Date	Analyst	Code
Antimony, ug/l	0.02	6.0	0.04 J	10/11/13LFJ	EPA200.8	
Arsenic, ug/l	0.05	10.0	--- U	10/01/13LFJ	EPA200.8	
Barium, ug/l	0.06	100.0	0.12 J	10/01/13LFJ	EPA200.8	
Beryllium, ug/l	0.03	1.0	--- U	10/01/13LFJ	EPA200.8	
Cadmium, ug/l	0.05	1.0	--- U	10/01/13LFJ	EPA200.8	
Cobalt, ug/l	0.02	10.0	--- U	10/01/13LFJ	EPA200.8	
Copper, ug/l	0.06	10.0	0.20 J	10/01/13LFJ	EPA200.8	
Total Chromium, ug/l	0.04	10.0	0.15 J	10/01/13LFJ	EPA200.8	
Lead, ug/l	0.02	10.0	--- U	10/01/13LFJ	EPA200.8	
Mercury, ug/l	0.01	0.20	--- U	10/10/13ADD	245.1 R3-94	
Nickel, ug/l	2.81	50.0	--- U	10/23/13LFJ	EPA200.7	
Selenium, ug/l	0.06	10.0	--- U	10/01/13LFJ	EPA200.8	
Silver, ug/l	0.03	10.0	--- U	10/11/13LFJ	EPA200.8	
Thallium, ug/l	0.02	5.5	--- U	10/01/13LFJ	EPA200.8	
Tin, ug/l	0.06	100.0	--- U	10/01/13LFJ	EPA200.8	
Vanadium, ug/l	0.07	25.0	--- U	10/01/13LFJ	EPA200.8	
Zinc, ug/l	0.47	10.0	1.0 J	10/01/13LFJ	EPA200.8	

Environment 1, Incorporated

Drinking Water ID: 37715
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P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
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CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005

ANALYST: CHS
DATE COLLECTED: 09/19/13
DATE EXTRACTED: 09/23/13
DATE ANALYZED: 09/30/13
DATE REPORTED: 10/30/13

Page: 1

REVIEWED BY: 

PESTICIDES AND PCB'S EPA METHOD 8081B R2 (07)

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #5	Well #6	Well #7	Well #8
1. Aldrin	0.029	0.05	--- U				
2. Alpha-BHC	0.032	0.05	--- U				
3. Beta-BHC	0.031	0.05	--- U				
4. Delta-BHC	0.030	0.05	--- U				
5. Gamma-BHC (Lindane)	0.032	0.05	--- U				
6. Chlordane	0.320	0.50	--- U				
7. 4,4-DDD	0.051	0.10	--- U				
8. 4,4-DDE	0.049	0.10	--- U				
9. 4,4-DDT	0.052	0.10	--- U				
10. Dieldrin	0.042	0.075	--- U				
11. Endosulfan I	0.056	0.10	--- U				
12. Endosulfan II	0.046	0.10	--- U				
13. Endosulfan Sulfate	0.072	0.10	--- U				
14. Endrin	0.053	0.10	--- U				
15. Endrin Aldehyde	0.068	0.10	--- U				
16. Heptachlor	0.039	0.05	--- U				
17. Heptachlor Epoxide	0.042	0.075	--- U				
18. Methoxychlor	0.530	1.00	--- U				
19. Pcb's (Aroclors)	0.500	2.00	--- U				
20. Toxaphene	0.690	1.50	--- U				

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

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CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005

ANALYST: CHS
DATE COLLECTED: 09/19/13
DATE EXTRACTED: 09/23/13
DATE ANALYZED: 09/30/13
DATE REPORTED: 10/30/13

Page: 2

REVIEWED BY: 

PESTICIDES AND PCB'S
EPA METHOD 8081B R2 (07)

PARAMETERS, ug/l	MDL	SWSL	Well #1R	Equipment Blank
1. Aldrin	0.029	0.05	--- U	--- U
2. Alpha-BHC	0.032	0.05	--- U	--- U
3. Beta-BHC	0.031	0.05	--- U	--- U
4. Delta-BHC	0.030	0.05	--- U	--- U
5. Gamma-BHC (Lindane)	0.032	0.05	--- U	--- U
6. Chlordane	0.320	0.50	--- U	--- U
7. 4,4-DDD	0.051	0.10	--- U	--- U
8. 4,4-DBE	0.049	0.10	--- U	--- U
9. 4,4-DDT	0.052	0.10	--- U	--- U
10. Dieldrin	0.042	0.075	--- U	--- U
11. Endosulfan I	0.056	0.10	--- U	--- U
12. Endosulfan II	0.046	0.10	--- U	--- U
13. Endosulfan Sulfate	0.072	0.10	--- U	--- U
14. Endrin	0.053	0.10	--- U	--- U
15. Endrin Aldehyde	0.068	0.10	--- U	--- U
16. Heptachlor	0.039	0.05	--- U	--- U
17. Heptachlor Epoxide	0.042	0.075	--- U	--- U
18. Methoxychlor	0.530	1.00	--- U	--- U
19. Pcb's (Aroclors)	0.500	2.00	--- U	--- U
20. Toxaphene	0.690	1.50	--- U	--- U

Environment 1, Incorporated

Drinking Water ID: 37715

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SNOW HILL, NC 28580

CLIENT ID: 6005

ANALYST: CHS
DATE COLLECTED: 09/19/13
DATE EXTRACTED: 09/25/13
DATE ANALYZED: 09/27/13
DATE REPORTED: 10/30/13

Page: 1

REVIEWED BY: 

LANDFILL APPENDIX II EPA METHOD 8151A R1(96)

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #5	Well #6	Well #7	Well #8
1. 2,4-D	0.36	2.0	--- U				
2. Dinoseb	0.54	1.0	--- U				
3. 2,4,5-TP	0.42	2.0	--- U				
4. 2,4,5-T	0.47	2.0	--- U				

Environment 1, Incorporated

Drinking Water ID: 37715

Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005

ANALYST: CHS
DATE COLLECTED: 09/19/13
DATE EXTRACTED: 09/25/13
DATE ANALYZED: 09/27/13
DATE REPORTED: 10/30/13

Page: 2

REVIEWED BY: 

LANDFILL APPENDIX II EPA METHOD 8151A R1(96)

PARAMETERS, ug/l	MDL	SWSL	Well #1R	Equipment Blank
1. 2,4-D	0.36	2.0	--- U	--- U
2. Dinoseb	0.54	1.0	--- U	--- U
3. 2,4,5-TP	0.42	2.0	--- U	--- U
4. 2,4,5-T	0.47	2.0	--- U	--- U

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
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CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005
ANALYST: CHS
DATE COLLECTED: 09/19/13
DATE EXTRACTED: 09/20/13
DATE ANALYZED: 09/28/13
DATE REPORTED: 10/30/13

Page: 1

REVIEWED BY: 

SEMI-VOLATILE ORGANICS EPA METHOD 8270D R4 (07)

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #5	Well #6	Well #7	Well #8
1. Acenaphthene	2.66	10.0	--- U				
2. Acenaphthylene	2.60	10.0	--- U				
3. Anthracene	2.97	10.0	--- U				
4. Benzo[a]anthracene	4.16	10.0	--- U				
5. Benzo[b]fluoranthene	3.32	10.0	--- U				
6. Benzo[k]fluoranthene	4.23	10.0	--- U				
7. Benzo[g,h,i]perylene	2.61	10.0	--- U				
8. Benzo[a]pyrene	3.27	10.0	--- U				
9. 4-Bromophenyl Phenyl Ether	2.63	10.0	--- U				
10. Butyl Benzyl Phthalate	5.78	10.0	--- U				
11. Bis-(2-Chloroethoxy) Methane	3.14	10.0	--- U				
12. Bis-(2-Chloroethyl) Ether	2.58	10.0	--- U				
13. Bis-(2-Chloroisopropyl) Ether	2.58	10.0	--- U				
14. 2-Chloronaphthalene	2.17	10.0	--- U				
15. 4-Chlorophenyl Phenyl Ether	2.42	10.0	--- U				
16. Chrysene	4.04	10.0	--- U				
17. Dibenzo[a,h]anthracene	2.78	10.0	--- U				
18. Di-N-Butyl Phthalate	3.09	10.0	--- U				
19. Dimethyl Phthalate	3.78	10.0	--- U				
20. Diethyl Phthalate	3.92	10.0	--- U				
21. 2,4-Dinitrotoluene	3.95	10.0	--- U				
22. 2,6-Dinitrotoluene	3.88	10.0	--- U				
23. Di-N-Octyl Phthalate	2.81	10.0	--- U				
24. Bis-(2-Ethylhexyl) Phthalate	9.97	15.0	--- U				
25. Fluoranthene	3.92	10.0	--- U				
26. Fluorene	2.95	10.0	--- U				
27. Hexachlorobenzene	2.61	10.0	--- U				
28. Hexachlorocyclopentadiene	4.16	10.0	--- U				
29. Indeno[1,2,3-cd]pyrene	2.91	10.0	--- U				
30. Isophorone	3.74	10.0	--- U				
31. Nitrobenzene	2.85	10.0	--- U				
32. N-Nitrosodimethylamine	4.25	10.0	--- U				
33. N-Nitrosodiphenylamine	3.95	10.0	--- U				
34. N-Nitrosodi-N-Propylamine	4.06	10.0	--- U				
35. Phenanthrene	3.24	10.0	--- U				
36. Pyrene	3.63	10.0	--- U				
37. 4-Chloro-3-Methylphenol	3.79	20.0	--- U				
38. 2-Chlorophenol	2.75	10.0	--- U				
39. O-Cresol	3.68	10.0	--- U				
40. P-Cresol	4.12	10.0	--- U				
41. 2,4-Dichlorophenol	5.19	10.0	--- U				
42. 2,6-Dichlorophenol	4.89	10.0	--- U				
43. 2,4-Dimethylphenol	3.21	10.0	--- U				
44. 4,6-Dinitro-2-Methylphenol	4.77	50.0	--- U				
45. 2,4-Dinitrophenol	4.37	50.0	--- U				
46. Ethyl Methanesulfonate	5.26	20.0	--- U				
47. Methyl Methanesulfonate	4.92	10.0	--- U				
48. 2-Nitrophenol	3.64	10.0	--- U				

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005
ANALYST: CHS
DATE COLLECTED: 09/19/13
DATE EXTRACTED: 09/20/13
DATE ANALYZED: 09/28/13
DATE REPORTED: 10/30/13

Page: 2

REVIEWED BY: 

SEMI-VOLATILE ORGANICS EPA METHOD 8270D R4 (07)

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #5	Well #6	Well #7	Well #8
49. 4-Nitrophenol	3.17	50.0	--- U				
50. Pentachlorophenol	5.33	25.0	--- U				
51. Phenol	1.86	10.0	--- U				
52. 2,3,4,6-Tetrachlorophenol	3.12	10.0	--- U				
53. 2,4,5-Trichlorophenol	4.17	10.0	--- U				
54. 2,4,6-Trichlorophenol	3.84	10.0	--- U				
55. Acetophenone	2.89	10.0	--- U				
56. 2-Acetylaminofluorene	3.98	20.0	--- U				
57. 4-Aminobiphenyl	4.12	20.0	--- U				
58. Benzyl Alcohol	4.47	20.0	--- U				
59. 4-Chloroaniline	3.36	20.0	--- U				
60. Chlorobenzilate	5.12	10.0	--- U				
61. Diallate	2.98	10.0	--- U				
62. Dibenzofuran	4.28	10.0	--- U				
63. 3,3-Dichlorobenzidine	4.22	20.0	--- U				
64. Dimethoate	3.98	20.0	--- U				
65. P-Dimethylaminoazobenzene	2.89	10.0	--- U				
66. 7,12-Dimethylbenz[a]anthracene	5.26	10.0	--- U				
67. 3,3-Dimethylbenzadine	3.21	10.0	--- U				
68. 1,3-Dinitrobenzene	2.89	20.0	--- U				
69. Diphenylamine	5.10	10.0	--- U				
70. Disulfoton	4.28	10.0	--- U				
71. Pamphur	3.98	20.0	--- U				
72. Hexachloropropene	4.31	10.0	--- U				
73. Isosafrole	2.88	10.0	--- U				
74. Kepone	2.78	20.0	--- U				
75. Methapyrilene	3.54	100.0	--- U				
76. 3-Methylchloroanthrene	4.21	10.0	--- U				
77. 2-Methylnaphthalene	3.79	10.0	--- U				
78. Methyl Parathion	4.32	10.0	--- U				
79. m-Cresol	3.81	10.0	--- U				
80. 1,4-Naphthoquinone	4.00	10.0	--- U				
81. 1-Naphthylamine	5.61	10.0	--- U				
82. 2-Naphthylamine	4.62	10.0	--- U				
83. 2-Nitroaniline	3.61	50.0	--- U				
84. 3-Nitroaniline	4.81	50.0	--- U				
85. 4-Nitroaniline	4.22	20.0	--- U				
86. 5-Nitro-O-Toluidine	4.01	10.0	--- U				
87. N-Nitrosodi-n-butylamine	3.63	10.0	--- U				
88. N-Nitrosodiethylamine	3.83	20.0	--- U				
89. N-Nitrosomethylethylamine	3.83	10.0	--- U				
90. N-Nitrosopiperidine	5.19	20.0	--- U				
91. N-Nitrosopyrrolidine	2.89	10.0	--- U				
92. Parathion	3.12	10.0	--- U				
93. Pentachlorobenzene	3.92	10.0	--- U				
94. Pentachloronitrobenzene	3.71	20.0	--- U				
95. Phenacetin	4.41	20.0	--- U				
96. 1,4 Benzenediamine	2.99	10.0	--- U				

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005

ANALYST: CHS
DATE COLLECTED: 09/19/13
DATE EXTRACTED: 09/20/13
DATE ANALYZED: 09/28/13
DATE REPORTED: 10/30/13

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REVIEWED BY: 

SEMI-VOLATILE ORGANICS EPA METHOD 8270D R4 (07)

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #5	Well #6	Well #7	Well #8
97. Phorate	3.86	10.0	--- U				
98. Pronamide	3.69	10.0	--- U				
99. Safrole	4.12	10.0	--- U				
100. 1,2,4,5-Tetrachlorobenzene	5.01	10.0	--- U				
101. Thionazin	4.62	20.0	--- U				
102. O-Toluidine	4.11	10.0	--- U				
103. 1,3,5-Trinitrobenzene	3.98	10.0	--- U				
104. 0,0,0-Triethyl Phosphorothioate	3.61	10.0	--- U				
105. Hexachloroethane	1.49	10.0	--- U				
106. Isodrin	3.11	20.0	--- U				

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005

ANALYST: CHS
DATE COLLECTED: 09/19/13
DATE EXTRACTED: 09/20/13
DATE ANALYZED: 09/28/13
DATE REPORTED: 10/30/13

Page: 4

REVIEWED BY: 

SEMI-VOLATILE ORGANICS EPA METHOD 8270D R4 (07)

PARAMETERS, ug/l	MDL	SWSL	Well #1R	Equipment Blank
1. Acenaphthene	2.66	10.0	--- U	--- U
2. Acenaphthylene	2.60	10.0	--- U	--- U
3. Anthracene	2.97	10.0	--- U	--- U
4. Benzo[a]anthracene	4.16	10.0	--- U	--- U
5. Benzo[b]fluoranthene	3.32	10.0	--- U	--- U
6. Benzo[k]fluoranthene	4.23	10.0	--- U	--- U
7. Benzo[g,h,i]perylene	2.61	10.0	--- U	--- U
8. Benzo[a]pyrene	3.27	10.0	--- U	--- U
9. 4-Bromophenyl Phenyl Ether	2.63	10.0	--- U	--- U
10. Butyl Benzyl Phthalate	5.78	10.0	--- U	--- U
11. Bis-(2-Chloroethoxy) Methane	3.14	10.0	--- U	--- U
12. Bis-(2-Chloroethyl) Ether	2.58	10.0	--- U	--- U
13. Bis-(2-Chloroisopropyl) Ether	2.58	10.0	--- U	--- U
14. 2-Chloronaphthalene	2.17	10.0	--- U	--- U
15. 4-Chlorophenyl Phenyl Ether	2.42	10.0	--- U	--- U
16. Chrysene	4.04	10.0	--- U	--- U
17. Dibenzo[a,h]anthracene	2.78	10.0	--- U	--- U
18. Di-N-Butyl Phthalate	3.09	10.0	--- U	--- U
19. Dimethyl Phthalate	3.78	10.0	--- U	--- U
20. Diethyl Phthalate	3.92	10.0	--- U	--- U
21. 2,4-Dinitrotoluene	3.95	10.0	--- U	--- U
22. 2,6-Dinitrotoluene	3.88	10.0	--- U	--- U
23. Di-N-Octyl Phthalate	2.81	10.0	--- U	--- U
24. Bis-(2-Ethylhexyl) Phthalate	9.97	15.0	--- U	--- U
25. Fluoranthene	3.92	10.0	--- U	--- U
26. Fluorene	2.95	10.0	--- U	--- U
27. Hexachlorobenzene	2.61	10.0	--- U	--- U
28. Hexachlorocyclopentadiene	4.16	10.0	--- U	--- U
29. Indeno[1,2,3-Cd]pyrene	2.91	10.0	--- U	--- U
30. Isophorone	3.74	10.0	--- U	--- U
31. Nitrobenzene	2.85	10.0	--- U	--- U
32. N-Nitrosodimethylamine	4.25	10.0	--- U	--- U
33. N-Nitrosodiphenylamine	3.95	10.0	--- U	--- U
34. N-Nitrosodi-N-Propylamine	4.06	10.0	--- U	--- U
35. Phenanthrene	3.24	10.0	--- U	--- U
36. Pyrene	3.63	10.0	--- U	--- U
37. 4-Chloro-3-Methylphenol	3.79	20.0	--- U	--- U
38. 2-Chlorophenol	2.75	10.0	--- U	--- U
39. O-Cresol	3.68	10.0	--- U	--- U
40. P-Cresol	4.12	10.0	--- U	--- U
41. 2,4-Dichlorophenol	5.19	10.0	--- U	--- U
42. 2,6-Dichlorophenol	4.89	10.0	--- U	--- U
43. 2,4-Dimethylphenol	3.21	10.0	--- U	--- U
44. 4,6-Dinitro-2-Methylphenol	4.77	50.0	--- U	--- U
45. 2,4-Dinitrophenol	4.37	50.0	--- U	--- U
46. Ethyl Methanesulfonate	5.26	20.0	--- U	--- U
47. Methyl Methanesulfonate	4.92	10.0	--- U	--- U
48. 2-Nitrophenol	3.64	10.0	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005

ANALYST: CHS
DATE COLLECTED: 09/19/13
DATE EXTRACTED: 09/20/13
DATE ANALYZED: 09/28/13
DATE REPORTED: 10/30/13

Page: 5

REVIEWED BY: 

SEMI-VOLATILE ORGANICS EPA METHOD 8270D R4(07)

PARAMETERS, ug/l	MDL	SWSL	Well #1R	Equipment Blank
49. 4-Nitrophenol	3.17	50.0	--- U	--- U
50. Pentachlorophenol	5.33	25.0	--- U	--- U
51. Phenol	1.86	10.0	--- U	--- U
52. 2,3,4,6-Tetrachlorophenol	3.12	10.0	--- U	--- U
53. 2,4,5-Trichlorophenol	4.17	10.0	--- U	--- U
54. 2,4,6-Trichlorophenol	3.84	10.0	--- U	--- U
55. Acetophenone	2.89	10.0	--- U	--- U
56. 2-Acetylaminofluorene	3.98	20.0	--- U	--- U
57. 4-Aminobiphenyl	4.12	20.0	--- U	--- U
58. Benzyl Alcohol	4.47	20.0	--- U	--- U
59. 4-Chloroaniline	3.36	20.0	--- U	--- U
60. Chlorobenzilate	5.12	10.0	--- U	--- U
61. Diallate	2.98	10.0	--- U	--- U
62. Dibenzofuran	4.28	10.0	--- U	--- U
63. 3,3-Dichlorobenzidine	4.22	20.0	--- U	--- U
64. Dimethoate	3.98	20.0	--- U	--- U
65. P-Dimethylaminoazobenzene	2.89	10.0	--- U	--- U
66. 7,12-Dimethylbenz[a]anthracene	5.26	10.0	--- U	--- U
67. 3,3-Dimethylbenzadine	3.21	10.0	--- U	--- U
68. 1,3-Dinitrobenzene	2.89	20.0	--- U	--- U
69. Diphenylamine	5.10	10.0	--- U	--- U
70. Disulfoton	4.28	10.0	--- U	--- U
71. Famphur	3.98	20.0	--- U	--- U
72. Hexachloropropene	4.31	10.0	--- U	--- U
73. Isosafrole	2.88	10.0	--- U	--- U
74. Kepone	2.78	20.0	--- U	--- U
75. Methapyrilene	3.54	100.0	--- U	--- U
76. 3-Methylchloroanthrene	4.21	10.0	--- U	--- U
77. 2-Methylnaphthalene	3.79	10.0	--- U	--- U
78. Methyl Parathion	4.32	10.0	--- U	--- U
79. m-Cresol	3.81	10.0	--- U	--- U
80. 1,4-Naphthoquinone	4.00	10.0	--- U	--- U
81. 1-Naphthylamine	5.61	10.0	--- U	--- U
82. 2-Naphthylamine	4.62	10.0	--- U	--- U
83. 2-Nitroaniline	3.61	50.0	--- U	--- U
84. 3-Nitroaniline	4.81	50.0	--- U	--- U
85. 4-Nitroaniline	4.22	20.0	--- U	--- U
86. 5-Nitro-O-Toluidine	4.01	10.0	--- U	--- U
87. N-Nitrosodi-n-butylamine	3.63	10.0	--- U	--- U
88. N-Nitrosodiethylamine	3.83	20.0	--- U	--- U
89. N-Nitrosomethylethylamine	3.83	10.0	--- U	--- U
90. N-Nitrosopiperidine	5.19	20.0	--- U	--- U
91. N-Nitrosopyrrolidine	2.89	10.0	--- U	--- U
92. Parathion	3.12	10.0	--- U	--- U
93. Pentachlorobenzene	3.92	10.0	--- U	--- U
94. Pentachloronitrobenzene	3.71	20.0	--- U	--- U
95. Phenacetin	4.41	20.0	--- U	--- U
96. 1,4 Benzenediamine	2.99	10.0	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005

ANALYST: CHS
DATE COLLECTED: 09/19/13
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Page: 6

REVIEWED BY: 

SEMI-VOLATILE ORGANICS EPA METHOD 8270D R4 (07)

PARAMETERS, ug/l	MDL	SWSL	Well #1R	Equipment Blank
97. Phorate	3.86	10.0	--- U	--- U
98. Pronamide	3.69	10.0	--- U	--- U
99. Safrole	4.12	10.0	--- U	--- U
100. 1,2,4,5-Tetrachlorobenzene	5.01	10.0	--- U	--- U
101. Thionazin	4.62	20.0	--- U	--- U
102. O-Toluidine	4.11	10.0	--- U	--- U
103. 1,3,5-Trinitrobenzene	3.98	10.0	--- U	--- U
104. 0,0,0-Triethyl Phosphorothioate	3.61	10.0	--- U	--- U
105. Hexachloroethane	1.49	10.0	--- U	--- U
106. Isodrin	3.11	20.0	--- U	--- U

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
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CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005
ANALYST: MAO
DATE COLLECTED: 09/19/13
DATE REPORTED: 10/30/13

Page: 1

REVIEWED BY: 

LANDFILL APPENDIX II EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	Date Analyzed:		09/21/13	09/21/13	09/21/13	09/21/13	09/22/13
	MDL	SWSL	Upstream	Well #4	Well #5	Well #6	Well #7
1. Chloromethane	0.77	1.0	--- U	---	---	---	---
2. Vinyl Chloride	0.63	1.0	--- U	6.40	---	---	---
3. Bromomethane	0.67	10.0	--- U	---	---	---	---
4. Chloroethane	0.48	10.0	--- U	5.70 J	0.80 J	---	---
5. Trichlorofluoromethane	0.24	1.0	--- U	---	---	---	---
6. 1,1-Dichloroethene	0.17	5.0	--- U	---	---	---	---
7. Acetone	9.06	100.0	--- U	---	---	---	---
8. Iodomethane	0.26	10.0	--- U	---	---	---	---
9. Carbon Disulfide	0.23	100.0	--- U	---	---	---	---
10. Methylene Chloride	0.64	1.0	--- U	---	---	---	---
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	---	---	---	---
12. 1,1-Dichloroethane	0.20	5.0	--- U	1.50 J	0.40 J	---	---
13. Vinyl Acetate	0.20	50.0	--- U	---	---	---	---
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	6.10	3.80 J	---	---
15. 2-Butanone	2.21	100.0	--- U	---	---	---	---
16. Bromochloromethane	0.27	3.0	--- U	---	---	---	---
17. Chloroform	0.25	5.0	--- U	---	---	---	---
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	---	---	---	---
19. Carbon Tetrachloride	0.22	1.0	--- U	---	---	---	---
20. Benzene	0.24	1.0	--- U	3.10	0.70 J	---	---
21. 1,2-Dichloroethane	0.21	1.0	--- U	---	---	---	---
22. Trichloroethene	0.23	1.0	--- U	---	---	---	---
23. 1,2-Dichloropropane	0.21	1.0	--- U	---	---	---	---
24. Bromodichloromethane	0.21	1.0	--- U	---	---	---	---
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	---	---	---	---
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	---	---	---	---
27. Toluene	0.23	1.0	--- U	1.00	---	---	---
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	---	---	---	---
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	---	---	---	---
30. Tetrachloroethene	0.17	1.0	--- U	---	---	---	---
31. 2-Hexanone	1.57	50.0	--- U	---	---	---	---
32. Dibromochloromethane	0.24	3.0	--- U	---	---	---	---
33. 1,2-Dibromoethane	0.26	1.0	--- U	---	---	---	---
34. Chlorobenzene	0.30	3.0	--- U	1.30 J	---	---	---
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	---	---	---	---
36. Ethylbenzene	0.21	1.0	--- U	---	---	---	---
37. Xylenes	0.68	5.0	--- U	---	---	---	---
38. Dibromomethane	0.28	10.0	--- U	---	---	---	---
39. Styrene	0.19	1.0	--- U	---	---	---	---
40. Bromoform	0.20	3.0	--- U	---	---	---	---
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	---	---	---	---
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	---	---	---	---
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	3.50	---	---	---
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	---	---	---	---
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	---	---	---	---
46. Acrylonitrile	2.72	200.0	--- U	---	---	---	---
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	---	---	---	---

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005

ANALYST: MAO
DATE COLLECTED: 09/19/13
DATE REPORTED: 10/30/13

Page: 2

REVIEWED BY: 

LANDFILL APPENDIX II EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	Date Analyzed:		09/21/13	09/21/13	09/21/13	09/21/13	09/22/13
	MDL	SWSL	Upstream	Well #4	Well #5	Well #6	Well #7
48. Acrolein	40.57	53.0	--- U				
49. Allyl Chloride	0.20	10.0	--- U				
50. Chloroprene	0.21	20.0	--- U				
51. 1,3-Dichlorobenzene	0.41	5.0	--- U				
52. Dichlorodifluoromethane	0.51	5.0	--- U				
53. 1,3-Dichloropropane	0.28	1.0	--- U				
54. 2,2-Dichloropropane	0.17	15.0	--- U				
55. 1,1-Dichloropropene	0.22	5.0	--- U				
56. Ethyl Methacrylate	0.16	10.0	--- U				
57. Hexachlorobutadiene	0.57	10.0	--- U				
58. Isobutyl Alcohol	12.80	100.0	--- U				
59. Methacrylonitrile	1.93	100.0	--- U				
60. Methyl Methacrylate	0.25	30.0	--- U				
61. Naphthalene	0.47	10.0	--- U				
62. Propionitrile	3.26	150.0	--- U				
63. 1,2,4-Trichlorobenzene	0.50	10.0	--- U				
64. Acetonitrile	36.29	55.0	--- U				

Environment 1, Incorporated

Drinking Water ID: 37715

Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005

ANALYST: MAO
DATE COLLECTED: 09/19/13
DATE REPORTED: 10/30/13

Page: 3

REVIEWED BY: 

LANDFILL APPENDIX II EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	Date Analyzed:		09/22/13	09/22/13	09/22/13	09/22/13	09/22/13
	MDL	SWSL	Well #8	Well #1R	Equipment Blank	Trip Blank	Field Blank
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	0.40 J	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

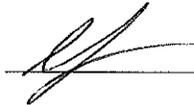
PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL, NC 28580

CLIENT ID: 6005

ANALYST: MAO
DATE COLLECTED: 09/19/13
DATE REPORTED: 10/30/13

Page: 4

REVIEWED BY: 

LANDFILL APPENDIX II EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	Date Analyzed:		09/22/13	09/22/13	09/22/13	09/22/13	09/22/13
	MDL	SWSL	Well #8	Well #1R	Equipment Blank	Trip Blank	Field Blank
48. Acrolein	40.57	53.0	--- U	--- U	--- U	--- U	--- U
49. Allyl Chloride	0.20	10.0	--- U	--- U	--- U	--- U	--- U
50. Chloroprene	0.21	20.0	--- U	--- U	--- U	--- U	--- U
51. 1,3-Dichlorobenzene	0.41	5.0	--- U	--- U	--- U	--- U	--- U
52. Dichlorodifluoromethane	0.51	5.0	--- U	--- U	--- U	--- U	--- U
53. 1,3-Dichloropropane	0.28	1.0	--- U	--- U	--- U	--- U	--- U
54. 2,2-Dichloropropane	0.17	15.0	--- U	--- U	--- U	--- U	--- U
55. 1,1-Dichloropropene	0.22	5.0	--- U	--- U	--- U	--- U	--- U
56. Ethyl Methacrylate	0.16	10.0	--- U	--- U	--- U	--- U	--- U
57. Hexachlorobutadiene	0.57	10.0	--- U	--- U	--- U	--- U	--- U
58. Isobutyl Alcohol	12.80	100.0	--- U	--- U	--- U	--- U	--- U
59. Methacrylonitrile	1.93	100.0	--- U	--- U	--- U	--- U	--- U
60. Methyl Methacrylate	0.25	30.0	--- U	--- U	--- U	--- U	--- U
61. Naphthalene	0.47	10.0	--- U	--- U	--- U	--- U	--- U
62. Propionitrile	3.26	150.0	--- U	--- U	--- U	--- U	--- U
63. 1,2,4-Trichlorobenzene	0.50	10.0	--- U	--- U	--- U	--- U	--- U
64. Acetonitrile	36.29	55.0	--- U	--- U	--- U	--- U	--- U

Environment 1, Inc.
 P.O. Box 7085, 114 Oakmont Dr.
 Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CLIENT: 6005 Week: 39

GREENE CO. LANDFILL
 DAVID JONES
 P.O. BOX 543
 SNOW HILL NC 28580

(252) 747-5720

CHAIN OF CUSTODY RECORD

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	DISINFECTION			Field pH	BOD	COD	Nitrate	TOC	Alkalinity	Chloride	Cyanide	Sulfate	Metals	Sulfide	Conductivity	DO	Temperature	Ferrous Iron	Field Parameter	PARAMETERS	CLASSIFICATION:			
	DATE	TIME				CHLORINE	UV	NONE																					
Upstream	9-19-13	1400		18	4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
Downstream	9-19-13	1240		20	21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
Well #4	9-19-13	1020		20	11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
Well #5	9-19-13	1115		18	11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
Well #6	9-19-13	0930		20	20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
Well #7	9-19-13	1340		21	11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
Well #8	9-19-13	0845		20	11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
Well #1R	9-19-13	1350		20	10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
Equipment Blank #2	9-19-13	0810		20	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
Equipment Blank	9-19-13	0840		20	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
Trip Blank	9-19-13			20	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																					
RELINQUISHED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	
Tom Brady	9-19-13	1445	[Signature]	9/19/13	3:00	[Signature]	9/19/13	3:00	[Signature]	9/19/13	3:00	[Signature]	9/19/13	3:00	[Signature]	9/19/13	3:00	[Signature]	9/19/13	3:00	[Signature]	9/19/13	3:00	[Signature]	9/19/13	3:00	[Signature]	9/19/13	3:00
RELINQUISHED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	
[Signature]			[Signature]			[Signature]			[Signature]			[Signature]			[Signature]			[Signature]			[Signature]			[Signature]			[Signature]		
RELINQUISHED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	
[Signature]			[Signature]			[Signature]			[Signature]			[Signature]			[Signature]			[Signature]			[Signature]			[Signature]			[Signature]		

PLEASE READ Instructions for completing this form on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

A - NONE D - NaOH
 B - HNO₃ E - HCL
 C - H₂SO₄ F - ZINC ACETATE/NaOH
 G - Na THIOSULFATE

CLASSIFICATION:

WASTEWATER (NPDES)
 DRINKING WATER
 DWQ/GW
 SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY

SAMPLES COLLECTED BY: (Please Print) Bobby Tom

SAMPLES RECEIVED IN LAB AT 2:10 °C

COMMENTS: DOWNSTREAM DRY AT TIME OF COLLECTION

Environment 1, Inc.
 P.O. Box 7085, 114 Oakmont Dr.
 Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CLIENT: 6005 Week: 39

GREENE CO. LANDFILL
 DAVID JONES
 P.O. BOX 543
 SNOW HILL, NC 28580

(252) 747-5720

CHAIN OF CUSTODY RECORD

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	DISINFECTION		8260 Dup. 1	EPA 8270D	8270D Dup. 1	EPA 8081B	8081B Duplicate	8260B App. II	8260 App. II 1	8260 App. II 2	8151A Landfill	CO2	ORP	Field Parmeter	PARAMETERS	CLASSIFICATION:	
	DATE	TIME				<input type="checkbox"/> CHLORINE	<input type="checkbox"/> UV															<input type="checkbox"/> NONE
Upstream	9-19-13	1460		18	4	<input type="checkbox"/>	<input type="checkbox"/>	5														
Downstream					4	<input type="checkbox"/>	<input type="checkbox"/>															
Well #4	9-19-13	1240		20	21	<input type="checkbox"/>	<input type="checkbox"/>															
Well #5	9-19-13	1020		20	11	<input type="checkbox"/>	<input type="checkbox"/>															
Well #6	9-19-13	1115		18	11	<input type="checkbox"/>	<input type="checkbox"/>															
Well #7	9-19-13	0930		18	11	<input type="checkbox"/>	<input type="checkbox"/>															
Well #8	9-19-13	0845		20	11	<input type="checkbox"/>	<input type="checkbox"/>															
Well #1R	9-19-13	1340		21	20	<input type="checkbox"/>	<input type="checkbox"/>															
Piezometer #2	9-19-13	1350			1	<input type="checkbox"/>	<input type="checkbox"/>															
Equipment Blank	9-19-13	0810			10	<input type="checkbox"/>	<input type="checkbox"/>															
Trip Blank	9-19-13				2	<input type="checkbox"/>	<input type="checkbox"/>															
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)
<i>Tom Bealy</i>	9-19-13 1445	<i>[Signature]</i>	9-19-13 1350	<i>[Signature]</i>																		
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, PIG

CHEMICAL PRESERVATION

A - NONE D - NAOH
 B - HNO₃ E - HCL
 C - H₂SO₄ F - ZINC ACETATE/NAOH
 G - NA THIOSULFATE

PARAMETERS

CLASSIFICATION:

WASTEWATER (NPDES)
 DRINKING WATER
 DWQGW
 SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY

SAMPLES COLLECTED BY: *(Y) N*

SAMPLES RECEIVED IN LAB AT 21 °C

SAMPLES COLLECTED BY: *Bobby Tom*

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6005 A

GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL ,NC 28580

DATE COLLECTED: 09/19/13
DATE REPORTED : 11/01/13

REVIEWED BY: 

PARAMETERS	MDL	Upstream		Well	Well	Well	Well	Analysis		Method
		SWSL		#4	#5	#6	#7	Date	Analyst	Code
Antimony, Total Dissolved, ug/l	0.02	6.0	0.06 J	---	---	0.03 J	---	10/11/13LFJ	EPA200.8	
Arsenic, Total Dissolved, ug/l	0.05	10.0	1.4 J	2.1 J	0.2 J			10/09/13LFJ	EPA200.8	
Arsenic, Total Dissolved, ug/l	0.05	10.0				---	---	10/01/13LFJ	EPA200.8	
Barium, Total Dissolved, ug/l	0.06	100.0	21.7 J	42.5 J	41.9 J			10/09/13LFJ	EPA200.8	
Barium, Total Dissolved, ug/l	0.06	100.0				10.4 J	27.9 J	10/01/13LFJ	EPA200.8	
Beryllium, Total Dissolved, ug/l	0.03	1.0	---	---	0.14 J			10/09/13LFJ	EPA200.8	
Beryllium, Total Dissolved, ug/l	0.03	1.0				0.035 J	0.032 J	10/01/13LFJ	EPA200.8	
Cadmium, Total Dissolved, ug/l	0.05	1.0	---	---	---			10/09/13LFJ	EPA200.8	
Cadmium, Total Dissolved, ug/l	0.05	1.0				0.071 J	---	10/01/13LFJ	EPA200.8	
Cobalt, Total Dissolved, ug/l	0.02	10.0	0.36 J	0.28 J	0.58 J			10/09/13LFJ	EPA200.8	
Cobalt, Total Dissolved, ug/l	0.02	10.0				---	0.36 J	10/01/13LFJ	EPA200.8	
Copper, Total Dissolved, ug/l	0.06	10.0	0.3 J	---	0.17 J			10/09/13LFJ	EPA200.8	
Copper, Total Dissolved, ug/l	0.06	10.0				0.30 J	0.67 J	10/01/13LFJ	EPA200.8	
Chromium, Total Dissolved, ug/l	0.04	10.0	0.079 J	---	---			10/09/13LFJ	EPA200.8	
Chromium, Total Dissolved, ug/l	0.04	10.0				---	0.21 J	10/01/13LFJ	EPA200.8	
Lead, Total Dissolved, ug/l	0.02	10.0	0.17 J	0.031 J	0.22 J			10/09/13LFJ	EPA200.8	
Lead, Total Dissolved, ug/l	0.02	10.0				0.032 J	0.082 J	10/01/13LFJ	EPA200.8	
Mercury, Total Dissolved, ug/l	0.01	0.20	0.04 J	0.03 J	0.03 J	0.06 J	0.05 J	10/17/13ADD	245.1 R3	
Nickel, Total Dissolved, ug/l	0.45	50.0	---	---	---	---	---	10/23/13LFJ	EPA200.7	
Selenium, Total Dissolved, ug/l	0.06	10.0	0.26 J	0.57 J	0.19 J			10/09/13LFJ	EPA200.8	
Selenium, Total Dissolved, ug/l	0.06	10.0				---	---	10/01/13LFJ	EPA200.8	
Silver, Total Dissolved, ug/l	0.03	10.0	---	---	---			10/09/13LFJ	EPA200.8	
Silver, Total Dissolved, ug/l	0.03	10.0				---	---	10/11/13LFJ	EPA200.8	
Thallium, Total Dissolved, ug/l	0.02	5.5	---	---	---	---	---	10/09/13LFJ	EPA200.8	
Tin, Total Dissolved, ug/l	0.06	100.0	0.36 J	0.3 J	0.12 J			10/04/13LFJ	EPA200.8	
Tin, Total Dissolved, ug/l	0.06	100.0				0.12 J	0.19 J	10/01/13LFJ	EPA200.8	
Vanadium, Total Dissolved, ug/l	0.07	25.0	0.37 J	0.54 J	0.41 J			10/09/13LFJ	EPA200.8	
Vanadium, Total Dissolved, ug/l	0.07	25.0				---	0.26 J	10/01/13LFJ	EPA200.8	
Zinc, Total Dissolved, ug/l	0.47	10.0	0.87 J	8.5 J	3.7 J	4.6 J	4.2 J	10/28/13LFJ	EPA200.8	

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6005 A

GREENE CO. LANDFILL
DAVID JONES
P.O. BOX 543
SNOW HILL ,NC 28580

DATE COLLECTED: 09/19/13
DATE REPORTED : 11/01/13

REVIEWED BY: 

PARAMETERS	MDL	Well		Analysis	Method
		SWSL #8	#1R		
Antimony, Total Dissolved, ug/l	0.02	6.0	0.03 J	0.07 J	10/11/13LFFJ EPA200.8
Arsenic, Total Dissolved, ug/l	0.05	10.0	--- U	--- U	10/01/13LFFJ EPA200.8
Barium, Total Dissolved, ug/l	0.06	100.0	30.1 J	80 J	10/01/13LFFJ EPA200.8
Beryllium, Total Dissolved, ug/l	0.03	1.0	--- U	0.044 J	10/01/13LFFJ EPA200.8
Cadmium, Total Dissolved, ug/l	0.05	1.0	--- U	--- U	10/01/13LFFJ EPA200.8
Cobalt, Total Dissolved, ug/l	0.02	10.0	0.29 J	0.21 J	10/01/13LFFJ EPA200.8
Copper, Total Dissolved, ug/l	0.06	10.0	0.44 J	1.6 J	10/01/13LFFJ EPA200.8
Chromium, Total Dissolved, ug/l	0.04	10.0	0.2 J	0.36 J	10/01/13LFFJ EPA200.8
Lead, Total Dissolved, ug/l	0.02	10.0	0.289 J	0.72 J	10/01/13LFFJ EPA200.8
Mercury, Total Dissolved, ug/l	0.01	0.20	0.04 J	0.05 J	10/17/13ADD 245.1 R3
Nickel, Total Dissolved, ug/l	0.45	50.0	--- U	--- U	10/23/13LFFJ EPA200.7
Selenium, Total Dissolved, ug/l	0.06	10.0	--- U	0.20 J	10/01/13LFFJ EPA200.8
Silver, Total Dissolved, ug/l	0.03	10.0	--- U	--- U	10/11/13LFFJ EPA200.8
Thallium, Total Dissolved, ug/l	0.02	5.5	--- U	0.126 J	10/09/134 EPA200.8
Tin, Total Dissolved, ug/l	0.06	100.0	--- U	--- U	10/01/13LFFJ EPA200.8
Vanadium, Total Dissolved, ug/l	0.07	25.0	--- U	--- U	10/01/13LFFJ EPA200.8
Zinc, Total Dissolved, ug/l	0.47	10.0	6.0 J		10/28/13LFFJ EPA200.8
Zinc, Total Dissolved, ug/l	0.47	10.0		6.6 J	10/31/13LFFJ EPA200.8

Environment 1, Inc.
 P.O. Box 7085, 114 Oakmont Dr.
 Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CLIENT: 6005 A Week: 39

GREENE CO. LANDFILL
 DAVID JONES
 P.O. BOX 543
 SNOW HILL NC 28580

(252) 747-5720

CHAIN OF CUSTODY RECORD

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/ OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Metals (Dis.)	DISINFECTION
	DATE	TIME					
Upstream	9-19-13	1400	18	1	1	CHLORINE	<input type="checkbox"/>
Downstream						UV	<input type="checkbox"/>
Well #4	9-19-13	1240	20	1	1	NONE	<input type="checkbox"/>
Well #5	9-19-13	1020	20	1	1		<input type="checkbox"/>
Well #6	9-19-13	1115	18	1	1		<input type="checkbox"/>
Well #7	9-19-13	0930	18	1	1		<input type="checkbox"/>
Well #8	9-19-13	0845	20	1	1		<input type="checkbox"/>
Well #1R	9-19-13	1340	21	1	1		<input type="checkbox"/>
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	COMMENTS:	
<i>Tom Swales</i>	9-19-13 1445	<i>[Signature]</i>	9/19/13 1310	<i>[Signature]</i>			
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	COMMENTS:	

CHLORINE NEUTRALIZED AT COLLECTION

PH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

A - NONE D - NaOH
 B - HNO₃ E - HCL
 C - H₂SO₄ F - ZINC ACETATE/NaOH
 G - Na THIOSULFATE

CLASSIFICATION:

WASTEWATER (NPDES)
 DRINKING WATER
 DWO/GW
 SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY

SAMPLES COLLECTED BY: *[Signature]*

SAMPLES RECEIVED IN LAB AT 21 °C

PLEASE READ Instructions for completing this form on the reverse side.



Microseeps
220 William Pitt Way
Pittsburgh, PA 15238
Phone: (412) 826-5245
Fax: (412) 826-3433

October 10, 2013

Steve Jones
Environment 1, Inc.
PO Box 7085
114 Oakmont Drive
Greenville, NC 27835

RE: **GREENE COUNTY / 6005**

Microseeps Workorder: 10109

Dear Steve Jones:

Enclosed are the analytical results for sample(s) received by the laboratory on Friday, September 20, 2013. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Robbin Robl
C.A. - 10/14/13

Robbin Robl 10/10/2013
rrobl@microseeps.com

Customer Service Representative

Enclosures

As a valued client we would appreciate your comments on our service.
Please email info@microseeps.com.

Total Number of Pages 14

Report ID: 10109 - 440601

Page 1 of 12

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LABORATORY ACCREDITATIONS & CERTIFICATIONS

Accreditor:	Pennsylvania Department of Environmental Protection, Bureau of Laboratories	
Accreditation ID:	02-00538	
Scope:	NELAP Non-Potable Water and Solid & Hazardous Waste	
Accreditor:	NELAP: State of Florida, Department of Health, Bureau of Laboratories	
Accreditation ID:	E87832	
Scope:	Clean Water Act (CWA)	Resource Conservation and Recovery Act (RCRA)
Accreditor:	South Carolina Department of Health and Environmental Control, Office of Environmental Laboratory Certification	
Accreditation ID:	89009003	
Scope:	Clean Water Act (CWA); Resource Conservation and Recovery Act (RCRA)	
Accreditor:	NELAP: State of Louisiana, Department of Environmental Quality	
Accreditation ID:	04104	
Scope:	Solid and Chemical Materials; Non-Potable Water	
Accreditor:	NELAP: New Jersey, Department of Environmental Protection	
Accreditation ID:	PA026	
Scope:	Non-Potable Water; Solid and Chemical Materials	
Accreditor:	NELAP: New York, Department of Health Wadsworth Center	
Accreditation ID:	11815	
Scope:	Non-Potable Water; Solid and Hazardous Waste	
Accreditor:	State of Connecticut, Department of Public Health, Division of Environmental Health	
Accreditation ID:	PH-0263	
Scope:	Clean Water Act (CWA) Resource Conservation and Recovery Act (RCRA)	
Accreditor:	NELAP: Texas, Commission on Environmental Quality	
Accreditation ID:	T104704453-09-TX	
Scope:	Non-Potable Water	
Accreditor:	State of New Hampshire	
Accreditation ID:	299409	
Scope:	Non-potable water	
Accreditor:	State of Georgia	
Accreditation ID:	Chapter 391-3-26	
Scope:	As per the Georgia EPD Rules and Regulations for Commercial Laboratories, Microseeps is accredited by the Pennsylvania Department of Environmental Protection Bureau of Laboratories under the National Environmental Laboratory Approval Program (NELAC).	

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SAMPLE SUMMARY

Workorder: 10109 GREENE COUNTY / 6005

Lab ID	Sample ID	Matrix	Date Collected	Date Received
101090001	WL1R	Water	9/19/2013 13:40	9/20/2013 10:30
101090002	WL1R	Bubble Strip	9/19/2013 13:40	9/20/2013 10:30
101090003	WEL4	Water	9/19/2013 12:10	9/20/2013 10:30
101090004	WEL4	Bubble Strip	9/19/2013 12:10	9/20/2013 10:30

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ANALYTICAL RESULTS

Workorder: 10109 GREENE COUNTY / 6005

Lab ID: 101090001

Date Received: 9/20/2013 10:30 Matrix: Water

Sample ID: WL1R

Date Collected: 9/19/2013 13:40

Parameters	Results	Units	PQL	MDL	DF Prepared	By	Analyzed	By	Qual
EDonors - MICR									
Analysis Desc: AM23G Analytical Method: AM23G									
Lactic Acid	0.18	mg/l	0.10	0.013	1		9/28/2013 06:52	KB	
Acetic Acid	0.10	mg/l	0.070	0.0050	1		9/28/2013 06:52	KB	
Propionic Acid	0.042J	mg/l	0.050	0.0080	1		9/28/2013 06:52	KB	
Butyric Acid	0.058	mg/l	0.050	0.011	1		9/28/2013 06:52	KB	
Pyruvic Acid	0.014U	mg/l	0.15	0.014	1		9/28/2013 06:52	KB	
I-Pentanoic Acid	0.0090U	mg/l	0.15	0.0090	1		9/28/2013 06:52	KB	
Pentanoic Acid	0.011U	mg/l	0.070	0.011	1		9/28/2013 06:52	KB	
I-Hexanoic Acid	0.029U	mg/l	0.10	0.029	1		9/28/2013 06:52	KB	
Hexanoic Acid	0.22U	mg/l	0.50	0.22	1		9/28/2013 06:52	KB	

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ANALYTICAL RESULTS

Workorder: 10109 GREENE COUNTY / 6005

Lab ID: 101090002 Date Received: 9/20/2013 10:30 Matrix: Bubble Strip
Sample ID: WL1R Date Collected: 9/19/2013 13:40

Parameters	Results	Units	PQL	MDL	DF Prepared	By	Analyzed	By	Qual
RISK - MICR									
Analysis Desc: AM20GAX		Analytical Method: AM20GAX							
Methane	7.5	ug/l	0.015	0.0020	1		9/23/2013 09:53	GT	
Ethane	0.0020U	ug/l	0.010	0.0020	1		9/23/2013 09:53	GT	
Ethene	0.0060U	ug/l	0.010	0.0060	1		9/23/2013 09:53	GT	
Hydrogen	0.47J	nM	0.60	0.049	1		9/23/2013 09:53	GT	

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ANALYTICAL RESULTS

Workorder: 10109 GREENE COUNTY / 6005

Lab ID: 101090003 Date Received: 9/20/2013 10:30 Matrix: Water
 Sample ID: WEL4 Date Collected: 9/19/2013 12:10

Parameters	Results	Units	PQL	MDL	DF Prepared	By	Analyzed	By	Qual
EDonors - MICR									
Analysis Desc: AM23G Analytical Method: AM23G									
Lactic Acid	0.070J	mg/l	0.10	0.013	1		9/28/2013 07:34	KB	
Acetic Acid	0.094	mg/l	0.070	0.0050	1		9/28/2013 07:34	KB	
Propionic Acid	0.045J	mg/l	0.050	0.0080	1		9/28/2013 07:34	KB	
Butyric Acid	0.057	mg/l	0.050	0.011	1		9/28/2013 07:34	KB	
Pyruvic Acid	0.014U	mg/l	0.15	0.014	1		9/28/2013 07:34	KB	
I-Pentanoic Acid	0.0090U	mg/l	0.15	0.0090	1		9/28/2013 07:34	KB	
Pentanoic Acid	0.011U	mg/l	0.070	0.011	1		9/28/2013 07:34	KB	
I-Hexanoic Acid	0.029U	mg/l	0.10	0.029	1		9/28/2013 07:34	KB	
Hexanoic Acid	0.23J	mg/l	0.50	0.22	1		9/28/2013 07:34	KB	

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ANALYTICAL RESULTS

Workorder: 10109 GREENE COUNTY / 6005

Lab ID: 101090004 Date Received: 9/20/2013 10:30 Matrix: Bubble Strip
Sample ID: WEL4 Date Collected: 9/19/2013 12:10

Parameters	Results	Units	PQL	MDL	DF Prepared	By	Analyzed	By	Qual
RISK - MICR									
Analysis Desc: AM20GAX Analytical Method: AM20GAX									
Methane	4900	ug/l	0.015	0.0020	1		9/23/2013 10:05	GT	
Ethane	0.0020U	ug/l	0.010	0.0020	1		9/23/2013 10:05	GT	
Ethene	0.14	ug/l	0.010	0.0060	1		9/23/2013 10:05	GT	
Hydrogen	0.78	nM	0.60	0.049	1		9/23/2013 10:05	GT	

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ANALYTICAL RESULTS QUALIFIERS

Workorder: 10109 GREENE COUNTY / 6005

DEFINITIONS/QUALIFIERS

Disclaimer: The Pennsylvania Department of Environmental Protection (PADEP) has decided to no longer recognize analyses that do not produce data for primary compliance, for NELAP accreditation. The methods affected by this decision are AM20GAX, AM21G, SW846 7199 and AM4.02. The laboratory shall continue to administer the NELAP/TNI standard requirements in the performance of these methods.

- MDL** Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
- PQL** Practical Quantitation Limit. Can be used synonymously with LOQ; Limit Of Quantitation.
- ND** Not detected at or above reporting limit.
- DF** Dilution Factor.
- S** Surrogate.
- RPD** Relative Percent Difference.
- % Rec** Percent Recovery.
- U** Indicates the compound was analyzed for, but not detected at or above the noted concentration.
- J** Estimated concentration greater than the set method detection limit (MDL) and less than the set reporting limit (PQL).

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QUALITY CONTROL DATA

Workorder: 10109 GREENE COUNTY / 6005

QC Batch: DISG/3268 Analysis Method: AM20GAX
 QC Batch Method: AM20GAX
 Associated Lab Samples: 101090002, 101090004

METHOD BLANK: 22888

Parameter	Units	Blank Result	Reporting Limit Qualifiers
RISK			
Methane	ug/l	0.0020U	0.0020
Ethane	ug/l	0.0020U	0.0020
Ethene	ug/l	0.0060U	0.0060

METHOD BLANK: 22890

Parameter	Units	Blank Result	Reporting Limit Qualifiers
RISK			
Hydrogen	nM	0.049U	0.049

LABORATORY CONTROL SAMPLE & LCSD: 22891 22894

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD Qualifiers
RISK									
Methane	ug/l	8.4	8.2	8.1	98	97	80-120	1	20
Ethane	ug/l	6.4	6.4	6.3	99	98	80-120	1	20
Ethene	ug/l	16	16	16	99	98	80-120	1	20

LABORATORY CONTROL SAMPLE & LCSD: 22893 22896

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limit	RPD	Max RPD Qualifiers
RISK									
Hydrogen	nM	24	23	23	95	95	80-120	0	20

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QUALITY CONTROL DATA

Workorder: 10109 GREENE COUNTY / 6005

QC Batch: EDON/1875 Analysis Method: AM23G
 QC Batch Method: AM23G
 Associated Lab Samples: 101090001, 101090003

METHOD BLANK: 23027

Parameter	Units	Blank Result	Reporting Limit	Qualifiers
EDonors				
Lactic Acid	mg/l	0.032J	0.013	
Acetic Acid	mg/l	0.035J	0.0050	
Propionic Acid	mg/l	0.038J	0.0080	
Butyric Acid	mg/l	0.011U	0.011	
Pyruvic Acid	mg/l	0.014U	0.014	
i-Pentanoic Acid	mg/l	0.0090U	0.0090	
Pentanoic Acid	mg/l	0.011U	0.011	
i-Hexanoic Acid	mg/l	0.029U	0.029	
Hexanoic Acid	mg/l	0.22U	0.22	

LABORATORY CONTROL SAMPLE: 23028

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
EDonors						
Lactic Acid	mg/l	2	2.0	102	70-130	
Acetic Acid	mg/l	2	2.1	107	70-130	
Propionic Acid	mg/l	2	2.1	106	70-130	
Butyric Acid	mg/l	2	2.1	105	70-130	
Pyruvic Acid	mg/l	2	1.9	97	70-130	
i-Pentanoic Acid	mg/l	2	2.0	103	70-130	
Pentanoic Acid	mg/l	2	1.9	96	70-130	
i-Hexanoic Acid	mg/l	2	2.1	106	70-130	
Hexanoic Acid	mg/l	2	1.8	93	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 23029 23030 Original: 101160003

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	Max RPD	RPD	Qualifiers
EDonors											
Lactic Acid	mg/l			1.7	1.7						
Acetic Acid	mg/l			2.2	2.2						
Propionic Acid	mg/l			2.1	2.1						

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QUALITY CONTROL DATA

Workorder: 10109 GREENE COUNTY / 6005

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 23029 23030 Original: 101160003

Parameter	Units	Original Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limit	RPD	Max RPD	Qualifiers
Butyric Acid	mg/l	0.057	2	2.0	2.0	100	100	70-130	0	30	
Pyruvic Acid	mg/l	0	2	1.8	1.6	80	80	70-130	0	30	
l-Pentanoic Acid	mg/l	0	2	2.0	1.9	99	97	70-130	2	30	
Pentanoic Acid	mg/l	0	2	1.9	1.9	93	96	70-130	3.2	30	
l-Hexanoic Acid	mg/l	0	2	2.4	2.3	118	115	70-130	2.6	30	
Hexanoic Acid	mg/l	0.086	2	1.8	1.9	89	90	70-130	1.1	30	

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Workorder: 10109 GREENE COUNTY / 6005

Lab ID	Sample ID	Prep Method	Prep Batch	Analysis Method	Analysis Batch
101090002	WL1R			AM20GAX	DISG/3268
101090004	WEL4			AM20GAX	DISG/3268
101090001	WL1R			AM23G	EDON/1875
101090003	WEL4			AM23G	EDON/1875

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Cooler Receipt Form

Client Name: Environment 1 Project: Greene County Lab Work Order: 10109
16005

A. Shipping/Container Information (circle appropriate response)

Courier: FedEx UPS USPS Client Other: _____ Air bill Present: Yes No

Tracking Number: 1Z 203 705 016315 5761

Custody Seal on Cooler/Box Present: Yes No _____ Seals Intact: Yes No

Cooler/Box Packing Material: Bubble Wrap Absorbent Foam Other: _____

Type of Ice: Wet Blue None Ice Intact: Yes Melted

Cooler Temperature: 3°C Radiation Screened: Yes No _____ Chain of Custody Present: Yes No

Comments: _____

B. Laboratory Assignment/Log-in (check appropriate response)

	YES	NO	N/A	Comment Reference non-Conformance
Chain of Custody properly filled out	✓			
Chain of Custody relinquished	✓			
Sampler Name & Signature on COC	✓			
Containers intact	✓			
Were samples in separate bags	✓			
Sample container labels match COC Sample name/date and time collected	✓			
Sufficient volume provided	✓			
Microseeps containers used	✓			
Are containers properly preserved for the requested testing? (as labeled)	✓			
If an unknown preservation state, were containers checked? Exception: VOA's coliform			✓	If yes, see pH form.
Was volume for dissolved testing field filtered, as noted on the COC? Was volume received in a preserved container?			✓	

Comments: _____

Cooler contents examined/received by: LY Date: 9/20/13

Project Manager Review: C+ Date: 9/20/13