Semi-Annual Water Quality Monitoring Report with Corrective Action Update

Prepared for

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

March 2013

Permit Number: 40-02

MESCO Project Number: G13010.0

Submittal: July 16, 2013

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

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

DENR USE ONLY: ☐ Paper Report ☐ Electronic Data - Email CD (data loaded: Yes / No) Doc/Event #:

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	March 20, 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
☐ Groundwater monitoring data from private water supply wells
☐ Leachate monitoring data
☒ Surface water monitoring data
☐ Methane gas monitoring data
☒ Corrective action data (specify) MNA Paramaters MW-1R & MW-4
☐ Other(specify)

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.

D. Mark Durway, L.G. | Geologist | (919) 772-5393

Facility Representative Name (Print) | Title | (Area Code) Telephone Number

D. Mark Durway 7.6.13

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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License No. C-0281

CIVIL/SANITARY/ENVIRONMENTAL ENGINEERS
SOLID WASTE MANAGEMENT

Municipal Services
Engineering Company, P.A.

SITE PLANNING/SUBDIVISIONS
SUBSURFACE UTILITY ENGINEERING (SUE)

July 16, 2013

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: March 20, 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 spring 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 March 20, 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 at MW-4 which is located within the relevant compliance boundary.

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 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 two surface water points (Upstream and Downstream). Quality control measures included submittal and analysis of an equipment blank (EB), field blank (FB) and trip blank (TB). 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 I of 40 CFR 258. Both total and dissolved metals were reported as requested by the SWS in the *CAER* response (DIN 17837). Locations that contained Appendix II detections (total mercury, total tin) during the previous September 2012 event were re-tested during this event. 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

Six of the eighteen (33%) targeted total metals were detected in low non-quantifiable ("j" qualified) concentrations in the EB. Although low level field and/or laboratory artifact contamination was identified, the ground and surface water data appears uninfluenced by false positives or high/low bias.

Groundwater Samples

Total metals 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

Constituents were not detected above the applicable 2B Standard in the surface water sample collected upstream or downstream of the facility along an unnamed tributary of Sandy Run.

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 elevated with an all time high identified at MW-7 likely in response to recent precipitation events. Groundwater flow direction and rates were calculated based on reported data and are included in **Table 4**. Estimated flow direction was easterly with flow rates, quantified through modified Darcy's equation, ranging from approximately 5 ft/yr (MW-4) to 502 ft/yr (MW-8) for a site-wide average of approximately 111 ft/yr.

Corrective Action Update

Groundwater remediation measures utilizing MNA per *CAP-Rev. 5* continues to be implemented at the facility. This is the seventh 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**). MW-4 has exhibited a reduction of total VOCs (-36%), reduction of benzene (-7%) and an increase of vinyl chloride (+19%) compared to their respective baseline averages established during the initial four corrective action events (**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") Appendix II exclusive constituent total tin is not attributed to landfill activities but rather natural as evidenced by highest levels detected in upgradient background well MW-1R.

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.

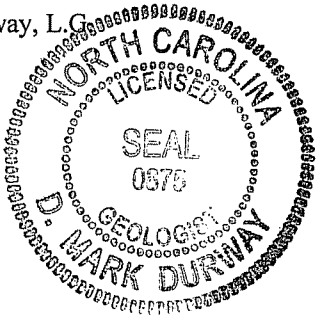
Closing

Semi-annual water quality and MNA monitoring will continue at the facility in September 2013. Please contact us by phone at (919) 772-5393 or by email at jpfohl@mesco.com or mdurway@mesco.com should you have any questions regarding this report.

Sincerely,
MUNICIPAL ENGINEERING SERVICES CO., P.A.

Jonathan Pfohl
Environmental Specialist

D. Mark Durway, L.G.
Geologist

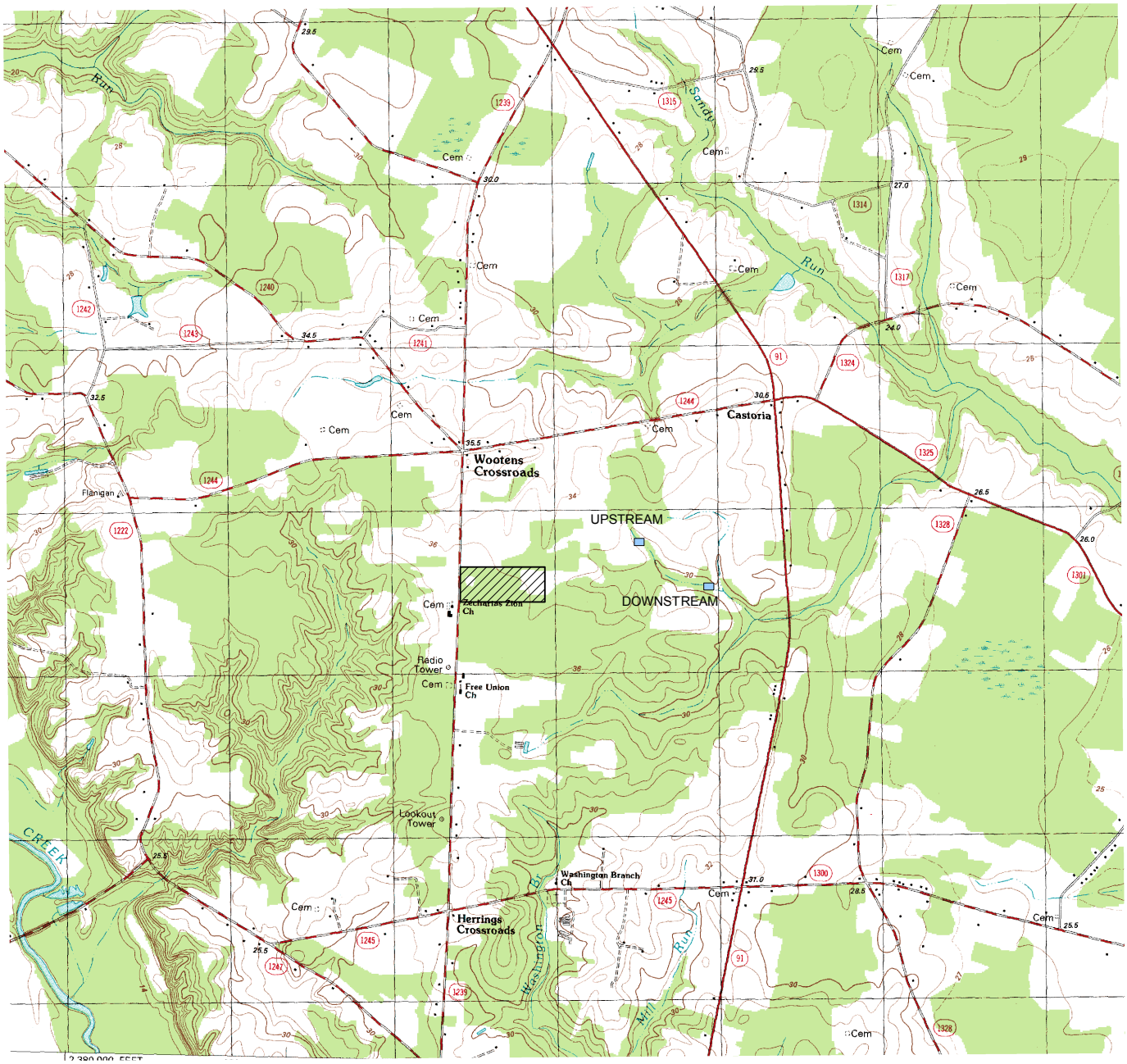


Enclosures
cc: Mr. David Jones
Greene County

Ms. Christine Ritter
NC Solid Waste Section

Figures

Topographic Map with Site Location
Greene County Active C&D over Closed MSWLF



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

QUADRANGLE LEGEND

ROAD CLASSIFICATION

Primary highway, hard surface

Secondary highway, hard surface

Light-duty road, hard or improved 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.

0 ——— 3,334'

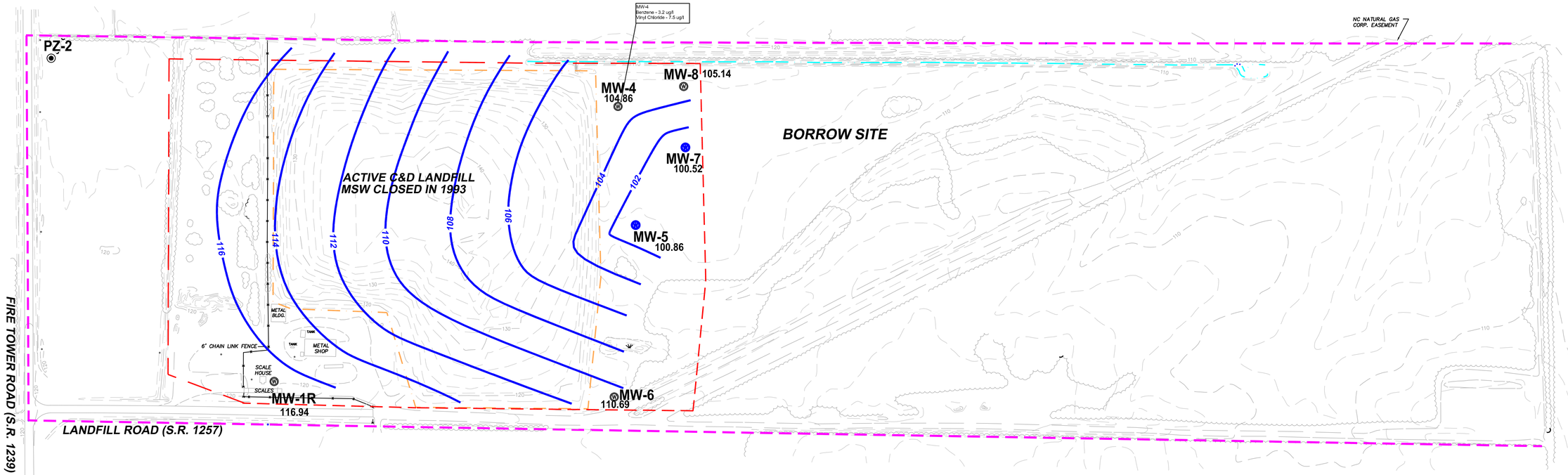
FIGURE 1

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
- 94.29 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.



GRAPHIC SCALE

120 0 60 120 240 480

(IN FEET)
1 inch = 120 ft.

Groundwater Levels & Detections Above 2L Standards
March 20, 2013

WELL #	TOP OF CASING ELEVATION	DEPTH TO WATER	GROUNDWATER POTENTIOMETRIC ELEVATION	BENZENE (ug/l)	VCM (ug/l)
15A NCAC 2L Groundwater Quality Standard				1.0	0.03
MW-1R	121.78	4.84	116.94		
MW-4	117.89	13.03	104.86	3.2	7.5
MW-5	115.76	14.9	100.86		
MW-6	117.41	6.72	110.69		
MW-7	110.48	9.96	100.52		
MW-8	111.36	6.22	105.14		

FIGURE 2

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

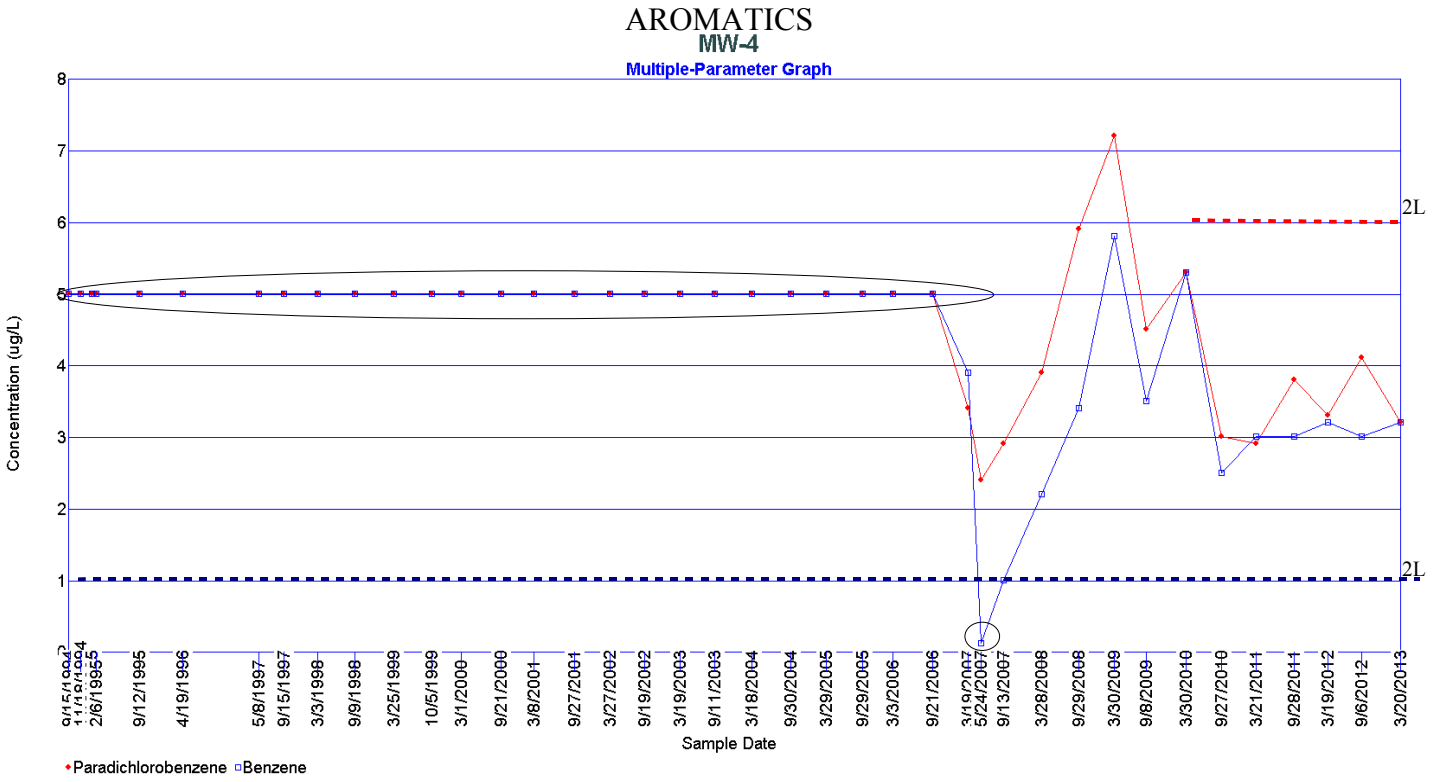
ACTIVE C&D OVER CLOSED UNLINED LANDFILL FACILITY
GREENE COUNTY
NORTH CAROLINA

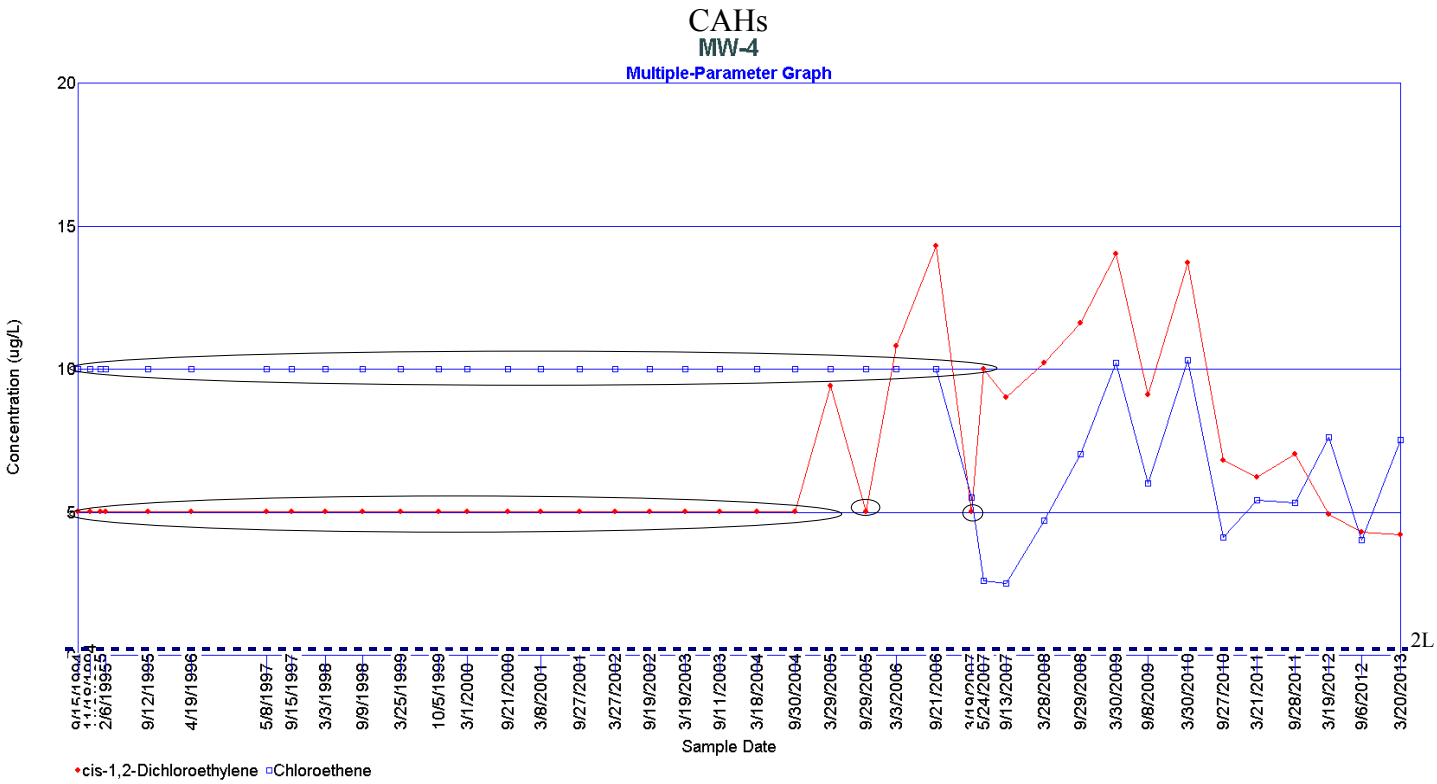
DESCRIPTION | REV. | BY | DATE

POTENTIOMETRIC MAP OF UPPERMOST AQUIFER WITH DETECTIONS ABOVE 2L STANDARDS

SCALE: 1" = 120'
DATE: 7/1/13
DRWN. BY: M. DURWAY
CHKD. BY: M. DURWAY
PROJECT NUMBER
G12010.0
DRAWING NO. FIGURE 2
SHEET NO. 1 OF 1

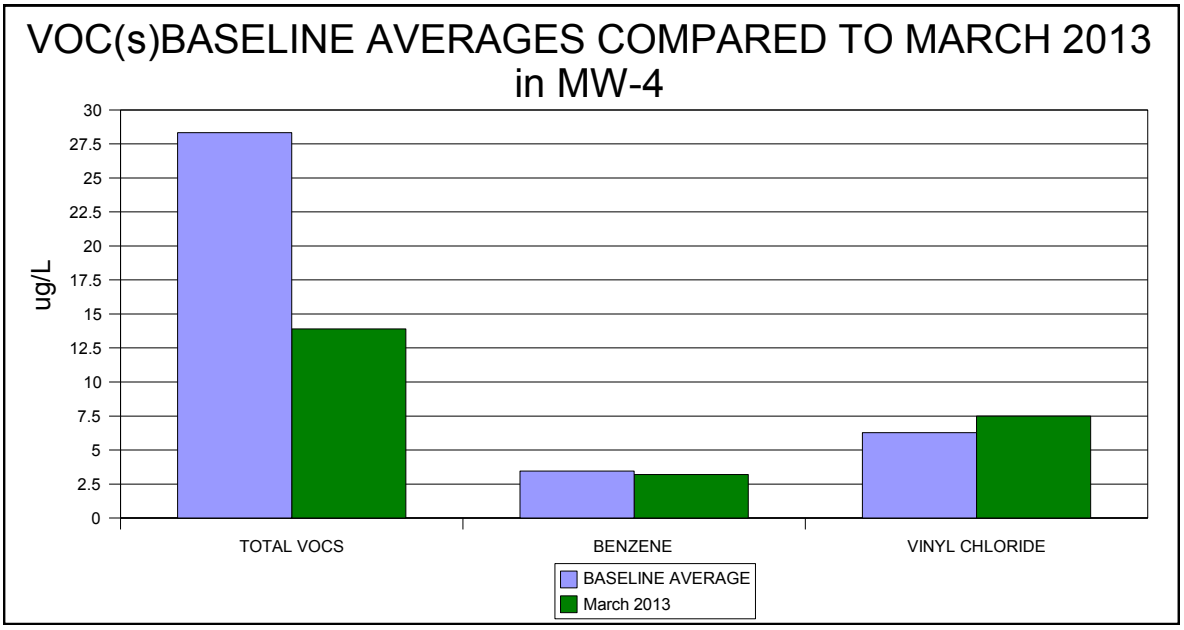
Figure 3
Time-Series Graphs of Select Constituents
March 20, 2013





= Non-Detect But Shown at Detection Limit

Figure 4
Histograms of VOC Concentrations in MW-4
(March 30,2010-September 28, 2011) Compared to March 20, 2013



BASELINE	TOTAL VOCS (ug/l)	BENZENE (ug/l)	VINYL CHLORIDE (ug/l)
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

CURRENT	TOTAL VOCS (ug/l)	BENZENE (ug/l)	VINYL CHLORIDE (ug/l)
MARCH 2013	18.10	3.20	7.50

COMPARISON	TOTAL VOCS (ug/l)	BENZENE (ug/l)	VINYL CHLORIDE (ug/l)
DIFFERENCE (ug/l)	-10.23	-0.25	1.23
DIFFERENCE (%)	-36	-7	19

Tables

Table 1
Sampling and Analysis Summary
March 20, 2013

		App. I			MNA																Field Parameter					App. II			
	Reason Not Sampled	VOCs	Metals, Total	Metals, Total Dissolved	VFA	Hydrogen	Methane/Ethene/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	Tin, Total	Tin, Dissolved	Mercury, Total	Mercury, Dissolved
		Lab EPA 8260B	Lab EPA200.8	Lab EPA200.8	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	Lab EPA200.8	Lab EPA200.8	Lab EPA200.8	Lab245.1 R 3
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
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
MW-5		x	x	x																x	x	x	x	x	x	x	x	x	x
MW-6		x	x	x																x	x	x	x	x	x	x	x	x	x
MW-7		x	x	x																x	x	x	x	x	x			x	x
MW-8		x	x	x																x	x	x	x	x	x	x	x		
Downstream		x	x	x																x	x	x	x	x	x				
Upstream		x	x	x																x	x	x	x	x	x				
EB		x	x													x	x	x								x		x	
TB		x																											
FB		x	x																							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)
March 20, 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-1R	Barium, Total	3/20/13	136	ug/l	0.07	100	2000				
MW-1R	Barium, Total Dissolved	3/20/13	69 j	ug/l	0.13	100	2000				
MW-4	1,4-Dichlorobenzene	3/20/13	3.2	ug/l	0.39	1	6				
MW-4	**Benzene**	**3/20/13**	**3.2**	**ug/l**	**0.24**	**1**	**1**			**2.2**	**L &/or LFG**
MW-4	**Vinyl Chloride**	**3/20/13**	**7.5**	**ug/l**	**0.63**	**1**	**0.03**			**7.47**	**L &/or LFG**
Upstream	Zinc, Total	3/20/13	11	ug/l	0.48	10		50			
Upstream	Zinc, Total Dissolved	3/20/13	7.5 j	ug/l		10		50			
Downstream	Zinc, Total	3/20/13	10	ug/l	0.48	10		50			
Downstream	Zinc, Total Dissolved	3/20/13	9.5 j	ug/l		10		50			

[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

L = Leachate

LFG = Landfill Gas

BOLD = Concentration > 2L, or 2B Standard

Table 3
Detections in Water Samples Above MDL (Appendix II Exclusive)
March 20, 2013

Sample ID	Parameter Name	Sample Date	Result	Unit	MDL [1]	SWSL [2]	2L [3]	GWP [4]	Exceedance
MW-1R	Tin, Total	3/20/13	0.32 j	ug/l	0.1	100	NE	2000	
MW-1R	Tin, Total Dissolved	3/20/13	ND<0.1	ug/l	0.1	100	NE	2000	
MW-4	Tin, Total	3/20/13	0.23 j	ug/l	0.1	100	NE	2000	
MW-4	Tin, Total Dissolved	3/20/13	ND<0.1	ug/l	0.1	100	NE	2000	
MW-4	Sulfide	3/20/13	159 j	ug/l	100	1000	NE	NE	
MW-5	Tin, Total Dissolved	3/20/13	0.21 j	ug/l	0.16	100	NE	2000	
MW-6	Tin, Total	3/20/13	0.11 j	ug/l	0.1	100	NE	2000	
MW-6	Tin, Total Dissolved	3/20/13	0.21 j	ug/l	0.16	100	NE	2000	
MW-8	Tin, Total	3/20/13	0.18 j	ug/l	0.1	100	NE	2000	
MW-8	Tin, Total Dissolved	3/20/13	1.9 j	ug/l	0.16	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] 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
March 20, 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	0.019	16	N36E	4.84	116.94
MW-4	1.10E-04	15	0.007	5	S59E	13.03	104.86
MW-5	1.40E-04	15	0.024	23	S62W	14.9	100.86
MW-6	1.90E-04	15	0.016	21	N19E	6.72	110.69
MW-7	1.98E-04	7	0.033	98	S19E	9.96	100.52
MW-8	1.14E-03	7	0.030	502	S16E	6.22	105.14
Minimum	1.10E-04	7	0.007	5	-	4.84	100.52
Average	3.16E-04	12	0.022	111	-	9.28	106.50
Maximum	1.14E-03	15	0.033	502	-	14.9	116.94

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 March 20, 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
March 20, 2013

Parameters	Method	mdl*	Units	MW-1R	MW-4
				03/20/13	03/20/13
VFA – Acetic Acid	AM23G	21	ug/l	34 j	<21
VFA – Butyric Acid	AM23G	7	ug/l	<7	<7
VFA – Hexanoic Acid	AM23G	39	ug/l	<39	<39
VFA – i-Hexanoic Acid	AM23G	13	ug/l	<13	<13
VFA – i-Pentanoic Acid	AM23G	12	ug/l	<12	<12
VFA – Lactic Acid	AM23G	32	ug/l	37 j	37 j
VFA – Pentaonic Acid	AM23G	10	ug/l	<10	<10
VFA – Propionic Acid	AM23G	4	ug/l	20 j	4.2 j
VFA – Pyruvic Acid	AM23G	4	ug/l	<4	<4
Hydrogen	AM20GAX	0.07	nM	0.36 j	0.37 j
Methane	AM20GAX	0.002	ug/l	40	8600
Ethene	AM20GAX	0.007	ug/l	<0.007	0.14
Ethane	AM20GAX	0.001	ug/l	<0.001	<0.001
CO2-Dissolved	SM4500CO2C	1000	ug/l	81000	608000
Alkalinity	SM2320B	1000	ug/l	1000	231000
Sulfate	SM426C	5000	ug/l	10000	19600
Sulfide	SM4500-S2D	100	ug/l	<100	159
Chloride	SM4500-CLB	5000	ug/l	95000	10000
TOC	SM5310C	300	ug/l	<300	9400
COD	HACH8000	20000	ug/l	35000	<20000
BOD	SM5210B	2000	ug/l	<2000	8100
Iron, Total	SM3111B	15.9	ug/l	827	83050
Iron, Ferrous	3500FEB-97	50	ug/l	<50	76598
Nitrate	EPA353.2	30	ug/l	4200	<30
Temperature	SM2550B	0.10	C	13	15
ORP	SM2580B	0.0	mV	254.8	164.2
DO	SM4500OG	100	mg/l	1.81	1.52
pH	SM4500HB	0.10	SU	4.4	5.7
Specific Conductance	SM2510B	1	Umhos/cm	404	451
Turbidity	SM2130B	0.0	NTU	17	12

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
FAX (252) 756-0633

ID#: 6005

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

DATE COLLECTED: 03/20/13
DATE REPORTED : 04/30/13

REVIEWED BY:

PARAMETERS	MDL	SWSL	Upstream	Downstream	Well #4	Well #5	Well #6	Analysis Date	Analyst	Method Code
PH (field measurement), Units			5.2	5.2	5.7	4.2	4.2	03/20/13	BF	4500HB-00
BOD, mg/l	2.0	2.0			8.1			03/20/13	TRB	5210B-01
COD, mg/l	20.0	20.0			--- U			03/25/13	TRB	H8000-79
Nitrate Nitrogen as N, mg/l	0.03	10.0			--- U			03/22/13	ANO	353.2 R2-93
Total Organic Carbon, mg/l	0.30	1.0			9.40			03/20/13	SEJ	5310C-00
Total Alkalinity (to pH 4.5), mg/l	1.0	1.0			231			03/20/13	TRB	2320B-97
Chloride, mg/l	5.0	5.0			10			03/21/13	HMB	4500CLB-97
Sulfate, mg/l	5.0	250.0			19.6 J			03/26/13	TRB	4500SO42E97
Antimony, ug/l	0.02	6.0	--- U	--- U	--- U	--- U	--- U	03/27/13	LFJ	EPA200.8
Arsenic, ug/l	0.13	10.0	1.1 J	0.78 J	2.7 J	0.23 J	0.30 J	03/27/13	LFJ	EPA200.8
Barium, ug/l	0.07	100.0	18.8 J	30.0 J	41.6 J	35.2 J	18.3 J	03/27/13	LFJ	EPA200.8
Beryllium, ug/l	0.07	1.0	--- U	--- U	--- U	0.15 J	0.10 J	03/27/13	LFJ	EPA200.8
Cadmium, ug/l	0.03	1.0	0.06 J	0.07 J	0.10 J	0.07 J	--- U	03/27/13	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	0.44 J	0.32 J	1.8 J	0.54 J	0.13 J	03/27/13	LFJ	EPA200.8
Copper, ug/l	0.06	10.0	1.4 J	2.1 J	0.76 J	0.50 J	0.89 J	03/27/13	LFJ	EPA200.8
Total Chromium, ug/l	0.18	10.0	1.1 J	0.91 J	0.21 J	--- U	0.34 J	03/27/13	LFJ	EPA200.8
Iron, ug/l	15.9	300.0			83050			04/04/13	ADD	3111B-99
Lead, ug/l	0.08	10.0	1.8 J	1.2 J	0.41 J	0.36 J	0.71 J	03/27/13	LFJ	EPA200.8
Mercury, ug/l	0.03	0.20			--- U	--- U	--- U	04/01/13	ADD	245.1 R3-94
Nickel, ug/l	0.06	50.0	1.0 J	1.2 J	2.2 J	0.86 J	0.45 J	03/27/13	LFJ	EPA200.8
Selenium, ug/l	0.17	10.0	0.43 J	0.42 J	0.48 J	0.35 J	--- U	03/27/13	LFJ	EPA200.8
Silver, ug/l	0.10	10.0	--- U	--- U	--- U	--- U	--- U	03/27/13	LFJ	EPA200.8
Thallium, ug/l	0.07	5.5	--- U	--- U	--- U	--- U	--- U	03/27/13	LFJ	EPA200.8
Tin, ug/l	0.10	100.0			0.23 J	--- U	0.11 J	03/27/13	LFJ	EPA200.8
Vanadium, ug/l	0.10	25.0	5.2 J	2.7 J	1.8 J	0.65 J	1.5 J	03/27/13	LFJ	EPA200.8
Zinc, ug/l	0.48	10.0	11		7.8 J			03/27/13	LFJ	EPA200.8
Zinc, ug/l	0.48	10.0		10		4.2 J	7 J	04/18/13	LFJ	EPA200.8
Turbidity, NTU	1.0	1.0	22	15	12	9	29	03/20/13	BF	2130B-01
Sulfide, ug/l	100	1000			159 J			03/26/13	LFJ	4500S2D-00
Conductivity (at 25c), uMhos/cm	1.0	1.0	79	127	451	71	48	03/20/13	BF	2510B-97
Dissolved Oxygen, mg/l	0.1	0.1	3.98	4.77	1.52	0.94	4.26	03/20/13	BF	4500OG-01
Temperature, °C			10	10	15	16	13	03/20/13	BF	2550B-00
Iron, Ferrous, ug/l	50.00	300.0			76598			03/20/13	SEJ	3500FEB-97
Static Water Level, feet					13.03	14.90	6.72	03/20/13	BF	
Well Depth, feet					26.16	28.34	26.87	03/20/13	BF	
Carbon Dioxide, mg/l	1.0	1.0			608			03/20/13	TRB	4500CO2C
ORP, mv			+261.7	+269.9	+164.2	+239.2	+282.0	03/20/13	BF	2580B

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: 03/20/13
DATE REPORTED : 04/30/13

REVIEWED BY:

PARAMETERS	MDL	SWSL	Well #7	Well #8	Well #1R	Piezometer #2	Equipment Blank	Analysis Date	Analyst	Method Code
PH (field measurement), Units			4.1	4.3	4.4			03/20/13	BF	4500HB-00
BOD, mg/l	2.0	2.0			--- U			03/20/13	TRB	5210B-01
COD, mg/l	20.0	20.0			35			03/25/13	TRB	H8000-79
Nitrate Nitrogen as N, mg/l	0.03	10.0			4.20 J			03/22/13	ANO	353.2 R2-93
Total Organic Carbon, mg/l	0.30	1.0			--- U			03/20/13	SEJ	5310C-00
Total Alkalinity (to pH 4.5), mg/l	1.0	1.0			1.0			03/20/13	TRB	2320B-97
Chloride, mg/l	5.0	5.0			95			03/21/13	HMB	4500CLB-97
Sulfate, mg/l	5.0	250.0			10.0 J			03/26/13	TRB	4500SO42E97
Antimony, ug/l	0.02	6.0	--- U	--- U	--- U		--- U	03/27/13	LFJ	EPA200.8
Arsenic, ug/l	0.13	10.0	--- U	0.16 J	0.34 J		--- U	03/27/13	LFJ	EPA200.8
Barium, ug/l	0.07	100.0	32.2 J	30.5 J	136		0.14 J	03/27/13	LFJ	EPA200.8
Beryllium, ug/l	0.07	1.0	0.08 J	--- U	0.12 J		--- U	03/27/13	LFJ	EPA200.8
Cadmium, ug/l	0.03	1.0	0.03 J	--- U	0.19 J		--- U	03/27/13	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0	0.46 J	0.29 J	0.38 J		--- U	03/27/13	LFJ	EPA200.8
Copper, ug/l	0.06	10.0	0.44 J	0.48 J	1.3 J		0.36 J	03/27/13	LFJ	EPA200.8
Total Chromium, ug/l	0.18	10.0	--- U	--- U	0.33 J		--- U	03/27/13	LFJ	EPA200.8
Iron, ug/l	15.9	300.0			827		--- U	04/04/13	ADD	3111B-99
Lead, ug/l	0.08	10.0	0.18 J	0.47 J	1.1 J		--- U	03/27/13	LFJ	EPA200.8
Mercury, ug/l	0.03	0.20	--- U	--- U	--- U		--- U	04/01/13	ADD	245.1 R3-94
Nickel, ug/l	0.06	50.0	1.1 J	0.48 J	1.2 J		0.21 J	03/27/13	LFJ	EPA200.8
Selenium, ug/l	0.17	10.0	--- U	0.22 J	0.46 J		--- U	03/27/13	LFJ	EPA200.8
Silver, ug/l	0.10	10.0	--- U	--- U	--- U		--- U	03/27/13	LFJ	EPA200.8
Thallium, ug/l	0.07	5.5	--- U	0.25 J	0.15 J		0.12 J	03/27/13	LFJ	EPA200.8
Tin, ug/l	0.10	100.0		0.18 J	0.32 J		--- U	03/27/13	LFJ	EPA200.8
Vanadium, ug/l	0.10	25.0	0.94 J	0.21 J	1.2 J		0.40 J	03/27/13	LFJ	EPA200.8
Zinc, ug/l	0.48	10.0	3.8 J	3.1 J			3.0 J	03/27/13	LFJ	EPA200.8
Zinc, ug/l	0.48	10.0			4.5 J			04/18/13	LFJ	EPA200.8
Turbidity, NTU	1.0	1.0	4	2	17			03/20/13	BF	2130B-01
Sulfide, ug/l	100	1000			--- U			03/26/13	LFJ	4500S2D-00
Conductivity (at 25c), uMhos/cm	1.0	1.0	45	32	404			03/20/13	BF	2510B-97
Dissolved Oxygen, mg/l	0.1	0.1	4.66	6.96	1.81			03/20/13	BF	4500OG-01
Temperature, °C			14	14	13			03/20/13	BF	2550B-00
Iron, Ferrous, ug/l	50.00	300.0			--- U		--- U	03/20/13	SEJ	3500FEB-97
Static Water Level, feet			9.96	6.22	4.84	9.78		03/20/13	BF	
Well Depth, feet			21.38	20.24	19.51			03/20/13	BF	
Carbon Dioxide, mg/l	1.0	1.0			81			03/20/13	TRB	4500CO2C
ORP, mv			+315.5	+336.5	+254.8			03/20/13	BF	2580B

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: 03/20/13
DATE REPORTED : 04/30/13

REVIEWED BY:

PARAMETERS	MDL	SWSL	Trip Blank	Field Blank	Analysis Date	Analyst	Method Code
Antimony, ug/l	0.02	6.0		--- U	03/22/13	LFJ	EPA200.8
Arsenic, ug/l	0.13	10.0		--- U	03/22/13	LFJ	EPA200.8
Barium, ug/l	0.07	100.0		0.3 J	03/22/13	LFJ	EPA200.8
Beryllium, ug/l	0.07	1.0		--- U	03/22/13	LFJ	EPA200.8
Cadmium, ug/l	0.03	1.0		--- U	03/22/13	LFJ	EPA200.8
Cobalt, ug/l	0.02	10.0		--- U	03/22/13	LFJ	EPA200.8
Copper, ug/l	0.06	10.0		0.41 J	03/22/13	LFJ	EPA200.8
Total Chromium, ug/l	0.18	10.0		--- U	03/22/13	LFJ	EPA200.8
Lead, ug/l	0.08	10.0		--- U	03/22/13	LFJ	EPA200.8
Mercury, ug/l	0.03	0.20		--- U	04/01/13	ADD	245.1 R3-94
Nickel, ug/l	0.06	50.0		0.14 J	03/22/13	LFJ	EPA200.8
Selenium, ug/l	0.17	10.0		--- U	03/22/13	LFJ	EPA200.7
Silver, ug/l	0.10	10.0		--- U	03/22/13	LFJ	EPA200.8
Thallium, ug/l	0.07	5.5		--- U	03/22/13	LFJ	EPA200.8
Tin, ug/l	0.10	100.0		--- U	04/08/13	LFJ	EPA200.8
Vanadium, ug/l	0.10	25.0		--- U	03/22/13	LFJ	EPA200.8
Zinc, ug/l	0.48	10.0		1.8 J	03/22/13	LFJ	EPA200.8

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: 03/20/13
DATE ANALYZED: 03/22/13
DATE REPORTED: 04/30/13

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	MDL	SWSL	Upstream	Downstream	Well #4	Well #5	Well #6
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	7.50	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	8.10 J	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U	--- 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	0.50 J	0.30 J	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	4.20 J	2.60 J	--- 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	3.20	0.60 J	--- U
21. 1,2-Dichloroethane	0.27	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	1.10 J	--- 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	3.20	--- 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: 03/20/13
DATE ANALYZED: 03/22/13
DATE REPORTED: 04/30/13

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	MDL	SWSL	Well #7	Well #8	Well #1R	Equipment Blank	Trip 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	--- U	--- 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	0.30 J	--- 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	0.27	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: 03/20/13
DATE ANALYZED: 03/22/13
DATE REPORTED: 04/30/13

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B R1(96)

PARAMETERS, ug/l	MDL	SWSL	Field Blank
1. Chloromethane	0.77	1.0	--- U
2. Vinyl Chloride	0.63	1.0	--- U
3. Bromomethane	0.67	10.0	--- U
4. Chloroethane	0.48	10.0	--- U
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
13. Vinyl Acetate	0.20	50.0	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U
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
21. 1,2-Dichloroethane	0.27	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
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
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
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, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

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

CHAIN OF CUSTODY RECORD

CLIENT: 6005 **Week: 13**

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

(252) 747-5720

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	BOD	COD	Nitrate	TOC	Alkalinity	Chloride	Sulfate	Metals	Turbidity	Sulfide	Conductivity	DO	Temperature	Field Parameter	EPA 8260B
CHLORINE NEUTRALIZED AT COLLECTION																					
pH CHECK (LAB)								12		12				12							12
CONTAINER TYPE, P/G						P	P	P	P	P	P	P	P	P	P	P	P	P	P		G
CHEMICAL PRESERVATION						A	A	C	A	C	A	A	A	A	A	F	A	A	A		E
Upstream	3-20-13	1305		10	4	G								G	G		G	G	G		G
Downstream	3-20-13	1320		10	4	G								G	G		G	G	G		G
Well #4	3-20-13	1111		15	13	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Well #5	3-20-13	1137		16	4	G								G	G		G	G	G	G	G
Well #6	3-20-13	1200		13	4	G								G	G		G	G	G	G	G
Well #7	3-20-13	1015		14	4	G								G	G		G	G	G	G	G
Well #8	3-20-13	0950		14	4	G								G	G		G	G	G	G	G
Well #1R	3-20-13	1248		13	14	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Piezometer #2	3-20-13	1255			1															G	
Equipment Blank	3-20-13	0940			3									G							G
Trip Blank	3-20-13				2																G

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE/NAOH
G - NA THIOSULFATE

CLASSIFICATION:
- ☐ WASTEWATER (NPDES)
- ☐ DRINKING WATER
- ☐ DWQ/GW
- ☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY (Y) N

SAMPLES COLLECTED BY: (Please Print)
Bobby / Tom

SAMPLES RECEIVED IN LAB AT 0.4 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bobby Fay	3-20-13 1420	[signature]	3/20/13 2:
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

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.

FORM #5

Nº 254712

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

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

CHAIN OF CUSTODY RECORD

CLIENT: 6005 **Week: 13**

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

(252) 747-5720

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field_pH	BOD	COD	Nitrate	TOC	Alkalinity	Chloride	Sulfate	Metals	Turbidity	Sulfide	Conductivity	DO	Temperature	Field Parameter	EPA 8260B
CHLORINE NEUTRALIZED AT COLLECTION																					
pH CHECK (LAB)								L2		L2				L2							L2
CONTAINER TYPE, P/G						P	P	P	P	P	P	P	P	P	P	P	P	P	P		G
CHEMICAL PRESERVATION						A	A	C	A	C	A	A	A	A	A	F	A	A	A		E
Field Blank	3-20-13	0940			3									G							G

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE/NAOH
G - NA THIOSULFATE

CLASSIFICATION:
- ☐ WASTEWATER (NPDES)
- ☐ DRINKING WATER
- ☐ DWQ/GW
- ☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
(Y) N

SAMPLES COLLECTED BY:
(Please Print)
Bobby / Tom

SAMPLES RECEIVED IN LAB AT 0°C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bobby Fap	3-20-13		
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
			3/20/13 1230
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

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.

FORM #5

№ 254711

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

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

CHAIN OF CUSTODY RECORD

CLIENT: 6005 **Week: 13**

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

(252) 747-5720

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ ______

					8260 Dup. 1	8260 Dup. 2	CO2	ORP	FFE	PARAMETERS
										CHLORINE NEUTRALIZED AT COLLECTION
					<2	<2				pH CHECK (LAB)
					G	G	P	P	P	CONTAINER TYPE, P/G
					E	E	A	A	E	CHEMICAL PRESERVATION
SAMPLE LOCATION	**COLLECTION DATE**	**COLLECTION TIME**	**TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION**	**TEMPERATURE, °C AT COLLECTION**	**# OF CONTAINERS**					
Upstream	3-20-13	1305		10	4	G			G	
Downstream	3-20-13	1320		10	4	G			G	
Well #4	3-20-13	1111		15	13	G		G	G	G
Well #5	3-20-13	1137		16	4	G			G	
Well #6	3-20-13	1200		13	4	G			G	
Well #7	3-20-13	1015		14	4	G			G	
Well #8	3-20-13	0950		14	4	G			G	
Well #1R	3-20-13	1248		13	14	G	G	G	G	G
Piezometer #2	3-20-13	1255			1					
Equipment Blank	3-20-13	0940			3	G				G
Trip Blank	3-20-13				2	G				

A - NONE
B - HNO_3
C - H_2SO_4
D - NAOH
E - HCL
F - ZINC ACETATE/NAOH
G - NA THIOSULFATE

CLASSIFICATION:
- ☐ WASTEWATER (NPDES)
- ☐ DRINKING WATER
- ☐ DWQ/GW
- ☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
(Y) N

SAMPLES COLLECTED BY: (Please Print) Bobby Fox

SAMPLES RECEIVED IN LAB AT 0.4 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bobby Fox	3-20-13 1430	[signature]	3/20/13 3:30
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

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

FORM #5

№ 254710

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

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

CHAIN OF CUSTODY RECORD

CLIENT: 6005 **Week:** 13

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

(252) 747-5720

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	8260 Dup. 1	8260 Dup. 2	CO2	ORP												
						12															
						G	G	P	P												
						E	E	A	A												
Field Blank	3-20-13	0940			3	C															

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE/NAOH
G - NA THIOSULFATE

CLASSIFICATION:
- ☐ WASTEWATER (NPDES)
- ☐ DRINKING WATER
- ☐ DWQ/GW
- ☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
(Y) N

SAMPLES COLLECTED BY:
(Please Print)
Bobby / Tom

SAMPLES RECEIVED IN LAB AT 0.4 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bobby Tom	3-20-13		
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
			3/20/13 230
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

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

FORM #5

№ 254709

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

SAMPLE SUMMARY

Workorder: 8393 GREENE COUNTY / 6005

Lab ID	Sample ID	Matrix	Date Collected	Date Received
83930001	WL1R	Water	3/20/2013 12:48	3/21/2013 10:00
83930002	WL1R	Bubble Strip	3/20/2013 12:48	3/21/2013 10:00
83930003	WEL4	Water	3/20/2013 11:11	3/21/2013 10:00
83930004	WEL4	Bubble Strip	3/20/2013 11:11	3/21/2013 10:00

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

ANALYTICAL RESULTS

Workorder: 8393 GREENE COUNTY / 6005

Lab ID: **83930001** Date Received: 3/21/2013 10:00 Matrix: Water
Sample ID: **WL1R** Date Collected: 3/20/2013 12:48

Parameters	Results	Units	PQL	MDL	DF	Prepared	By	Analyzed	By	Qual
EDonors - MICR										
Analysis Desc: AM23G			Analytical Method: AM23G							
Lactic Acid	**0.037J**	mg/l	0.10	0.032	1			3/26/2013 05:01	KB	
Acetic Acid	**0.034J**	mg/l	0.070	0.021	1			3/26/2013 05:01	KB	
Propionic Acid	**0.020J**	mg/l	0.050	0.0040	1			3/26/2013 05:01	KB	
Butyric Acid	**0.0070U**	mg/l	0.050	0.0070	1			3/26/2013 05:01	KB	
Pyruvic Acid	**0.0040U**	mg/l	0.15	0.0040	1			3/26/2013 05:01	KB	
i-Pentanoic Acid	**0.012U**	mg/l	0.15	0.012	1			3/26/2013 05:01	KB	
Pentanoic Acid	**0.010U**	mg/l	0.070	0.010	1			3/26/2013 05:01	KB	
i-Hexanoic Acid	**0.013U**	mg/l	0.050	0.013	1			3/26/2013 05:01	KB	
Hexanoic Acid	**0.039U**	mg/l	0.10	0.039	1			3/26/2013 05:01	KB	

CERTIFICATE OF ANALYSIS

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

ANALYTICAL RESULTS

Workorder: 8393 GREENE COUNTY / 6005

Lab ID: 83930002 Date Received: 3/21/2013 10:00 Matrix: Bubble Strip
Sample ID: WL1R Date Collected: 3/20/2013 12:48

Parameters	Results	Units	PQL	MDL	DF	Prepared	By	Analyzed	By	Qual
RISK - MICR										
Analysis Desc: AM20GAX			Analytical Method: AM20GAX							
Methane	40	ug/l	0.060	0.0080	4			4/8/2013 09:24	GT	
Ethane	0.0010U	ug/l	0.010	0.0010	1			4/2/2013 09:36	GT	
Ethene	0.0070U	ug/l	0.010	0.0070	1			4/2/2013 09:36	GT	
Hydrogen	0.36J	nM	0.60	0.074	1			4/2/2013 09:36	GT	

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

ANALYTICAL RESULTS

Workorder: 8393 GREENE COUNTY / 6005

Lab ID: 83930003 Date Received: 3/21/2013 10:00 Matrix: Water
Sample ID: WEL4 Date Collected: 3/20/2013 11:11

Parameters	Results	Units	PQL	MDL	DF	Prepared	By	Analyzed	By	Qual
EDonors - MICR										
Analysis Desc: AM23G			Analytical Method: AM23G							
Lactic Acid	**0.037J**	mg/l	0.10	0.032	1			3/26/2013 05:43	KB	
Acetic Acid	**0.021U**	mg/l	0.070	0.021	1			3/26/2013 05:43	KB	
Propionic Acid	**0.0042J**	mg/l	0.050	0.0040	1			3/26/2013 05:43	KB	
Butyric Acid	**0.0070U**	mg/l	0.050	0.0070	1			3/26/2013 05:43	KB	
Pyruvic Acid	**0.0040U**	mg/l	0.15	0.0040	1			3/26/2013 05:43	KB	
i-Pentanoic Acid	**0.012U**	mg/l	0.15	0.012	1			3/26/2013 05:43	KB	
Pentanoic Acid	**0.010U**	mg/l	0.070	0.010	1			3/26/2013 05:43	KB	
i-Hexanoic Acid	**0.013U**	mg/l	0.050	0.013	1			3/26/2013 05:43	KB	
Hexanoic Acid	**0.039U**	mg/l	0.10	0.039	1			3/26/2013 05:43	KB	

CERTIFICATE OF ANALYSIS

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

ANALYTICAL RESULTS

Workorder: 8393 GREENE COUNTY / 6005

Lab ID: 83930004 Date Received: 3/21/2013 10:00 Matrix: Bubble Strip
Sample ID: WEL4 Date Collected: 3/20/2013 11:11

Parameters	Results	Units	PQL	MDL	DF	Prepared	By	Analyzed	By	Qual
RISK - MICR										
Analysis Desc: AM20GAX			Analytical Method: AM20GAX							
Methane	8600	ug/l	0.015	0.0020	1			4/2/2013 09:48	GT	
Ethane	0.0010U	ug/l	0.010	0.0010	1			4/2/2013 09:48	GT	
Ethene	0.14	ug/l	0.010	0.0070	1			4/2/2013 09:48	GT	
Hydrogen	0.37J	nM	0.60	0.074	1			4/2/2013 09:48	GT	

CERTIFICATE OF ANALYSIS

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

ANALYTICAL RESULTS QUALIFIERS

Workorder: 8393 GREENE COUNTY / 6005

DEFINITIONS/QUALIFIERS

MDL	Method Detection Limit. Can be used synonymously with LOD; Limit Of Detection.
PQL	Practical Quanitation 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).

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.

Microseeps Lab. Proj. # 8393

CHAIN - OF - CUSTODY RECORD

Microseeps COC cont. #

Phone: (412) 826-5245 | Microseeps, Inc. - 220 William Pitt Way - Pittsburgh, PA 15238 | Fax No. : (412) 826-3433

Company : ENVIRONMENT 1 INC.

Co. Address : 114 OAKMONT DR, GREENVILLE NC 27858

Phone # : 252-756-6208 Fax # : 252-756-0633

Proj. Manager : STEVE JONES

Proj. Name/Number : GREENE COUNTY / 6005

Sampler's signature : Bobby Fox

Cooler Temp. 2°C

Results to : SAME

Invoice to : SAME

Sample ID	Sample Description	Sample Type (Water / Vapor / Solid)	Date	Time	# bottles	Parameters Requested: HYDROGEN	METHANE/ETHANE/ETHENE	LLV PA	Remarks
WL1R	WL1R	✓ ✓	3/20/13	12:48 P	5	✓	✓	✓	
WE4	WE4	✓ ✓	3/20/13	11:11 A	5	✓	✓	✓	
									FACILITY ID# 4002

Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Bobby Fox	ENVIRONMENT 1	3-20-13	2:30 P		ENVIRONMENT 1	3/21/13	2:30P
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
	ENVIRONMENT 1	3/21/13	3:30P		MS	3/21/13	1000
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

WHITE COPY : Accompany Samples YELLOW COPY : Laboratory File PINK COPY : Submitter

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: 03/20/13
DATE REPORTED : 05/06/13

REVIEWED BY:

PARAMETERS	MDL	SWSL	Upstream	Downstream	Well #4	Well #5	Well #6	Analysis Date	Analyst	Method Code
Antimony, Total Dissolved, ug/l	0.02	6.0	--- U	--- U				03/27/13	LFJ	EPA200.8
Antimony, Total Dissolved, ug/l	0.02	6.0			--- U	0.11 J	--- U	04/05/13	LFJ	EPA200.8
Arsenic, Total Dissolved, ug/l	0.13	10.0	0.61 J	0.66 J				03/27/13	LFJ	EPA200.8
Arsenic, Total Dissolved, ug/l	0.13	10.0			1.8 J	0.43 J	0.34 J	04/05/13	LFJ	EPA200.8
Barium, Total Dissolved, ug/l	0.07	100.0	14.3 J	26.1 J				03/27/13	LFJ	EPA200.8
Barium, Total Dissolved, ug/l	0.07	100.0			39.7 J	33.2 J	12.6 J	04/05/13	LFJ	EPA200.8
Beryllium, Total Dissolved, ug/l	0.07	1.0	--- U	--- U				03/27/13	LFJ	EPA200.8
Beryllium, Total Dissolved, ug/l	0.07	1.0			--- U	0.11 J	--- U	04/05/13	LFJ	EPA200.8
Cadmium, Total Dissolved, ug/l	0.03	1.0	0.04 J	0.06 J				03/27/13	LFJ	EPA200.8
Cadmium, Total Dissolved, ug/l	0.03	1.0			--- U	0.07 J	0.05 J	04/05/13	LFJ	EPA200.8
Cobalt, Total Dissolved, ug/l	0.02	10.0	0.20 J	0.28 J				03/27/13	LFJ	EPA200.8
Cobalt, Total Dissolved, ug/l	0.02	10.0			1.7 J	0.49 J	0.04 J	04/05/13	LFJ	EPA200.8
Copper, Total Dissolved, ug/l	0.06	10.0	0.78 J	2.0 J				03/27/13	LFJ	EPA200.8
Copper, Total Dissolved, ug/l	0.06	10.0			0.24 J	0.48 J	0.56 J	04/05/13	LFJ	EPA200.8
Chromium, Total Dissolved, ug/l	0.18	10.0	0.38 J	0.63 J				03/27/13	LFJ	EPA200.8
Chromium, Total Dissolved, ug/l	0.18	10.0			--- U	--- U	--- U	04/05/13	LFJ	EPA200.8
Iron, Total Dissolved, ug/l	0.90	300.0			85850			04/04/13	ADD	3111B-99
Lead, Total Dissolved, ug/l	0.08	10.0	0.22 J	0.84 J				03/27/13	LFJ	EPA200.8
Lead, Total Dissolved, ug/l	0.08	10.0			--- U	0.17 J	0.52 J	04/05/13	LFJ	EPA200.8
Mercury, Total Dissolved, ug/l	0.02	0.20			--- U	--- U		04/05/13	LFJ	245.1 R3
Mercury, Total Dissolved, ug/l	0.02	0.20					--- U	05/02/13	ADD	245.1 R3
Nickel, Total Dissolved, ug/l	0.06	50.0	0.86 J	1.0 J				03/27/13	LFJ	EPA200.8
Nickel, Total Dissolved, ug/l	0.06	50.0			2.2 J	1.0 J	0.30 J	04/05/13	LFJ	EPA200.8
Selenium, Total Disssolved, ug/l	0.17	10.0	0.38 J	0.22 J				03/27/13	LFJ	EPA200.8
Selenium, Total Disssolved, ug/l	0.17	10.0			--- U	0.354 J	--- U	04/05/13	LFJ	EPA200.8
Silver, Total Dissolved, ug/l	0.10	10.0	--- U	--- U				03/27/13	LFJ	EPA200.8
Silver, Total Dissolved, ug/l	0.10	10.0			--- U	--- U	--- U	04/08/13	LFJ	EPA200.8
Thallium, Total Dissolved, ug/l	0.07	5.5	--- U	--- U				03/27/13	LFJ	EPA200.8
Thallium, Total Dissolved, ug/l	0.07	5.5			0.11 J	--- U	--- U	05/04/13	LFJ	EPA200.8
Tin, Total Dissolved, ug/l	0.16	100.0			--- U	0.21 J	0.21 J	04/05/13	LFJ	EPA200.8
Vanadium, Total Dissolved, ug/l	0.10	25.0	1.1 J	1.8 J				03/27/13	LFJ	EPA200.8
Vanadium, Total Dissolved, ug/l	0.10	25.0			0.71 J	0.51 J	0.80 J	04/05/13	LFJ	EPA200.8
Zinc, Total Dissolved, ug/l			7.5					03/27/13	LFJ	EPA200.8
Zinc, Total Dissolved, ug/l				9.5				04/18/13	LFJ	EPA200.8
Zinc, Total Dissolved, ug/l					5.1	4.2		04/05/13	LFJ	EPA200.8
Zinc, Total Dissolved, ug/l							2.6	04/27/13	LFJ	EPA200.8

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 A

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

DATE COLLECTED: 03/20/13
DATE REPORTED : 05/06/13

REVIEWED BY:

PARAMETERS	MDL	SWSL	Well #7	Well #8	Well #1R	Analysis Date	Analyst	Method Code
Antimony, Total Dissolved, ug/l	0.02	6.0	--- U	--- U	--- U	04/05/13	LFJ	EPA200.8
Arsenic, Total Dissolved, ug/l	0.13	10.0	0.31 J	0.33 J	0.49 J	04/05/13	LFJ	EPA200.8
Barium, Total Dissolved, ug/l	0.07	100.0	31.5 J	25.5 J	69 J	04/05/13	LFJ	EPA200.8
Beryllium, Total Dissolved, ug/l	0.07	1.0	--- U	--- U	0.101 J	04/05/13	LFJ	EPA200.8
Cadmium, Total Dissolved, ug/l	0.03	1.0	--- U	--- U	0.19 J	04/05/13	LFJ	EPA200.8
Cobalt, Total Dissolved, ug/l	0.02	10.0	0.42 J	0.22 J	0.38 J	04/05/13	LFJ	EPA200.8
Copper, Total Dissolved, ug/l	0.06	10.0	0.53 J	0.59 J	1.8 J	04/05/13	LFJ	EPA200.8
Chromium, Total Dissolved, ug/l	0.18	10.0	--- U	--- U	--- U	04/05/13	LFJ	EPA200.8
Iron, Total Dissolved, ug/l	0.90	300.0			208 J	04/04/13	ADD	3111B-99
Lead, Total Dissolved, ug/l	0.08	10.0	--- U	0.312 J	0.77 J	04/05/13	LFJ	EPA200.8
Mercury, Total Dissolved, ug/l	0.02	0.20	--- U	--- U	--- U	04/05/13	LFJ	245.1 R3
Nickel, Total Dissolved, ug/l	0.06	50.0	0.65 J	0.28 J	1.5 J	04/05/13	LFJ	EPA200.8
Selenium, Total Disssolved, ug/l	0.17	10.0	--- U	--- U	0.67 J	04/05/13	LFJ	EPA200.8
Silver, Total Dissolved, ug/l	0.10	10.0	--- U	--- U	--- U	04/08/13	LFJ	EPA200.8
Thallium, Total Dissolved, ug/l	0.07	5.5	--- U	--- U	0.31 J	05/04/13	LFJ	EPA200.8
Tin, Total Dissolved, ug/l	0.16	100.0		1.9 J	--- U	04/05/13	LFJ	EPA200.8
Vanadium, Total Dissolved, ug/l	0.10	25.0	0.87 J	0.78 J	0.58 J	04/05/13	LFJ	EPA200.8
Zinc, Total Dissolved, ug/l			5.2	4.1		04/05/13	LFJ	EPA200.8
Zinc, Total Dissolved, ug/l					4.5	04/27/13	LFJ	EPA200.8

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

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

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

CHAIN OF CUSTODY RECORD

CLIENT: 6005 A **Week:** 13

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

(252) 747-5720

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

L2
P
A

CHLORINE NEUTRALIZED AT COLLECTION
pH CHECK (LAB)
CONTAINER TYPE, P/G
CHEMICAL PRESERVATION

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE/NAOH
G - NA THIOSULFATE

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l OR ug/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Metals (Dis.)
Upstream	3-20-13	1305		10	1	G
Downstream	3-20-13	1320		10	1	G
Well #4	3-20-13	1111		15	1	G
Well #5	3-20-13	1137		16	1	G
Well #6	3-20-13	1200		13	1	G
Well #7	3-20-13	1015		14	1	G
Well #8	3-20-13	0950		14	1	G
Well #1R	3-20-13	1248		13	1	G

CLASSIFICATION:
- ☐ WASTEWATER (NPDES)
- ☐ DRINKING WATER
- ☐ DWQ/GW
- ☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY
(Y) N

SAMPLES COLLECTED BY: (Please Print)
Bobby/Tom

SAMPLES RECEIVED IN LAB AT 0°C °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bobby Fore	3-20-13		
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

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.

FORM #5

№ 254708

Appendix B
Field Sampling Parameter Data Sheet(s)