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 over Closed MSWLF	105 Landfill Road Walstonburg, NC 27888	40-02	.1600	September 27, 2010

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.

Madeline German, LG Geologist (919) 772-5393

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

Madeline German Digitally signed by Madeline German DN: cn=Madeline German, o=MESCO, ou, email=mgerman@mesco.com, c=US Date: 2011.01.12 13:17:15 -05'00' 2/4/2011 Affix NC Licensed/ Professional Geologist Seal

Signature Date

NORTH CAROLINA LICENSED SEAL 2275 GEOLOGIST MADELINE GERMAN 2/4/2011

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

Semi-Annual Water Quality and Statistical Analysis Report

Prepared for

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

September 2010

Permit Number: 40-02
MESCO Project Number: G10010.0

Submittal: February 4, 2011

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

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OPERATION/CONSTRUCTION MANAGERS
Municipal Services
CIVIL/SANITARY ENGINEERS
Engineering Company, P.A.

February 4, 2011

Ms. Jaclynne Drummond
Solid Waste Section
Division of Waste Management
North Carolina Department of Environment and Natural Resources
401 Oberlin Road, Suite 150
Raleigh, NC 27605

Re: Semi-Annual Water Quality and Statistical Analysis Report
Greene County Closed Active C&D over Closed unlined MSWLF
MESCO Project No. G10010.0

Dear Ms. Drummond:

The Greene County Closed Unlined MSWLF and active Construction and Demolition (C&D) Landfill located near Walstonburg, NC currently operating under permit #40-02 is required to submit semi-annual water quality and statistical analysis reports as prescribed by the NC Solid Waste Section (SWS) rules/regulations as promulgated in 15A NCAC 13B. A topographic map illustrating the site location is included as **Plate 1**.

This sampling event was performed by Environment 1 (E1) personnel of Greenville, NC on September 27, 2010 in accordance with the established semi-annual monitoring schedule. The comprehensive water quality monitoring program includes sampling locations and parameters outlined in the approved Sampling and Analysis Plan (SAP) contained in the *Corrective Action Plan* (CAP) revised February 2, 2010.

As specified in 15A NCAC 13B.1632(j) and the SWS Environmental Monitoring Report Form this report contains sampling procedures, field and laboratory results, statistical analysis, groundwater and surface water characterization, and findings. Also included: a "Detections Compared to Standards" table, field data results table, groundwater flow directions/rates table, monitoring network field observations table, a single-day potentiometric map, statistical analysis, quality assurance/quality control data, and laboratory analytical data results.

Sampling Procedure

E1 reported water sample collection from five downgradient groundwater monitoring wells (MW-4, MW-5, MW-6, MW-7, MW-8), one background well (MW-1R), and downstream surface water sampling point (Downstream). Surface water point (Upstream) was reported as dry. Water quality monitoring locations are depicted on the single-day potentiometric map (**Plate 2**). Surface water sampling locations are provided on a separate surface water map included as **Plate 3**.

Sampling was reported to be conducted using methodology outlined in the NCDENR *Solid Waste Section Guidelines for Groundwater, Soil, and Surface Water Sampling* revised April 2008. The depth to water in each well was gaged prior to purging to quantify the static water level and utilized for construction of the single-day potentiometric map. During purging, field parameters dissolved oxygen, oxidation reduction potential and turbidity measurements were recorded in addition to required parameters (pH, specific conductance and temperature). E1 field personnel reportedly collected samples in laboratory prepared pre-preserved containers and transported them to E1's laboratory in Greenville, NC under proper chain of custody (C-O-C) within the specified hold times for each analysis.

PO Box 97, Garner, North Carolina 27529 (919) 772-5393
PO Box 828, Morehead City, NC 28557 (252) 726-9481 PO Box 349, Boone, North Carolina 28607 (828) 262-1767

Field and Laboratory Results

Groundwater samples were analyzed for the Appendix II list of constituents and the surface water sample was analyzed for the Appendix I list of parameters as found in 40 CFR 258. Additionally, MW-4 and background well MW-1R were analyzed for the required suite of monitored natural attenuation (MNA) parameters in accordance with corrective action. Quality control measures implemented during this event which included submittal and subsequent quantification of blanks for the Appendix II parameter list. E1 and their subcontracted laboratory Microseeps performed the laboratory analysis. A brief MNA update is presented in **Appendix B**. Laboratory results and C-O-Cs are presented in **Appendix C**.

Water samples were analyzed down to the laboratory-established Method Detection Limits (MDL). **Table 1** summarizes Appendix I constituents detected in samples with concentrations above the current Solid Waste Section detection limits (SWSL), Groundwater Protection Standards (GWP), North Carolina Groundwater Standards (2L) or the North Carolina Surface Water Standards (2B) for the applicable Class C water bodies. **Table 2** summarizes the Appendix II exclusive detections (defined in this report as those parameters not also listed on the Appendix I list) detected above the MDL.

Field Parameter Data

The field parameter data indicates the monitored groundwater is slightly acidic with relatively low specific conductance. In general, the field parameters were consistent relative to each other and congruent with historically reported data except for turbidity. Site-wide average sample turbidity levels were reported to have increased from 20 NTU to 346 NTU (1,630%), compared with the March 2010 event.

Quality Control Samples

The quality control samples contained a few metals in non-quantifiable concentrations. Although these blank-qualified detections were identified, it appears that the validity of the latest data set was not compromised by false positives or high bias attributed to the low level laboratory artifact contamination.

Groundwater Samples

Inorganic constituents (total metals) detected in concentrations above their respective 2L Standard during this event were MW-4 (Cd, Pb, Cr), MW-6 (Pb), MW-7 (Cr), and MW-8 (Pb, Cr).

Benzene and vinyl chloride in MW-4 were the only VOCs detected in concentrations above their respective 2L Standards.

Three Appendix II exclusive constituents were detected in low, non-quantifiable ("j" qualified) concentrations.

Surface Water Samples

The surface water point (Downstream) lacked detections with concentrations above the 2B Standard.

Statistical Analysis

Statistical analysis was performed on constituents detected in quantifiable concentrations (above SWSL) from the monitoring wells. The statistical comparison between baseline and current groundwater analytical data is consistent with US EPA guidance documents and meets or exceeds the performance criteria specified in 15A NCAC 13B.1362. The complete set of statistical analysis calculations is not included in this document, but can be submitted upon request. The overview of the statistical analysis methodologies, summary tables with graphs, and supporting worksheets are presented in **Appendix A**.

Data distributions were reviewed in order to evaluate variability in concentrations with respect to time and season. Time series plots were visually evaluated for seasonality and "outliers" (defined in this report as data that appears to be incongruent with respect to historical results). The number and concentrations of metals increased considerably compared to previous events. There were eight instances where metal concentrations were detected outside their respective historically identified range. The elevated concentrations of five different metals in four wells were likely statistical outliers per various test of Outliers at a 95% confidence level. Detections found to be outliers were omitted from further statistical analysis.

The interwell analysis results indicate that concentrations of beryllium and lead in MW-4 and MW-6 as well as vanadium in MW-4 have exhibited a statistically significant increase (SSI) in concentration over background levels established by the background well MW-1R. However, further intra-well analysis indicates that lead in MW-4 and

MW-6 have not increased in concentrations compared to their own established historical levels.

Due to the lack of historical VOC detections in the background wells, the detection of any quantifiable VOC in a downgradient well is considered a statistically significant detection per Poisson Prediction Interval analysis. MW-4 was the only well found to contain VOCs in quantifiable concentrations. VOCs detected during this event have previously been found at their respective locations and concentrations were within their respective historically identified range. A qualitative evaluation of VOC concentrations over time indicate that none of the VOCs have exhibited an increasing trend over time.

Goundwater and Surface Water Characterization

MESCO prepared a single-day potentiometric map from ground water elevation data reported by E1 for this event. Groundwater flow direction and rates were calculated based upon this data and are included in the attached **Table 3**. Estimated flow direction was easterly with flow rates ranging from approximately 6 ft./yr. (MW-4) to 715 ft./yr. (MW-8) for an average of approximately 132 ft./yr.

Findings

Nine total undissolved metal 2L exceedances, were detected by water quality analysis for this event, however, no constituents exhibited a SSI for both interwell and intrawell analysis. The increase of total metal detections during this event is attributed to natural deposit erosion, exasperated by the significant increase in turbidity levels. MESCO requested E1, the sampling contractor, review their sampling protocol to ensure future analysis is more representative.

The laboratory results and subsequent statistical analysis suggest the surficial aquifer in close proximity to MW-4 continues to be impacted by low level dissolved phase VOCs (benzene and vinyl chloride) in concentrations above the 2L Standard. Detected VOCs have not increased in concentration over time and the plume remains isolated to within 170 feet from the waste boundary in the eastern direction. Additionally, MW-7 and MW-8 remain un-impacted. The closed MSWLF has a cohesive cap to reduce peculation/leachate generation, utilizes in place institutional controls, and has no known potential receptors within 2,000 feet of the property boundary.

Closing

Water quality monitoring including MNA analysis will continue with the next sampling event, tentatively scheduled for March 2011. Please contact us by phone at (919) 772-5393, or by email at jpfohl@mesco.com or mgerman@mesco.com with questions or comments.

Sincerely,

MUNICIPAL ENGINEERING SERVICES CO., P.A.

Jonathan Pfohl
Environmental Specialist

NORTH CAROLINA LICENSED GEOLOGIST MADELINE GERMAN 2/4/2011

Madeline German, PG
Licensed Geologist

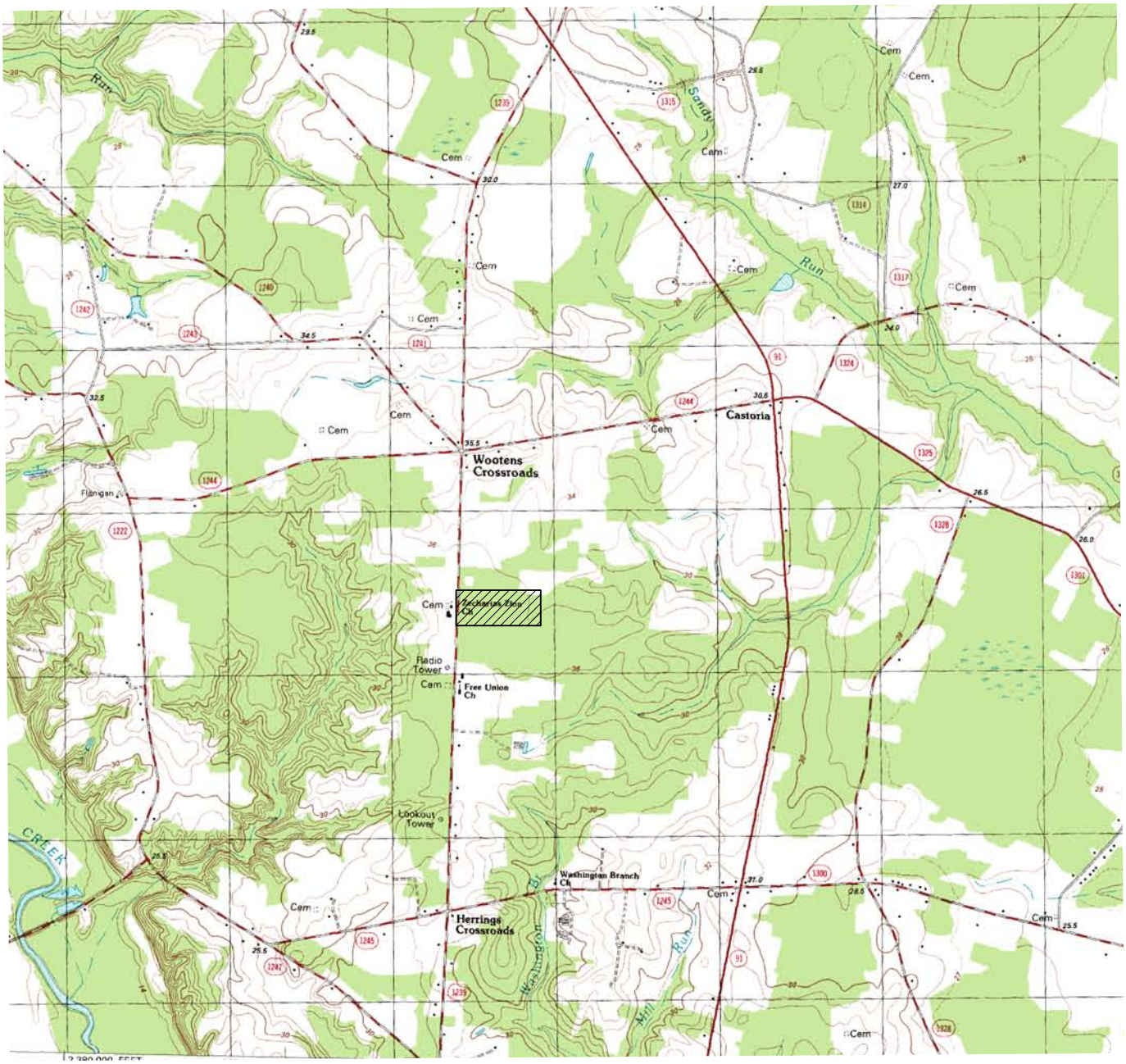
Enclosures
cc: Mr. David Jones
Greene County

Plates

Topographic Map with Site Location

Semi-Annual Groundwater Sampling Report

PLATE 1 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.

LEGEND

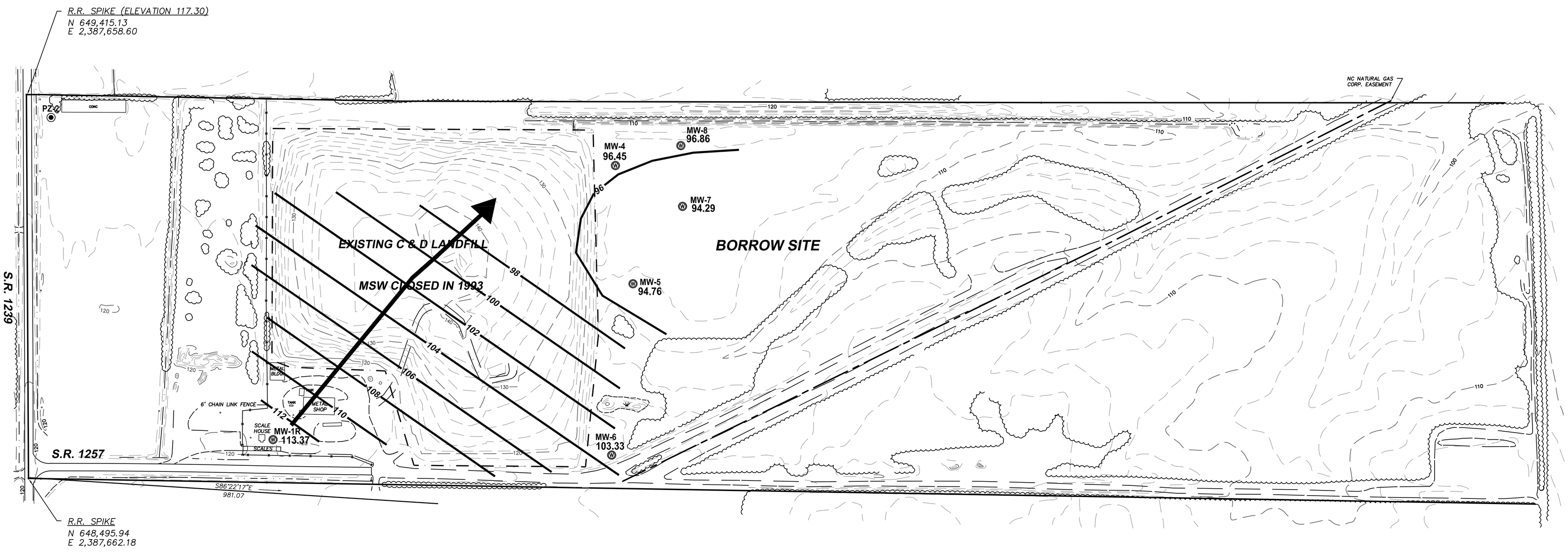
- EXISTING DIVERSION DITCH
- 120 EXISTING CONTOURS
- BOUNDARY
- MW-1R MONITORING WELL
- PZ-2 PIEZOMETER
- 94.29 GROUNDWATER ELEVATIONS
- 112 GROUNDWATER CONTOUR (September 27, 2010)
- GENERAL GROUNDWATER FLOW DIRECTION

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.

Greene County Closed MSWLF 9/27/10

WELL #	TOP OF PIPE ELEVATION (FT)	DEPTH TO WATER (FT)	WATER ELEVATION (FT)
MW-1R	121.78	8.41	113.37
MW-4	117.89	21.44	96.45
MW-5	115.76	21.00	94.76
MW-6	117.41	14.08	103.33
MW-7	110.48	16.19	94.29
MW-8	111.36	14.50	96.86



GRAPHIC SCALE

120 0 60 120 240 480

(IN FEET)
1 inch = 120 ft.

Municipal Engineering Services Company, P.A.
LICENSE NUMBER: C-0281
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P.O. BOX 828 MOREHEAD CITY, N.C. 28557 (252) 726-9481

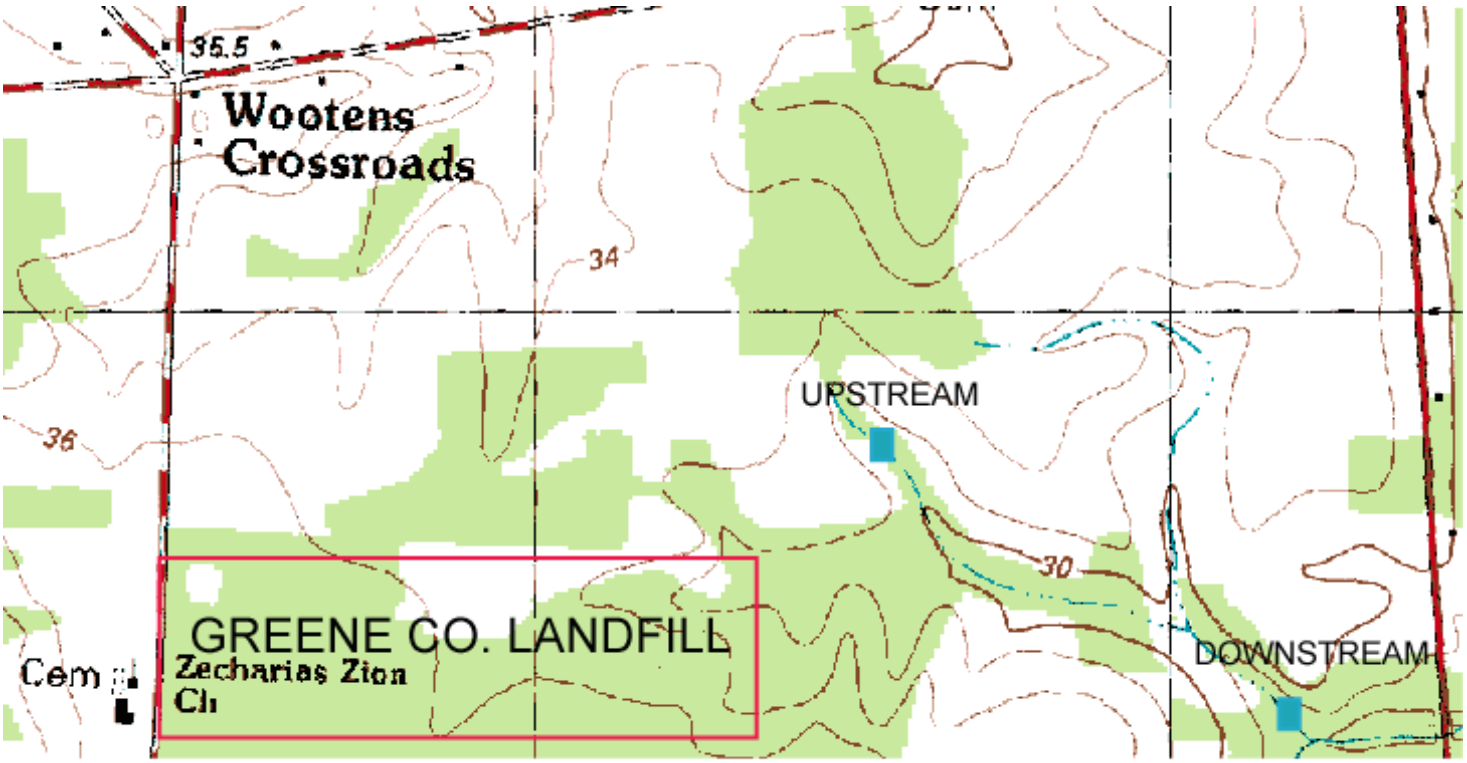
ACTIVE C&D OVER CLOSED MSW LANDFILL FACILITY
GREENE COUNTY NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

SINGLE DAY POTENTIOMETRIC MAP (UPPERMOST AQUIFER) 9/27/2010

SCALE:	1" = 120'
DATE:	12/7/10
DRWN. BY:	M. GERMAN
CHKD. BY:	J. PFOHL
PROJECT NUMBER	G10010.0
DRAWING NO.	Plate 2
SHEET NO.	1 OF 1

Surface Water Monitoring Locations
Unnamed tributary of Sandy Run (Class "C" water)
Greene County Active C&D over Closed MSWLF



SCALE 1:1200 FT

PLATE 3

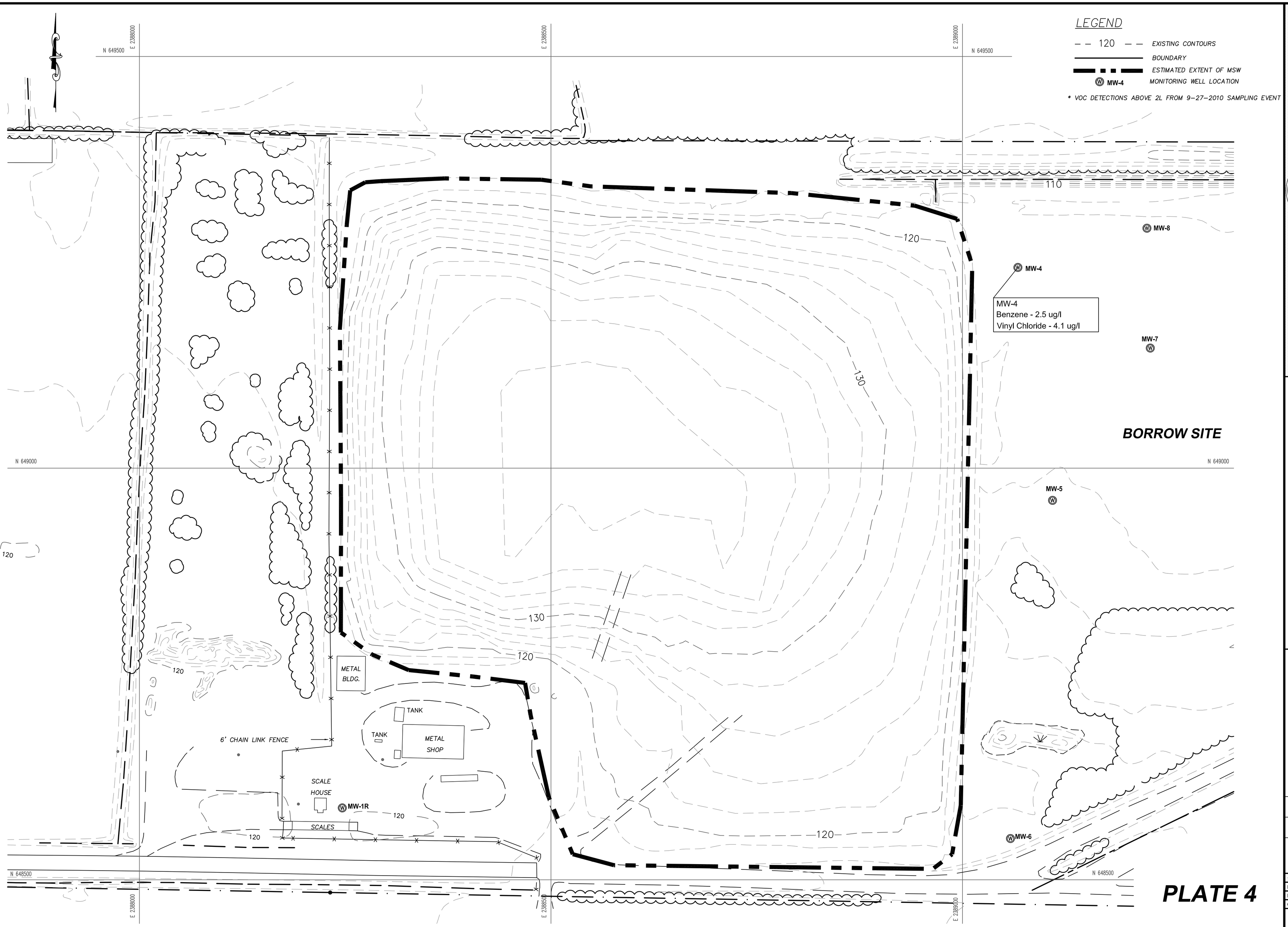


PLATE 4

Municipal Services Engineering Company, P.A.
LICENSE NUMBER: C-0281
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P.O. BOX 278 MOREHEAD CITY, N.C. 28557 (252) 726-9481
P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767

GREENE COUNTY
CONSTRUCTION & DEMOLITION
LANDFILL FACILITY
GREENE COUNTY, NORTH CAROLINA

DATE	BY	REV.	DESCRIPTION

VOC DETECTIONS
ABOVE 2L STANDARD

SCALE:	1" = 50'
DATE:	12/8/2010
DRWN. BY:	M. GERMAN
CHKD. BY:	M. BROWN
PROJECT NUMBER	G10010.0
DRAWING NO.	PLATE 2
SHEET NO.	1 OF 1

Tables

Table 1
Detection Scan Appendix I VOC and Metal Detections above SWSL, GWP, 2L, or 2B
Greene County Active C&D over Closed MSWLF

Well ID	Parameter Name [1]	Sample Date	Result	Unit	MDL [2]	SWSL [3]	2L [4]	2B [5]	GWP [6]	Exceedance	Preliminary Cause
MW-1R	Barium	9/27/10	114	ug/l	0.03	100	2000				
MW-4	1,4-Dichlorobenzene	9/27/10	3	ug/l	0.39	1	6				
MW-4	Arsenic	9/27/10	16	ug/l	0.04	10	10			6	
MW-4	Barium	9/27/10	803	ug/l	0.03	100	2000				
MW-4	**Benzene**	**9/27/10**	**2.5**	**ug/l**	**0.24**	**1**	**1**			**1.5**	**L & LFG**
MW-4	Beryllium	9/27/10	8	ug/l	0.02	1					
MW-4	**Cadmium**	**9/27/10**	**3**	**ug/l**	**0.02**	**1**	**1.75**			**1.25**	**N**
MW-4	Cis-1,2-Dichloroethene	9/27/10	6.8	ug/l	0.25	5	70				
MW-4	**Lead**	**9/27/10**	**121**	**ug/l**	**0.01**	**10**	**15**			**106**	**N**
MW-4	Thallium	9/27/10	1 j	ug/l	0.05	5.5			0.28	0.72	
MW-4	Toluene	9/27/10	1	ug/l	0.23	1	1000				
MW-4	**Total Chromium**	**9/27/10**	**28**	**ug/l**	**0.03**	**10**	**10**			**18**	**N**
MW-4	Vanadium	9/27/10	74	ug/l	0.03	25			**3.5**	70.5	
MW-4	**Vinyl Chloride**	**9/27/10**	**4.1**	**ug/l**	**0.63**	**1**	**0.03**			**4.07**	**L & LFG**
MW-4	Zinc	9/27/10	295	ug/l	0.08	10	1050				
MW-5	Zinc	9/27/10	11	ug/l	0.08	10	1050				
MW-6	Arsenic	9/27/10	18	ug/l	0.04	10	10			8	
MW-6	Barium	9/27/10	532	ug/l	0.03	100	2000				
MW-6	Beryllium	9/27/10	4	ug/l	0.02	1					
MW-6	**Lead**	**9/27/10**	**76**	**ug/l**	**0.01**	**10**	**15**			**61**	**N**
MW-6	Thallium	9/27/10	0.5 j	ug/l	0.05	5.5			0.28	0.5	
MW-6	**Total Chromium**	**9/27/10**	**28**	**ug/l**	**0.03**	**10**	**10**			**18**	**N**
MW-6	Vanadium	9/27/10	36	ug/l	0.03	25			**3.5**	32.5	
MW-6	Zinc	9/27/10	110	ug/l	0.08	10	1050				
MW-7	Lead	9/27/10	13	ug/l	0.01	10	15				
MW-7	**Total Chromium**	**9/27/10**	**21**	**ug/l**	**0.03**	**10**	**10**			**11**	**N**
MW-7	Vanadium	9/27/10	26	ug/l	0.03	25			3.5	22.5	
MW-7	Zinc	9/27/10	34	ug/l	0.08	10	1050				
MW-8	Beryllium	9/27/10	1	ug/l	0.02	1					
MW-8	**Lead**	**9/27/10**	**28**	**ug/l**	**0.01**	**10**	**15**			**13**	**N**
MW-8	**Total Chromium**	**9/27/10**	**13**	**ug/l**	**0.03**	**10**	**10**			**3**	**N**
MW-8	Vanadium	9/27/10	40	ug/l	0.03	25			3.5	36.5	
MW-8	Zinc	9/27/10	22	ug/l	0.08	10	1050				

Well ID	Parameter Name [1]	Sample Date	Result	Unit	MDL [2]	SWSL [3]	2L [4]	2B [5]	GWP [6]	Exceedance	Preliminary Cause
Downstream	Zinc	9/27/10	17	ug/l	0.08	10		50			

[1] Table contains only constituents detected above SWSL, GWP, 2L, or 2B
[2] MDL = Method Detection Limit
[3] SWSL = Solid Waste Section Reporting Limit (Current as of Sampling Event)
[4] 2L = North Carolina 15A NCAC 2L Groundwater Qualtity Standard (Current as of Sampling Event)
[6] 2B = North Carolina 15 NCAC 2B Surface Water Quality Standard for this Specific Stream Classification (Current as of Sampling Event)
[7] GWP = Groundwater Protection Standard (Current as of Sampling Event)
[J] =The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content, where applicable.
A = Artifact Contamination from Laboratory (Detected in EB, FB, and laboratory associated method blanks)
L = Leachate
LFG = Landfill Gas
N = Natural (Erosion of Natural Deposits)
B = Background
O = Statistical Outlier
NE = Not Established
BOLD = Concentration > 2L, or 2B Standard (Current as of Sampling Event)

Table 2
Detection Scan App II Exclusive Detections
Greene County Active C&D over Closed MSWLF

Sample ID	Parameter Name [1]	Sample Date	Result	Unit	MDL [2]	SWSL [3]	2L [4]	GWP [7]	Exceedance	Preliminary Cause
MW-6	Bis-(2-Ethylhexyl) Phthalate	9/27/10	14.1 j	ug/l	9.97	15	NE	NE		
EB	Tin	9/27/10	0.3 j	ug/l	0.11	100	NE	NE		
MW-8	Tin	9/27/10	1.9 j	ug/l	0.11	100	NE	NE		
MW-6	Tin	9/27/10	1.8 j	ug/l	0.11	100	NE	NE		
MW-1R	Tin	9/27/10	0.4 j	ug/l	0.11	100	NE	NE		
MW-7	Tin	9/27/10	1.4 j	ug/l	0.11	100	NE	NE		
MW-4	Tin	9/27/10	2.1 j	ug/l	0.11	100	NE	NE		
MW-5	Tin	9/27/10	0.5 j	ug/l	0.11	100	NE	NE		
MW-5	Mercury	9/27/10	0.37 j	ug/l	0.08	0.2	1.1			
MW-4	Mercury	9/27/10	0.15 j	ug/l	0.08	0.2	1.1			

[1] Table contains detected App II exclusive constituents > MDL
[2] MDL = Method Detection Limit
[3] SWSL = Solid Waste Section Reporting Limit (Current as of Sampling Event)
[4] 2L = North Carolina 15A NCAC 2L Groundwater Quality Standard (Current as of Sampling Event)
[7] GWP = Groundwater Protection Standard (Current as of Sampling Event)
[J] =The reported value is estimated & between the laboratory MDL & the SWSL, adjusted for actual sample preparation data and moisture content.
L = Leachate
LFG = Landfill Gas
NE = Not Established
BOLD = Concentration >2L, or 2B Standard (Current as of Sampling Event)

Table 3
Hydrologic Properties at Monitoring Well Locations
Greene County Active C&D over Closed MSWLF

Monitoring Well	Hydraulic Conductivity (cm/sec)	Effective Porosity (%)	Hydraulic Gradient	Flow Rate (ft/yr)	Flow Direction	Water Table Depth (ft)	Water Table Elevation (ft)
MW-1R	1.20E-04	37%	0.023	8	N38E	8.41	113.37
MW-4	1.10E-04	40%	0.020	6	S21E	21.44	96.45
MW-5	1.40E-04	37%	0.020	8	N33E	21	94.76
MW-6	1.90E-04	43%	0.024	11	N39E	14.08	103.33
MW-7	1.98E-04	7%	0.014	42	S08E	16.19	94.29
MW-8	1.14E-03	7%	0.042	715	S13E	14.5	96.86

NOTE: Data for hydraulic conductivities for all but 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 taken from the September 27, 2010 sampling event.
Flow rate (Q) is defined by the equation:

where

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

K= hydraulic conductivity
n_e = effective porosity
dh= head difference
dl= horizontal distance

Min v_x: 6
Mean v_x: 132
Median v_x: 10
Max v_x: 715

Appendix A
Statistical Analysis

Statistical Analysis Methodologies

A statistical analysis was performed on metal and VOC detections utilizing Chemstat software, which was developed specifically for RCRA Subtitle D sites and conforms to both current EPA and SWS protocols. A step-wise approach was utilized to evaluate trends in groundwater quality to identify a potential release from the landfill. Analytical data underwent preliminary data evaluation to reduce the data set and to determine if any "outliers" (defined as data that appears to be incongruent with respect to historical results) or seasonality exists that may potentially effect the results of the subsequent statistical analysis. All statistical tests were evaluated at the 0.05 level of significance, 95% confidence level, and were conducted as one-tailed tests. Statistical background values were calculated using un-manipulated data from historical semi-annual sampling events for this facility from 1994 to the current event. Historical data compiled for monitoring well(s) were used as the baseline. Groundwater data from the downgradient well(s) were compared to the pooled background groundwater data (inter-well) using methods which varied depending upon the percentage of non-detects. If necessary and applicable further intra-well analysis was conducted to compare current data from a single well is compared to it's own respective historical data. Finally parameters that indicated statistical significance after previous tests are evaluated to estimate the change in concentration over time to determine if there is an upward trend.

Preliminary Data Evaluation

A preliminary data screening was conducted upon detections. Parameters detected with concentrations found below quantifiable levels (SWSL) and below those detected within the background well were eliminated and a statistical analysis was not conducted for that particular constituent/well.

Data distributions were reviewed using box and whiskers plots (enclosed charts). In order to evaluate variability in concentrations with respect to time and season, time series plots were generated for select constituents (enclosed charts). Time series plots were also visually evaluated for seasonality and "outliers". Suspected outliers were than further evaluated through Dixon's Test for Outliers or Rosner's Test for Outliers depending upon the number of samples and the data distribution. Outliers are generally not censored from the current nor historical data set prior to statistical analysis but are further evaluated and or qualified as necessary.

Inter-well Analyses

Inter-well statistical analysis was conducted upon total metals detected during this sampling event. Monitoring well MW-1 was defined as the background well, and an upper tolerance limit (UTL) with 95% coverage was computed for each detected constituent from the background data at a 95% level of confidence. For each tested constituent, an appropriate statistical analysis method was selected based on the percentages of non-detects (%ND) in the historical background data. The following Table 1 summarizes the methods used for four different %ND ranges.

Table 1. Statistical Analysis Methods for Various %ND Ranges

%ND	Analysis Method	ND Substitution
%ND<15%	Parametric tolerance limit	1/2 ND
15%<%ND<50%	Parametric tolerance limit	Cohen or 1/2 ND
50%<%ND<90%	Non-parametric tolerance limit	1/2 ND
90%<%ND	Poisson tolerance limit	-

NOTE: For parametric tolerance interval, normality of the background data was checked by the Shapiro-Wilks normality test, as the method requires that the data be normally distributed.

Intra-well Analysis

Intra-well analysis was conducted only upon those constituents that were found to be statistically significant by inter-well analysis and there is sufficient historical samples known to not be impacted. With intra-well comparisons, data from a single well is compared to historical data from the same well. In general, intra-well analysis is typically used to differentiate true contamination from spatial variability. Intra-well analysis is generally conducted through interpretation of Shewhart-CUSUM and/or Exponentially Weighted Moving Average (EWMA) control charts. where applicable.

Poisson Prediction Interval (VOCs)

All historical VOC detections in the background well MW-1 were pooled in order to determine the total number of detections, from which the expected number of detections in a single downgradient monitoring point (y^*) was derived by utilizing the Poisson prediction interval (Table A2) The parameter y^* is defined by the following equation:

$$y^* = cy + \frac{t^2 c}{2} + tc\sqrt{y\left(1+\frac{1}{c}\right)+\frac{t^2}{4}}$$

where

c = 1/ n (n =number of background samples)
t = one-sided value of student's t -Statistic at 95% confidence [a]
y = number of events observed in n previous samples
y^* = expected number of events in a single future sample

[a] Gibbons, R.D., 1994, Statistical methods for groundwater monitoring: John Wiley & Sons, Inc., p.12.

For each monitoring location showing any VOC detections, the number of detected VOCs was counted with each detection being considered a "hit". The number was then compared with the expected number of detections derived from the background VOC data (Table A3). The value of Student's t -Statistic was derived from tabulated values included in Gibbons (1994).

Determine Data Trend Over Time

The parameters that indicated statistical significance a further qualitative evaluation is employed to determine trends in concentration over time. Implementation of Mann-Kendall Trend Analysis or Sen's Slope Analysis is generally used to determine if the concentration trend is increasing, decreasing, or remaining constant.

Inter-Well Analysis Summary
Greene County Active C&D over Closed MSWLF

Background Well: MW-1

Arsenic, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
39.29	-	Non-parametric Tolerance Interval	1/2ND	327	ug/l

Well	Result	Significance
MW-4	193	no
MW-6	193	no

Barium, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
39.29	-	Non-parametric Tolerance Interval	1/2ND	327	ug/l

Well	Result	Significance
MW-4	193	no
MW-6	193	no

Beryllium, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
39.29	-	Non-parametric Tolerance Interval	1/2ND	327	ug/l

Well	Result	Significance
MW-4	193	no
MW-6		
MW-8	193	no

Cadmium, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
39.29	-	Non-parametric Tolerance Interval	1/2ND	327	ug/l

Well	Result	Significance
MW-4	193	no

Lead, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
39.29	-	Non-parametric Tolerance Interval	1/2ND	327	ug/l

Well	Result	Significance
MW-4	193	no
MW-6		
MW-7		
MW-8	193	no

Chromium, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
39.29	-	Non-parametric Tolerance Interval	1/2ND	327	ug/l

Well	Result	Significance
MW-4	193	no
MW-6		
MW-7		
MW-8	193	no

Vanadium, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
39.29	-	Non-parametric Tolerance Interval	1/2ND	327	ug/l

Well	Result	Significance
MW-4	193	no
MW-6		
MW-7		
MW-8	193	no

Zinc, total

%ND	Normality	Method	ND Adj.	Upper Limit (a = 95%)	Unit
39.29	-	Non-parametric Tolerance Interval	1/2ND	327	ug/l

Well	Result	Significance
MW-4	193	no
MW-5		
MW-6		
MW-7	193	no
MW-8		

Summary of Pooled Appendix I VOCs in Background Well (MW-1R)
Greene County Active C&D over Closed MSWLF

Constituent	Samples	NDs	% NDs
1,1,1,2-Tetrachloroethane	35	35	100.00
1,1,1-Trichloroethane	35	35	100.00
1,1,2,2-Tetrachloroethane	35	35	100.00
1,1,2-Trichloroethane	35	35	100.00
1,1-Dichloroethane	35	35	100.00
1,1-Dichloroethene	35	35	100.00
1,2,3-Trichloropropane	35	35	100.00
1,2-Dibromo-3-chloropropane	35	35	100.00
1,2-Dibromoethane	35	35	100.00
1,2-Dichlorobenzene	35	35	100.00
1,2-Dichloroethane	35	35	100.00
1,2-Dichloropropane	35	35	100.00
1,4-Dichlorobenzene	35	35	100.00
2-Butanone	35	35	100.00
2-Hexanone	35	35	100.00
4-Methyl-2-Pentanone	35	35	100.00
Acetone	35	35	100.00
Acrylonitrile	35	35	100.00
Benzene	35	35	100.00
Bromochloromethane	35	35	100.00
Bromodichloromethane	35	35	100.00
Bromoform	35	35	100.00
Bromomethane	35	35	100.00
Carbon disulfide	35	35	100.00
Carbon tetrachloride	35	35	100.00
Chlorobenzene	35	35	100.00
Chloroethane	35	35	100.00
Chloroform	35	35	100.00
Chloromethane	35	35	100.00
cis-1,2-Dichloroethene	35	35	100.00
cis-1,3-Dichloropropene	35	35	100.00
Chlorodibromomethane	35	35	100.00
Dibromomethane	35	35	100.00
Ethylbenzene	35	35	100.00
Iodomethane	35	35	100.00
Dichloromethane	35	35	100.00
Styrene	35	35	100.00
Tetrachloroethylene	35	35	100.00
Toluene	35	35	100.00
trans-1,2-Dichloroethene	35	35	100.00
trans-1,3-Dichloropropene	35	35	100.00
trans-1,4-Dichloro-2-butene	35	35	100.00
Trichloroethylene	35	35	100.00
Trichlorofluoromethane	35	35	100.00
Vinyl acetate	35	35	100.00
Vinyl chloride	35	35	100.00
Xylene	35	35	100.00
Total	**1645**	**1645**	**100.00**

Poisson Prediction Interval Based upon Pooled Background Appendix I VOCs
Greene County Active C&D over Closed MSWLF

All detected VOCs >SWSL (Background Well: MW-1R)

Well	1,4-DCB	Benzene	Toluene	cis-1,2-DCE	VCM	Total Cumulative Concentration	Total Detections >SWSL
2L	**6**	**1**	**1000**	**70**	**0.030**	**-**	**-**
MW-4	3	**2.5**	1	6.8	**4.1**	17.4	5
TOTAL	3	2.5	1	6.8	4.1	17.4	5

All Concentrations in ug/L

"j" qualifiers omitted for statistical analysis purposes

Bold = Detected above 2L Standard (Current as of Sampling Event)

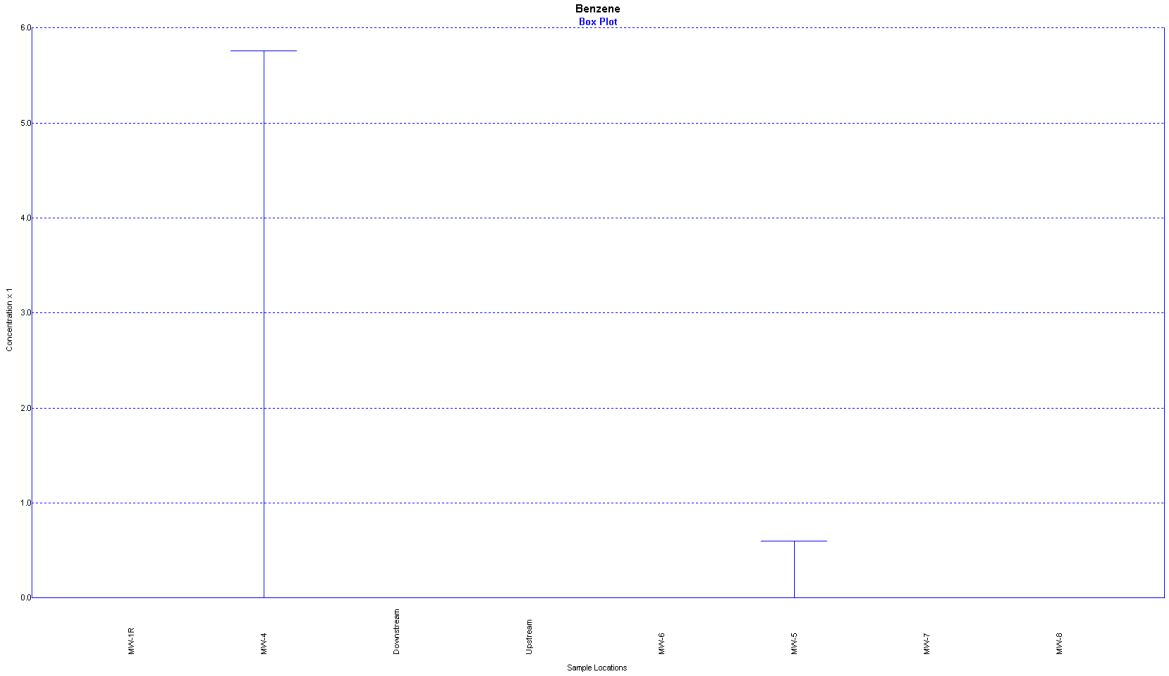
Shaded = Increasing concentration trend per Sen's Slope Indicator Analysis

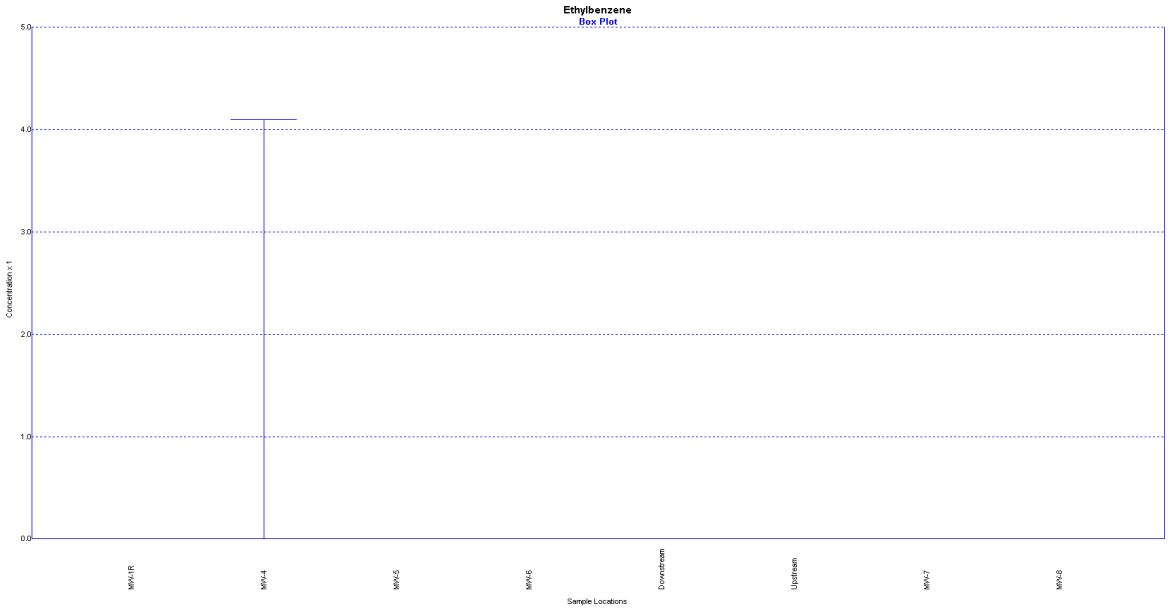
Underlined = Concentration detected outside own historically identified range

Total number of sampling events [n] = 35
Total number of detections in background wells [y] = 0
Number of comparisons (downgradient wells) [k] = 5
One-sided value of Student's t-statistic (95% confidence) [t] = 2.44
Expected number of detections in a single future sample [y*] = 0.03

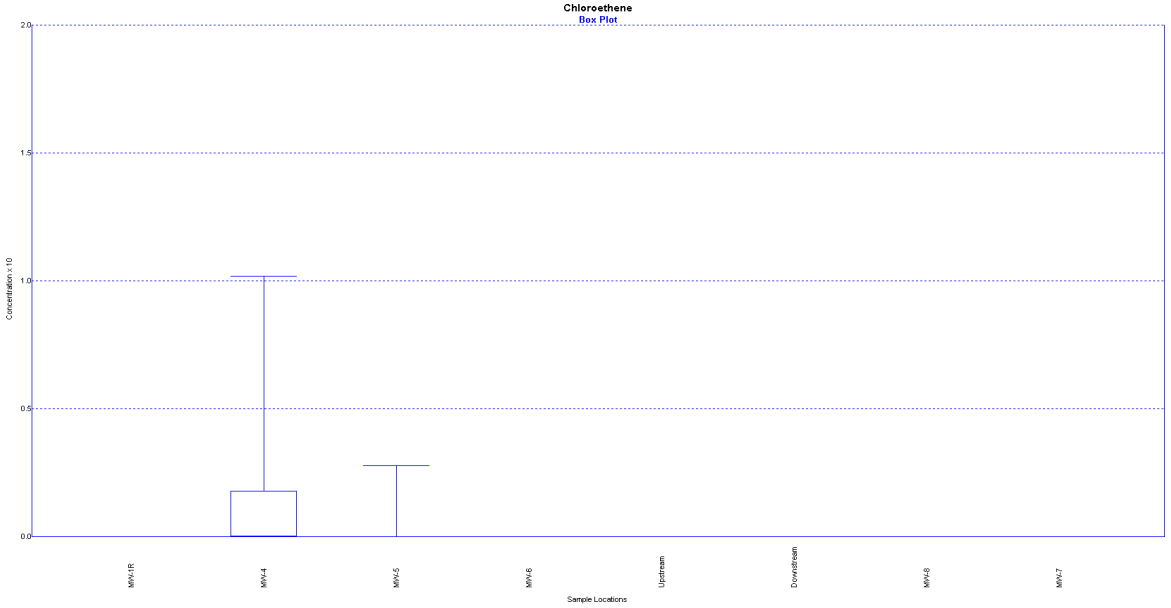
Statistically significant number of VOC detections within:
MW-4
Per the Poisson Tolerance Interval Method at a 95% Confidence Level
No VOCs have exhibited an increasing trend in concentration per Sen's Slope Indicator Analysis

Box Plots for Select Constituents (VOCs)
Greene County Active C&D over Closed MSWLF



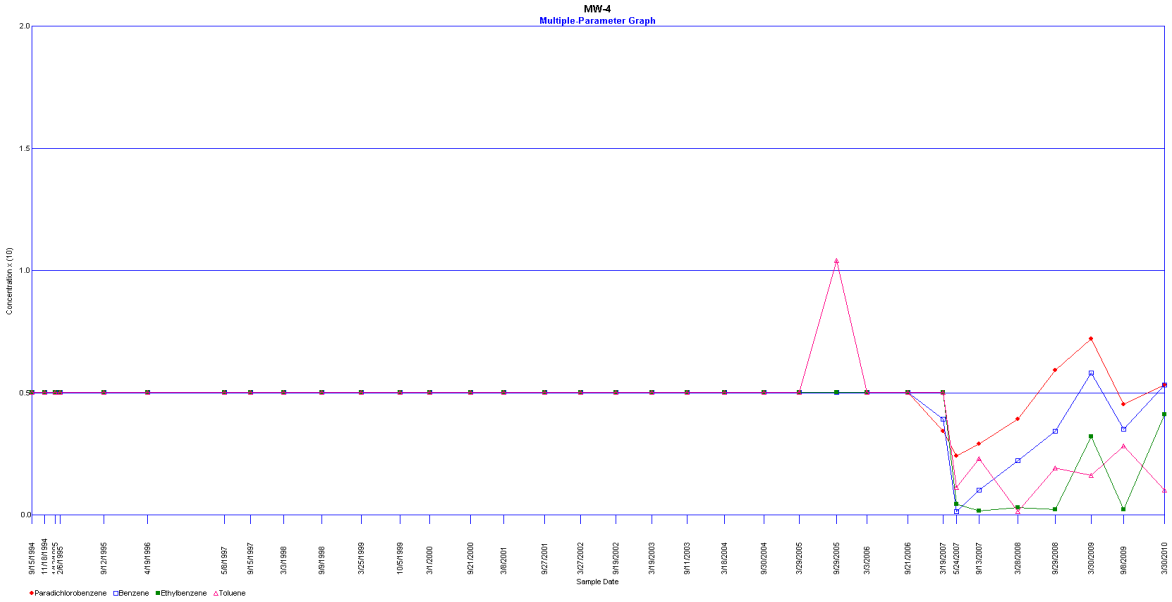


Box Plots for Select Constituents (VOCs)
Greene County Active C&D over Closed MSWLF

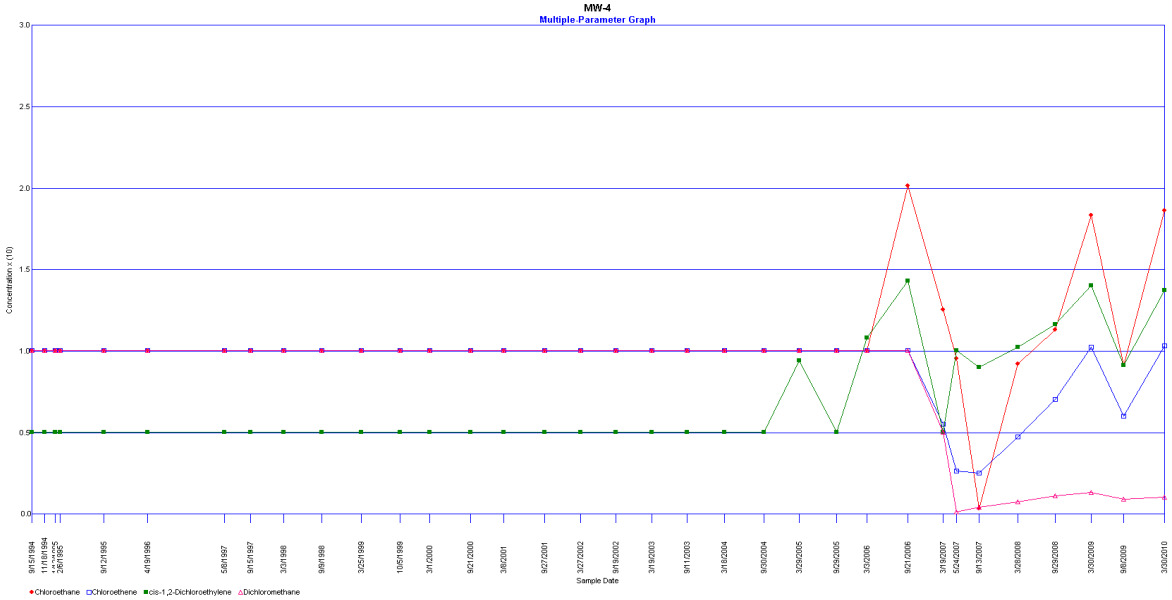


Time Series Plots for Select Constituents
Greene County Active C&D over Closed MSWLF
ND=Detection Limit

AROMATICS

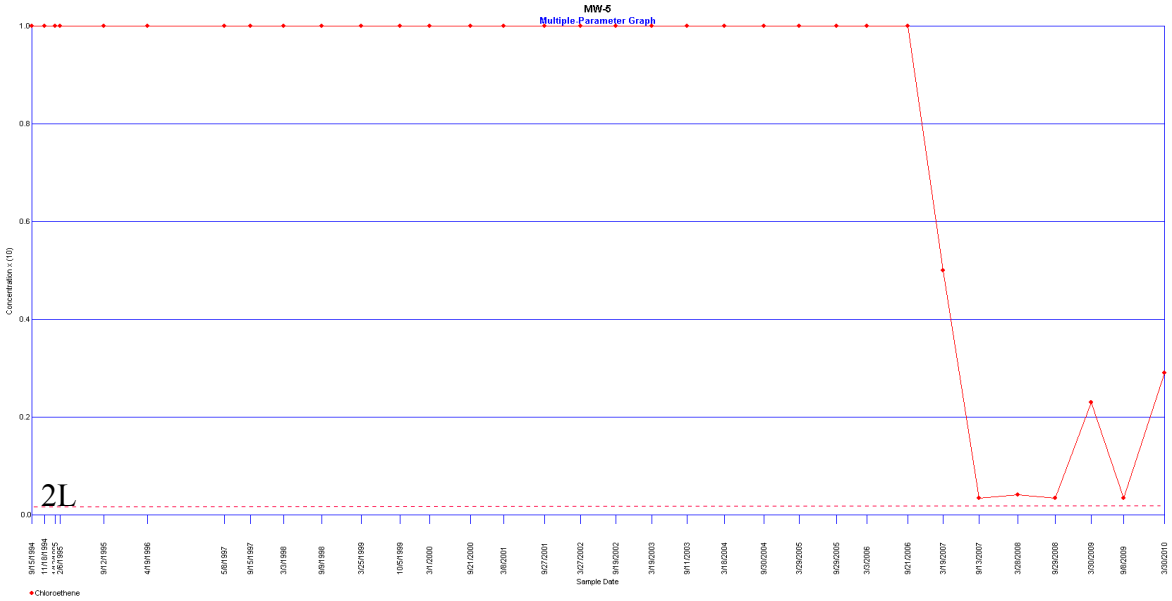


CAH's



Time Series Plots for Select Constituents
Greene County Active C&D over Closed MSWLF
ND=Detection Limit

CAH's



Basic Statistics

Parameter: Arsenic, total

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Measurements	151
Total Non-Detects	149 (98.6755%)
Pooled Mean	5.15894
Pooled Std Dev	1.38127
Compliance Meas.	116
Compliance Mean	5.2069
Compliance Std Dev	1.57434
Background Meas.	35
Background Mean	5
Background Std Dev	0

Background Locations

There is 1 background location

Location	Meas.	Non-Detects	% ND	Total
MW-1R	35	35	100	175

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-1R	5	0	0	2625	75

Compliance Locations

There are 5 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-4	35	34	97.1429	186
MW-6	34	33	97.0588	183
MW-8	7	7	100	35
MW-5	33	33	100	165
MW-7	7	7	100	35

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-4	5.31429	1.85934	0.314286	0.333113	2700	77.1429
MW-6	5.38235	2.22948	0.382353	0.335554	2626	77.2353
MW-8	5	0	0	0.576969	525	75
MW-5	5	0	0	0.338123	2475	75
MW-7	5	0	0	0.576969	525	75

Analysis of Variance Statistics

SS Wells	4.61316
SS Total	286.185

Kruskal-Wallis Statistics

Non-Detect Rank	75
Background Rank Sum	2625
Background Rank Mean	75
H Statistic	0.0938986
H Adjusted for Ties	2.39462

Basic Statistics

Parameter: Barium, total

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Measurements	163
Total Non-Detects	144 (88.3436%)
Pooled Mean	88.3129
Pooled Std Dev	139.269
Compliance Meas.	126
Compliance Mean	91.6746
Compliance Std Dev	155.37
Background Meas.	37
Background Mean	76.8649
Background Std Dev	57.3436

Background Locations

There is 1 background location

Location	Meas.	Non-Detects	% ND	Total
MW-1R	37	28	75.6757	2844

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-1R	76.8649	57.3436	0	3373	91.1622

Compliance Locations

There are 5 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-6	36	32	88.8889	3992
MW-7	9	9	100	450
MW-4	37	31	83.7838	4909
MW-5	35	35	100	1750
MW-8	9	9	100	450

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-6	110.889	175.983	34.024	32.1896	2952	82
MW-7	50	0	-26.8649	51.105	652.5	72.5
MW-4	132.676	221.485	55.8108	31.9684	3198.5	86.4459
MW-5	50	0	-26.8649	32.4219	2537.5	72.5
MW-8	50	0	-26.8649	51.105	652.5	72.5

Analysis of Variance Statistics

SS Wells	173813
SS Total	3.14215e+006

Kruskal-Wallis Statistics

Non-Detect Rank	72.5
Background Rank Sum	3373
Background Rank Mean	91.1622
H Statistic	3.86978
H Adjusted for Ties	12.4622

Basic Statistics

Parameter: Beryllium, total

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Measurements	152
Total Non-Detects	135 (88.8158%)
Pooled Mean	1.0625
Pooled Std Dev	1.93828
Compliance Meas.	117
Compliance Mean	1.23077
Compliance Std Dev	2.18322
Background Meas.	35
Background Mean	0.5
Background Std Dev	0

Background Locations

There is 1 background location

Location	Meas.	Non-Detects	% ND	Total
MW-1R	35	35	100	17.5

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-1R	0.5	0	0	2380	68

Compliance Locations

There are 5 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-5	33	30	90.9091	28.3
MW-4	35	28	80	53.9
MW-6	34	28	82.3529	53.8
MW-8	8	7	87.5	4.5
MW-7	7	7	100	3.5

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-5	0.857576	1.29326	0.357576	0.463805	2467	74.7576
MW-4	1.54	2.35474	1.04	0.456933	2918	83.3714
MW-6	1.58235	2.97051	1.08235	0.460281	2775	81.6176
MW-8	0.5625	0.176777	0.0625	0.749078	612	76.5
MW-7	0.5	0	0	0.791431	476	68

Analysis of Variance Statistics

SS Wells	33.8435
SS Total	567.296

Kruskal-Wallis Statistics

Non-Detect Rank	68
Background Rank Sum	2380
Background Rank Mean	68
H Statistic	2.92969
H Adjusted for Ties	9.78496

Basic Statistics

Parameter: Cadmium, total

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Measurements	150
Total Non-Detects	143 (95.3333%)
Pooled Mean	0.57
Pooled Std Dev	0.441284
Compliance Meas.	115
Compliance Mean	0.586957
Compliance Std Dev	0.501143
Background Meas.	35
Background Mean	0.514286
Background Std Dev	0.0845154

Background Locations

There is 1 background location

Location	Meas.	Non-Detects	% ND	Total
MW-1R	35	34	97.1429	18

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-1R	0.514286	0.0845154	0	2592	74.0571

Compliance Locations

There are 5 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-4	35	32	91.4286	21
MW-5	33	32	96.9697	18
MW-7	7	7	100	3.5
MW-6	33	31	93.9394	21.5
MW-8	7	7	100	3.5

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-4	0.6	0.433861	0.0857143	0.106471	2744	78.4
MW-5	0.545455	0.261116	0.0311688	0.108073	2452	74.303
MW-7	0.5	0	-0.0142857	0.184414	504	72
MW-6	0.651515	0.785462	0.137229	0.108073	2529	76.6364
MW-8	0.5	0	-0.0142857	0.184414	504	72

Analysis of Variance Statistics

SS Wells	0.4479
SS Total	29.015

Kruskal-Wallis Statistics

Non-Detect Rank	72
Background Rank Sum	2592
Background Rank Mean	74.0571
H Statistic	0.333037
H Adjusted for Ties	2.49332

Basic Statistics

Parameter: Lead, total

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Measurements	153
Total Non-Detects	97 (63.3987%)
Pooled Mean	20.1765
Pooled Std Dev	64.5743
Compliance Meas.	118
Compliance Mean	23.8475
Compliance Std Dev	73.1197
Background Meas.	35
Background Mean	7.8
Background Std Dev	6.24406

Background Locations

There is 1 background location

Location	Meas.	Non-Detects	% ND	Total
MW-1R	35	27	77.1429	273

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-1R	7.8	6.24406	0	2236	63.8857

Compliance Locations

There are 5 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-5	33	24	72.7273	304
MW-4	35	15	42.8571	968
MW-6	34	18	52.9412	673
MW-8	8	7	87.5	63
MW-7	8	6	75	806

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-5	9.21212	9.9836	1.41212	15.101	2213	67.0606
MW-4	27.6571	35.1802	19.8571	14.8772	3355	95.8571
MW-6	19.7941	25.2476	11.9941	14.9862	2945	86.6176
MW-8	7.875	8.13173	0.075	24.3891	476	59.5
MW-7	100.75	267.604	92.95	24.3891	556	69.5

Analysis of Variance Statistics

SS Wells	64439.3
SS Total	633816

Kruskal-Wallis Statistics

Non-Detect Rank	49
Background Rank Sum	2236
Background Rank Mean	63.8857
H Statistic	14.1432
H Adjusted for Ties	18.9793

Basic Statistics

Parameter: Chromium, total

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Measurements	153
Total Non-Detects	90 (58.8235%)
Pooled Mean	14.902
Pooled Std Dev	18.7749
Compliance Meas.	118
Compliance Mean	15.5169
Compliance Std Dev	20.3031
Background Meas.	35
Background Mean	12.8286
Background Std Dev	12.3133

Background Locations

There is 1 background location

Location	Meas.	Non-Detects	% ND	Total
MW-1R	35	22	62.8571	449

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-1R	12.8286	12.3133	0	2605	74.4286

Compliance Locations

There are 5 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-7	8	7	87.5	56
MW-4	35	20	57.1429	596
MW-5	33	24	72.7273	287
MW-6	34	10	29.4118	844
MW-8	8	7	87.5	48

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-7	7	5.65685	-5.82857	7.04586	434.5	54.3125
MW-4	17.0286	24.6069	4.2	4.29794	2752	78.6286
MW-5	8.69697	6.81673	-4.1316	4.36257	2110	63.9394
MW-6	24.8235	24.625	11.995	4.32942	3457	101.676
MW-8	6	2.82843	-6.82857	7.04586	422.5	52.8125

Analysis of Variance Statistics

SS Wells	6059.68
SS Total	53579.5

Kruskal-Wallis Statistics

Non-Detect Rank	45.5
Background Rank Sum	2605
Background Rank Mean	74.4286
H Statistic	18.057
H Adjusted for Ties	22.6712

Basic Statistics

Parameter: Vanadium

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Measurements	153
Total Non-Detects	127 (83.0065%)
Pooled Mean	22.9706
Pooled Std Dev	29.8349
Compliance Meas.	118
Compliance Mean	24.3093
Compliance Std Dev	32.8838
Background Meas.	35
Background Mean	18.4571
Background Std Dev	15.2018

Background Locations

There is 1 background location

Location	Meas.	Non-Detects	% ND	Total
MW-1R	35	30	85.7143	646

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-1R	18.4571	15.2018	0	2607	74.4857

Compliance Locations

There are 5 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-6	34	25	73.5294	1041.5
MW-5	33	30	90.9091	514
MW-7	8	7	87.5	113.5
MW-4	35	28	80	1072
MW-8	8	7	87.5	127.5

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-6	30.6324	37.2435	12.1752	7.09776	2881	84.7353
MW-5	15.5758	9.87826	-2.88139	7.1521	2323	70.3939
MW-7	14.1875	4.77297	-4.26964	11.5512	576	72
MW-4	30.6286	45.4213	12.1714	7.04614	2816	80.4571
MW-8	15.9375	9.72272	-2.51964	11.5512	578	72.25

Analysis of Variance Statistics

SS Wells	7578.86
SS Total	135299

Kruskal-Wallis Statistics

Non-Detect Rank	64
Background Rank Sum	2607
Background Rank Mean	74.4857
H Statistic	2.28906
H Adjusted for Ties	5.34717

Basic Statistics

Parameter: Zinc, total

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Measurements	154
Total Non-Detects	129 (83.7662%)
Pooled Mean	20.1299
Pooled Std Dev	44.1496
Compliance Meas.	119
Compliance Mean	22.6807
Compliance Std Dev	48.7298
Background Meas.	35
Background Mean	11.4571
Background Std Dev	20.7341

Background Locations

There is 1 background location

Location	Meas.	Non-Detects	% ND	Total
MW-1R	35	31	88.5714	401

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-1R	11.4571	20.7341	0	2566	73.3143

Compliance Locations

There are 5 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-5	34	33	97.0588	176
MW-6	34	27	79.4118	1035
MW-4	35	25	71.4286	1350
MW-7	8	6	75	81
MW-8	8	7	87.5	57

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-5	5.17647	1.02899	-6.28067	10.291	2275	66.9118
MW-6	30.4412	54.5784	18.984	10.291	2783	81.8529
MW-4	38.5714	67.81	27.1143	10.2162	3069	87.6857
MW-7	10.125	10.5212	-1.33214	16.748	655	81.875
MW-8	7.125	6.01041	-4.33214	16.748	587	73.375

Analysis of Variance Statistics

SS Wells	27907.1
SS Total	298225

Kruskal-Wallis Statistics

Non-Detect Rank	65
Background Rank Sum	2566
Background Rank Mean	73.3143
H Statistic	4.51931
H Adjusted for Ties	10.9628

Poisson Tolerance Limit

Parameter: Arsenic, total

Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Poisson Count of 35 background measurements = 350
Degrees of Freedom = 702

95% Confidence Values

Chi-Squared Value (95% Confidence) = 764.749
Lambda (from Zack's formula) = 10.925
Smallest Degrees of Freedom = 35
Upper Tolerance Limit (95%) = 16.5

99% Confidence Values

Chi-Squared Value (99% Confidence) = 792.098
Lambda (from Zack's formula) = 11.3157
Smallest Degrees of Freedom = 41
Upper Tolerance Limit (99%) = 19.5

	Date	Conc.	Significant 95%	Significant 99%
MW-4	9/15/1994	ND<10	FALSE	FALSE
	11/18/1994	ND<10	FALSE	FALSE
	1/12/1995	ND<10	FALSE	FALSE
	2/6/1995	ND<10	FALSE	FALSE
	9/12/1995	ND<10	FALSE	FALSE
	4/19/1996	ND<10	FALSE	FALSE
	3/17/1997	ND<10	FALSE	FALSE
	9/15/1997	ND<10	FALSE	FALSE
	3/3/1998	ND<10	FALSE	FALSE
	9/9/1998	ND<10	FALSE	FALSE
	3/25/1999	ND<10	FALSE	FALSE
	10/5/1999	ND<10	FALSE	FALSE
	3/1/2000	ND<10	FALSE	FALSE
	9/21/2000	ND<10	FALSE	FALSE
	3/8/2001	ND<10	FALSE	FALSE
	9/27/2001	ND<10	FALSE	FALSE
	3/27/2002	ND<10	FALSE	FALSE
	9/19/2002	ND<10	FALSE	FALSE
	3/19/2003	ND<10	FALSE	FALSE
	9/11/2003	ND<10	FALSE	FALSE
	3/18/2004	ND<10	FALSE	FALSE
	9/30/2004	ND<10	FALSE	FALSE
	3/29/2005	ND<10	FALSE	FALSE
	9/29/2005	ND<10	FALSE	FALSE
	3/3/2006	ND<10	FALSE	FALSE
	9/21/2006	ND<10	FALSE	FALSE
	3/19/2007	ND<10	FALSE	FALSE
	5/24/2007	ND<10	FALSE	FALSE
	9/13/2007	ND<10	FALSE	FALSE
	3/28/2008	ND<10	FALSE	FALSE
	9/29/2008	ND<10	FALSE	FALSE
	3/30/2009	ND<10	FALSE	FALSE
	9/8/2009	ND<10	FALSE	FALSE
	3/30/2010	ND<10	FALSE	FALSE
	9/27/2010	16	FALSE	FALSE
MW-6	9/15/1994	ND<10	FALSE	FALSE
	11/18/1994	ND<10	FALSE	FALSE
	1/12/1995	ND<10	FALSE	FALSE
	2/6/1995	ND<10	FALSE	FALSE
	9/12/1995	ND<10	FALSE	FALSE
	4/19/1996	ND<10	FALSE	FALSE
	3/17/1997	ND<10	FALSE	FALSE
	9/15/1997	ND<10	FALSE	FALSE
	3/3/1998	ND<10	FALSE	FALSE
	9/9/1998	ND<10	FALSE	FALSE
	3/25/1999	ND<10	FALSE	FALSE
	10/5/1999	ND<10	FALSE	FALSE
	3/1/2000	ND<10	FALSE	FALSE
	9/21/2000	ND<10	FALSE	FALSE
	3/8/2001	ND<10	FALSE	FALSE
	9/27/2001	ND<10	FALSE	FALSE
	3/27/2002	ND<10	FALSE	FALSE
	9/19/2002	ND<10	FALSE	FALSE

3/19/2003	ND<10	FALSE	FALSE
9/11/2003	ND<10	FALSE	FALSE
3/18/2004	ND<10	FALSE	FALSE
9/30/2004	ND<10	FALSE	FALSE
3/29/2005	ND<10	FALSE	FALSE
9/29/2005	ND<10	FALSE	FALSE
3/3/2006	ND<10	FALSE	FALSE
9/21/2006	ND<10	FALSE	FALSE
3/19/2007	ND<10	FALSE	FALSE
9/13/2007	ND<10	FALSE	FALSE
3/28/2008	ND<10	FALSE	FALSE
9/29/2008	ND<10	FALSE	FALSE
3/30/2009	ND<10	FALSE	FALSE
9/8/2009	ND<10	FALSE	FALSE
3/30/2010	ND<10	FALSE	FALSE
9/27/2010	18	**TRUE**	FALSE

Non-Parametric Tolerance Interval

Parameter: Barium, total

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 82.7273%
Background measurements (n) = 37
Maximum Background Concentration = 327
Minimum Coverage = 92.2%
Average Coverage = 97.3684%

Location	Date	Value	Significant
MW-6	9/15/1994	ND<50	FALSE
MW-6	11/18/1994	ND<50	FALSE
MW-6	1/12/1995	ND<50	FALSE
MW-6	2/6/1995	ND<50	FALSE
MW-6	9/12/1995	ND<50	FALSE
MW-6	4/19/1996	ND<50	FALSE
MW-6	**3/17/1997**	**680**	**TRUE**
MW-6	9/15/1997	ND<50	FALSE
MW-6	**3/3/1998**	**640**	**TRUE**
MW-6	**9/9/1998**	**540**	**TRUE**
MW-6	3/25/1999	ND<50	FALSE
MW-6	10/5/1999	ND<50	FALSE
MW-6	3/1/2000	ND<50	FALSE
MW-6	9/21/2000	ND<50	FALSE
MW-6	3/8/2001	ND<50	FALSE
MW-6	9/27/2001	ND<50	FALSE
MW-6	3/27/2002	ND<50	FALSE
MW-6	9/19/2002	ND<50	FALSE
MW-6	3/19/2003	ND<50	FALSE
MW-6	9/11/2003	ND<50	FALSE
MW-6	3/18/2004	ND<50	FALSE
MW-6	9/30/2004	ND<50	FALSE
MW-6	3/29/2005	ND<50	FALSE
MW-6	9/29/2005	ND<50	FALSE
MW-6	3/3/2006	ND<50	FALSE
MW-6	9/21/2006	ND<50	FALSE
MW-6	3/19/2007	ND<50	FALSE
MW-6	9/13/2007	ND<50	FALSE
MW-6	3/28/2008	ND<50	FALSE
MW-6	9/29/2008	ND<50	FALSE
MW-6	3/30/2009	ND<50	FALSE
MW-6	9/8/2009	ND<50	FALSE
MW-6	9/8/2009	ND<50	FALSE
MW-6	3/30/2010	ND<50	FALSE
MW-6	3/30/2010	ND<50	FALSE
MW-6	**9/27/2010**	**532**	**TRUE**
MW-4	9/15/1994	ND<50	FALSE
MW-4	11/18/1994	ND<50	FALSE
MW-4	1/12/1995	ND<50	FALSE
MW-4	2/6/1995	ND<50	FALSE
MW-4	9/12/1995	ND<50	FALSE
MW-4	**4/19/1996**	**900**	**TRUE**
MW-4	**3/17/1997**	**590**	**TRUE**
MW-4	9/15/1997	ND<50	FALSE
MW-4	3/3/1998	ND<50	FALSE
MW-4	9/9/1998	ND<50	FALSE
MW-4	3/25/1999	ND<50	FALSE
MW-4	10/5/1999	ND<50	FALSE
MW-4	3/1/2000	ND<50	FALSE
MW-4	9/21/2000	ND<50	FALSE
MW-4	3/8/2001	ND<50	FALSE
MW-4	9/27/2001	ND<50	FALSE
MW-4	3/27/2002	ND<50	FALSE
MW-4	**9/19/2002**	**680**	**TRUE**
MW-4	3/19/2003	ND<50	FALSE
MW-4	9/11/2003	ND<50	FALSE
MW-4	3/18/2004	ND<50	FALSE
MW-4	9/30/2004	ND<50	FALSE
MW-4	3/29/2005	ND<50	FALSE
MW-4	9/29/2005	ND<50	FALSE
MW-4	3/3/2006	ND<50	FALSE
MW-4	9/21/2006	ND<50	FALSE

MW-4	3/19/2007	ND<50	FALSE
MW-4	5/24/2007	ND<50	FALSE
MW-4	9/13/2007	ND<50	FALSE
MW-4	3/28/2008	ND<50	FALSE
MW-4	9/29/2008	ND<50	FALSE
MW-4	3/30/2009	ND<50	FALSE
MW-4	9/8/2009	ND<50	FALSE
MW-4	9/8/2009	ND<50	FALSE
MW-4	3/30/2010	193	FALSE
MW-4	3/30/2010	193	FALSE
MW-4	**9/27/2010**	**803**	**TRUE**

Poisson Tolerance Limit

Parameter: Beryllium, total

Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Poisson Count of 35 background measurements = 35
Degrees of Freedom = 72

95% Confidence Values

Chi-Squared Value (95% Confidence) = 92.8083
Lambda (from Zack's formula) = 1.32583
Smallest Degrees of Freedom = 8
Upper Tolerance Limit (95%) = 3

99% Confidence Values

Chi-Squared Value (99% Confidence) = 102.816
Lambda (from Zack's formula) = 1.4688
Smallest Degrees of Freedom = 11
Upper Tolerance Limit (99%) = 4.5

	Date	Conc.	Significant 95%	Significant 99%
MW-4	9/15/1994	ND<1	FALSE	FALSE
	11/18/1994	ND<1	FALSE	FALSE
	1/12/1995	ND<1	FALSE	FALSE
	2/6/1995	ND<1	FALSE	FALSE
	9/12/1995	ND<1	FALSE	FALSE
	4/19/1996	ND<1	FALSE	FALSE
	3/17/1997	9	TRUE	TRUE
	9/15/1997	ND<1	FALSE	FALSE
	3/3/1998	7.7	TRUE	TRUE
	9/9/1998	3.2	TRUE	FALSE
	3/25/1999	ND<1	FALSE	FALSE
	10/5/1999	3	FALSE	FALSE
	3/1/2000	ND<1	FALSE	FALSE
	9/21/2000	ND<1	FALSE	FALSE
	3/8/2001	ND<1	FALSE	FALSE
	9/27/2001	ND<1	FALSE	FALSE
	3/27/2002	ND<1	FALSE	FALSE
	9/19/2002	5	TRUE	TRUE
	3/19/2003	ND<1	FALSE	FALSE
	9/11/2003	ND<1	FALSE	FALSE
	3/18/2004	ND<1	FALSE	FALSE
	9/30/2004	ND<1	FALSE	FALSE
	3/29/2005	4	TRUE	FALSE
	9/29/2005	ND<1	FALSE	FALSE
	3/3/2006	ND<1	FALSE	FALSE
	9/21/2006	ND<1	FALSE	FALSE
	3/19/2007	ND<1	FALSE	FALSE
	5/24/2007	ND<1	FALSE	FALSE
	9/13/2007	ND<1	FALSE	FALSE
	3/28/2008	ND<1	FALSE	FALSE
	9/29/2008	ND<1	FALSE	FALSE
	3/30/2009	ND<1	FALSE	FALSE
	9/8/2009	ND<1	FALSE	FALSE
	3/30/2010	ND<1	FALSE	FALSE
	9/27/2010	8	TRUE	TRUE
MW-6	9/15/1994	ND<1	FALSE	FALSE
	11/18/1994	ND<1	FALSE	FALSE
	1/12/1995	ND<1	FALSE	FALSE
	2/6/1995	ND<1	FALSE	FALSE
	9/12/1995	2	FALSE	FALSE
	4/19/1996	ND<1	FALSE	FALSE
	3/17/1997	11	TRUE	TRUE
	9/15/1997	ND<1	FALSE	FALSE
	3/3/1998	12.4	TRUE	TRUE
	9/9/1998	8.4	TRUE	TRUE
	3/25/1999	ND<1	FALSE	FALSE
	10/5/1999	2	FALSE	FALSE
	3/1/2000	ND<1	FALSE	FALSE
	9/21/2000	ND<1	FALSE	FALSE
	3/8/2001	ND<1	FALSE	FALSE
	9/27/2001	ND<1	FALSE	FALSE
	3/27/2002	ND<1	FALSE	FALSE
	9/19/2002	ND<1	FALSE	FALSE

	3/19/2003	ND<1	FALSE	FALSE
	9/11/2003	ND<1	FALSE	FALSE
	3/18/2004	ND<1	FALSE	FALSE
	9/30/2004	ND<1	FALSE	FALSE
	3/29/2005	ND<1	FALSE	FALSE
	9/29/2005	ND<1	FALSE	FALSE
	3/3/2006	ND<1	FALSE	FALSE
	9/21/2006	ND<1	FALSE	FALSE
	3/19/2007	ND<1	FALSE	FALSE
	9/13/2007	ND<1	FALSE	FALSE
	3/28/2008	ND<1	FALSE	FALSE
	9/29/2008	ND<1	FALSE	FALSE
	3/30/2009	ND<1	FALSE	FALSE
	9/8/2009	ND<1	FALSE	FALSE
	3/30/2010	ND<1	FALSE	FALSE
	9/27/2010	4	**TRUE**	FALSE
MW-8	6/22/2007	ND<1	FALSE	FALSE
	9/13/2007	ND<1	FALSE	FALSE
	3/28/2008	ND<1	FALSE	FALSE
	9/29/2008	ND<1	FALSE	FALSE
	3/30/2009	ND<1	FALSE	FALSE
	9/8/2009	ND<1	FALSE	FALSE
	3/30/2010	ND<1	FALSE	FALSE
	9/27/2010	1	FALSE	FALSE

Poisson Tolerance Limit

Parameter: Cadmium, total

Original Data (Not Transformed)
Non-Detects Replaced with Detection Limit

Poisson Count of 35 background measurements = 35
Degrees of Freedom = 72

95% Confidence Values

Chi-Squared Value (95% Confidence) = 92.8083
Lambda (from Zack's formula) = 1.32583
Smallest Degrees of Freedom = 8
Upper Tolerance Limit (95%) = 3

99% Confidence Values

Chi-Squared Value (99% Confidence) = 102.816
Lambda (from Zack's formula) = 1.4688
Smallest Degrees of Freedom = 11
Upper Tolerance Limit (99%) = 4.5

	Date	Conc.	Significant 95%	Significant 99%
MW-4	9/15/1994	ND<1	FALSE	FALSE
	11/18/1994	ND<1	FALSE	FALSE
	1/12/1995	ND<1	FALSE	FALSE
	2/6/1995	ND<1	FALSE	FALSE
	9/12/1995	ND<1	FALSE	FALSE
	4/19/1996	ND<1	FALSE	FALSE
	3/17/1997	ND<1	FALSE	FALSE
	9/15/1997	ND<1	FALSE	FALSE
	3/3/1998	ND<1	FALSE	FALSE
	9/9/1998	ND<1	FALSE	FALSE
	3/25/1999	1	FALSE	FALSE
	10/5/1999	ND<1	FALSE	FALSE
	3/1/2000	ND<1	FALSE	FALSE
	9/21/2000	ND<1	FALSE	FALSE
	3/8/2001	ND<1	FALSE	FALSE
	9/27/2001	ND<1	FALSE	FALSE
	3/27/2002	ND<1	FALSE	FALSE
	9/19/2002	ND<1	FALSE	FALSE
	3/19/2003	ND<1	FALSE	FALSE
	9/11/2003	ND<1	FALSE	FALSE
	3/18/2004	ND<1	FALSE	FALSE
	9/30/2004	ND<1	FALSE	FALSE
	3/29/2005	1	FALSE	FALSE
	9/29/2005	ND<1	FALSE	FALSE
	3/3/2006	ND<1	FALSE	FALSE
	9/21/2006	ND<1	FALSE	FALSE
	3/19/2007	ND<1	FALSE	FALSE
	5/24/2007	ND<1	FALSE	FALSE
	9/13/2007	ND<1	FALSE	FALSE
	3/28/2008	ND<1	FALSE	FALSE
	9/29/2008	ND<1	FALSE	FALSE
	3/30/2009	ND<1	FALSE	FALSE
	9/8/2009	ND<1	FALSE	FALSE
	3/30/2010	ND<1	FALSE	FALSE
	9/27/2010	3	FALSE	FALSE

Non-Parametric Tolerance Interval

Parameter: Lead, total

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 60.8333%
Background measurements (n) = 35
Maximum Background Concentration = 32
Minimum Coverage = 91.8%
Average Coverage = 97.2222%

Location	Date	Value	Significant
MW-4	9/15/1994	ND<5	FALSE
MW-4	11/18/1994	23	FALSE
MW-4	1/12/1995	10	FALSE
MW-4	2/6/1995	ND<5	FALSE
MW-4	9/12/1995	16	FALSE
MW-4	**4/19/1996**	**149**	**TRUE**
MW-4	**3/17/1997**	**83**	**TRUE**
MW-4	9/15/1997	25	FALSE
MW-4	**3/3/1998**	**62**	**TRUE**
MW-4	9/9/1998	21	FALSE
MW-4	3/25/1999	12	FALSE
MW-4	**10/5/1999**	**49**	**TRUE**
MW-4	3/1/2000	ND<5	FALSE
MW-4	9/21/2000	ND<5	FALSE
MW-4	3/8/2001	ND<5	FALSE
MW-4	**9/27/2001**	**33**	**TRUE**
MW-4	3/27/2002	27	FALSE
MW-4	**9/19/2002**	**96**	**TRUE**
MW-4	3/19/2003	32	FALSE
MW-4	9/11/2003	18	FALSE
MW-4	3/18/2004	30	FALSE
MW-4	9/30/2004	12	FALSE
MW-4	**3/29/2005**	**48**	**TRUE**
MW-4	9/29/2005	26	FALSE
MW-4	3/3/2006	ND<5	FALSE
MW-4	9/21/2006	ND<5	FALSE
MW-4	3/19/2007	ND<5	FALSE
MW-4	5/24/2007	ND<5	FALSE
MW-4	9/13/2007	ND<5	FALSE
MW-4	3/28/2008	ND<5	FALSE
MW-4	9/29/2008	ND<5	FALSE
MW-4	3/30/2009	ND<5	FALSE
MW-4	9/8/2009	ND<5	FALSE
MW-4	3/30/2010	ND<5	FALSE
MW-4	**9/27/2010**	**121**	**TRUE**
MW-7	6/22/2007	ND<5	FALSE
MW-7	9/13/2007	ND<5	FALSE
MW-7	**3/28/2008**	**763**	**TRUE**
MW-7	9/29/2008	ND<5	FALSE
MW-7	3/30/2009	ND<5	FALSE
MW-7	9/8/2009	ND<5	FALSE
MW-7	3/30/2010	ND<5	FALSE
MW-7	9/27/2010	13	FALSE
MW-6	9/15/1994	14	FALSE
MW-6	11/18/1994	17	FALSE
MW-6	1/12/1995	ND<5	FALSE
MW-6	2/6/1995	ND<5	FALSE
MW-6	9/12/1995	20	FALSE
MW-6	4/19/1996	14	FALSE
MW-6	**3/17/1997**	**101**	**TRUE**
MW-6	9/15/1997	15	FALSE
MW-6	**3/3/1998**	**81**	**TRUE**
MW-6	**9/9/1998**	**75**	**TRUE**
MW-6	3/25/1999	ND<5	FALSE
MW-6	10/5/1999	30	FALSE
MW-6	3/1/2000	ND<5	FALSE
MW-6	9/21/2000	ND<5	FALSE
MW-6	3/8/2001	ND<5	FALSE
MW-6	9/27/2001	ND<5	FALSE
MW-6	3/27/2002	16	FALSE

MW-6	9/19/2002	30	FALSE
MW-6	3/19/2003	23	FALSE
MW-6	9/11/2003	ND<5	FALSE
MW-6	3/18/2004	28	FALSE
MW-6	9/30/2004	ND<5	FALSE
MW-6	3/29/2005	ND<5	FALSE
MW-6	9/29/2005	ND<5	FALSE
MW-6	3/3/2006	13	FALSE
MW-6	9/21/2006	30	FALSE
MW-6	3/19/2007	ND<5	FALSE
MW-6	9/13/2007	ND<5	FALSE
MW-6	3/28/2008	ND<5	FALSE
MW-6	9/29/2008	ND<5	FALSE
MW-6	3/30/2009	ND<5	FALSE
MW-6	9/8/2009	ND<5	FALSE
MW-6	3/30/2010	ND<5	FALSE
MW-6	**9/27/2010**	**76**	**TRUE**
MW-8	6/22/2007	ND<5	FALSE
MW-8	9/13/2007	ND<5	FALSE
MW-8	3/28/2008	ND<5	FALSE
MW-8	9/29/2008	ND<5	FALSE
MW-8	3/30/2009	ND<5	FALSE
MW-8	9/8/2009	ND<5	FALSE
MW-8	3/30/2010	ND<5	FALSE
MW-8	9/27/2010	28	FALSE

Non-Parametric Tolerance Interval

Parameter: Chromium, total

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 55%
Background measurements (n) = 35
Maximum Background Concentration = 40
Minimum Coverage = 91.8%
Average Coverage = 97.2222%

Location	Date	Value	Significant
MW-4	9/15/1994	ND<5	FALSE
MW-4	11/18/1994	15	FALSE
MW-4	1/12/1995	ND<5	FALSE
MW-4	2/6/1995	ND<5	FALSE
MW-4	9/12/1995	ND<5	FALSE
MW-4	4/19/1996	27	FALSE
MW-4	3/17/1997	19	FALSE
MW-4	9/15/1997	ND<5	FALSE
MW-4	3/3/1998	28	FALSE
MW-4	9/9/1998	11	FALSE
MW-4	3/25/1999	11	FALSE
MW-4	**10/5/1999**	**57**	**TRUE**
MW-4	3/1/2000	ND<5	FALSE
MW-4	9/21/2000	ND<5	FALSE
MW-4	3/8/2001	13	FALSE
MW-4	**9/27/2001**	**52**	**TRUE**
MW-4	3/27/2002	28	FALSE
MW-4	**9/19/2002**	**136**	**TRUE**
MW-4	3/19/2003	28	FALSE
MW-4	9/11/2003	21	FALSE
MW-4	3/18/2004	22	FALSE
MW-4	9/30/2004	ND<5	FALSE
MW-4	3/29/2005	ND<5	FALSE
MW-4	9/29/2005	ND<5	FALSE
MW-4	3/3/2006	ND<5	FALSE
MW-4	9/21/2006	ND<5	FALSE
MW-4	3/19/2007	ND<5	FALSE
MW-4	5/24/2007	ND<5	FALSE
MW-4	9/13/2007	ND<5	FALSE
MW-4	3/28/2008	ND<5	FALSE
MW-4	9/29/2008	ND<5	FALSE
MW-4	3/30/2009	ND<5	FALSE
MW-4	9/8/2009	ND<5	FALSE
MW-4	3/30/2010	ND<5	FALSE
MW-4	9/27/2010	28	FALSE
MW-7	6/22/2007	ND<5	FALSE
MW-7	9/13/2007	ND<5	FALSE
MW-7	3/28/2008	ND<5	FALSE
MW-7	9/29/2008	ND<5	FALSE
MW-7	3/30/2009	ND<5	FALSE
MW-7	9/8/2009	ND<5	FALSE
MW-7	3/30/2010	ND<5	FALSE
MW-7	9/27/2010	21	FALSE
MW-6	9/15/1994	13	FALSE
MW-6	11/18/1994	32	FALSE
MW-6	1/12/1995	10	FALSE
MW-6	2/6/1995	ND<5	FALSE
MW-6	9/12/1995	20	FALSE
MW-6	4/19/1996	13	FALSE
MW-6	3/17/1997	39	FALSE
MW-6	9/15/1997	22	FALSE
MW-6	**3/3/1998**	**41**	**TRUE**
MW-6	**9/9/1998**	**50**	**TRUE**
MW-6	3/25/1999	28	FALSE
MW-6	**10/5/1999**	**74**	**TRUE**
MW-6	3/1/2000	13	FALSE
MW-6	9/21/2000	14	FALSE
MW-6	**3/8/2001**	**46**	**TRUE**
MW-6	9/27/2001	33	FALSE
MW-6	3/27/2002	26	FALSE

MW-6	**9/19/2002**	**65**	**TRUE**
MW-6	**3/19/2003**	**56**	**TRUE**
MW-6	9/11/2003	15	FALSE
MW-6	**3/18/2004**	**115**	**TRUE**
MW-6	9/30/2004	13	FALSE
MW-6	3/29/2005	ND<5	FALSE
MW-6	9/29/2005	ND<5	FALSE
MW-6	3/3/2006	13	FALSE
MW-6	9/21/2006	15	FALSE
MW-6	3/19/2007	ND<5	FALSE
MW-6	9/13/2007	ND<5	FALSE
MW-6	3/28/2008	ND<5	FALSE
MW-6	9/29/2008	ND<5	FALSE
MW-6	3/30/2009	ND<5	FALSE
MW-6	9/8/2009	ND<5	FALSE
MW-6	3/30/2010	ND<5	FALSE
MW-6	9/27/2010	28	FALSE
MW-8	6/22/2007	ND<5	FALSE
MW-8	9/13/2007	ND<5	FALSE
MW-8	3/28/2008	ND<5	FALSE
MW-8	9/29/2008	ND<5	FALSE
MW-8	3/30/2009	ND<5	FALSE
MW-8	9/8/2009	ND<5	FALSE
MW-8	3/30/2010	ND<5	FALSE
MW-8	9/27/2010	13	FALSE

Non-Parametric Tolerance Interval

Parameter: Vanadium

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 80.8333%
Background measurements (n) = 35
Maximum Background Concentration = 69
Minimum Coverage = 91.8%
Average Coverage = 97.2222%

Location	Date	Value	Significant
MW-4	9/15/1994	ND<12.5	FALSE
MW-4	11/18/1994	ND<12.5	FALSE
MW-4	1/12/1995	ND<12.5	FALSE
MW-4	2/6/1995	ND<12.5	FALSE
MW-4	9/12/1995	ND<12.5	FALSE
MW-4	4/19/1996	ND<12.5	FALSE
MW-4	3/17/1997	ND<12.5	FALSE
MW-4	9/15/1997	ND<12.5	FALSE
MW-4	**3/3/1998**	**79**	**TRUE**
MW-4	9/9/1998	ND<12.5	FALSE
MW-4	3/25/1999	ND<12.5	FALSE
MW-4	**10/5/1999**	**119**	**TRUE**
MW-4	3/1/2000	ND<12.5	FALSE
MW-4	9/21/2000	ND<12.5	FALSE
MW-4	3/8/2001	ND<12.5	FALSE
MW-4	**9/27/2001**	**92**	**TRUE**
MW-4	3/27/2002	54	FALSE
MW-4	**9/19/2002**	**239**	**TRUE**
MW-4	3/19/2003	65	FALSE
MW-4	9/11/2003	ND<12.5	FALSE
MW-4	3/18/2004	ND<12.5	FALSE
MW-4	9/30/2004	ND<12.5	FALSE
MW-4	3/29/2005	ND<12.5	FALSE
MW-4	9/29/2005	ND<12.5	FALSE
MW-4	3/3/2006	ND<12.5	FALSE
MW-4	9/21/2006	ND<12.5	FALSE
MW-4	3/19/2007	ND<12.5	FALSE
MW-4	5/24/2007	ND<12.5	FALSE
MW-4	9/13/2007	ND<12.5	FALSE
MW-4	3/28/2008	ND<12.5	FALSE
MW-4	9/29/2008	ND<12.5	FALSE
MW-4	3/30/2009	ND<12.5	FALSE
MW-4	9/8/2009	ND<12.5	FALSE
MW-4	3/30/2010	ND<12.5	FALSE
MW-4	**9/27/2010**	**74**	**TRUE**
MW-7	6/22/2007	ND<12.5	FALSE
MW-7	9/13/2007	ND<12.5	FALSE
MW-7	3/28/2008	ND<12.5	FALSE
MW-7	9/29/2008	ND<12.5	FALSE
MW-7	3/30/2009	ND<12.5	FALSE
MW-7	9/8/2009	ND<12.5	FALSE
MW-7	3/30/2010	ND<12.5	FALSE
MW-7	9/27/2010	26	FALSE
MW-6	9/15/1994	ND<12.5	FALSE
MW-6	11/18/1994	ND<12.5	FALSE
MW-6	1/12/1995	ND<12.5	FALSE
MW-6	2/6/1995	ND<12.5	FALSE
MW-6	9/12/1995	ND<12.5	FALSE
MW-6	4/19/1996	ND<12.5	FALSE
MW-6	3/17/1997	59	FALSE
MW-6	9/15/1997	ND<12.5	FALSE
MW-6	3/3/1998	44	FALSE
MW-6	**9/9/1998**	**165**	**TRUE**
MW-6	3/25/1999	ND<12.5	FALSE
MW-6	**10/5/1999**	**86**	**TRUE**
MW-6	3/1/2000	ND<12.5	FALSE
MW-6	9/21/2000	ND<12.5	FALSE
MW-6	3/8/2001	56	FALSE
MW-6	9/27/2001	ND<12.5	FALSE
MW-6	3/27/2002	ND<12.5	FALSE

MW-6	**9/19/2002**	**73**	**TRUE**
MW-6	**3/19/2003**	**74**	**TRUE**
MW-6	9/11/2003	ND<12.5	FALSE
MW-6	**3/18/2004**	**136**	**TRUE**
MW-6	9/30/2004	ND<12.5	FALSE
MW-6	3/29/2005	ND<12.5	FALSE
MW-6	9/29/2005	ND<12.5	FALSE
MW-6	3/3/2006	ND<12.5	FALSE
MW-6	9/21/2006	ND<12.5	FALSE
MW-6	3/19/2007	ND<12.5	FALSE
MW-6	9/13/2007	ND<12.5	FALSE
MW-6	3/28/2008	ND<12.5	FALSE
MW-6	9/29/2008	ND<12.5	FALSE
MW-6	3/30/2009	ND<12.5	FALSE
MW-6	9/8/2009	ND<12.5	FALSE
MW-6	3/30/2010	ND<12.5	FALSE
MW-6	9/27/2010	36	FALSE
MW-8	6/22/2007	ND<12.5	FALSE
MW-8	9/13/2007	ND<12.5	FALSE
MW-8	3/28/2008	ND<12.5	FALSE
MW-8	9/29/2008	ND<12.5	FALSE
MW-8	3/30/2009	ND<12.5	FALSE
MW-8	9/8/2009	ND<12.5	FALSE
MW-8	3/30/2010	ND<12.5	FALSE
MW-8	9/27/2010	40	FALSE

Non-Parametric Tolerance Interval

Parameter: Zinc, total

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 83.7662%
Background measurements (n) = 35
Maximum Background Concentration = 103
Minimum Coverage = 91.8%
Average Coverage = 97.2222%

Location	Date	Value	Significant
MW-4	9/15/1994	ND<5	FALSE
MW-4	11/18/1994	ND<5	FALSE
MW-4	1/12/1995	ND<5	FALSE
MW-4	2/6/1995	ND<5	FALSE
MW-4	9/12/1995	ND<5	FALSE
MW-4	**4/19/1996**	**238**	**TRUE**
MW-4	3/17/1997	79	FALSE
MW-4	9/15/1997	79	FALSE
MW-4	3/3/1998	81	FALSE
MW-4	9/9/1998	ND<5	FALSE
MW-4	3/25/1999	ND<5	FALSE
MW-4	10/5/1999	78	FALSE
MW-4	3/1/2000	ND<5	FALSE
MW-4	9/21/2000	ND<5	FALSE
MW-4	3/8/2001	ND<5	FALSE
MW-4	9/27/2001	56	FALSE
MW-4	3/27/2002	ND<5	FALSE
MW-4	**9/19/2002**	**142**	**TRUE**
MW-4	3/19/2003	ND<5	FALSE
MW-4	9/11/2003	ND<5	FALSE
MW-4	3/18/2004	ND<5	FALSE
MW-4	9/30/2004	ND<5	FALSE
MW-4	3/29/2005	92	FALSE
MW-4	9/29/2005	85	FALSE
MW-4	3/3/2006	ND<5	FALSE
MW-4	9/21/2006	ND<5	FALSE
MW-4	3/19/2007	ND<5	FALSE
MW-4	5/24/2007	ND<5	FALSE
MW-4	9/13/2007	ND<5	FALSE
MW-4	3/28/2008	ND<5	FALSE
MW-4	9/29/2008	ND<5	FALSE
MW-4	3/30/2009	ND<5	FALSE
MW-4	9/8/2009	ND<5	FALSE
MW-4	3/30/2010	ND<5	FALSE
MW-4	**9/27/2010**	**295**	**TRUE**
MW-7	6/22/2007	ND<5	FALSE
MW-7	9/13/2007	ND<5	FALSE
MW-7	3/28/2008	17	FALSE
MW-7	9/29/2008	ND<5	FALSE
MW-7	3/30/2009	ND<5	FALSE
MW-7	9/8/2009	ND<5	FALSE
MW-7	3/30/2010	ND<5	FALSE
MW-7	9/27/2010	34	FALSE
MW-6	9/15/1994	ND<5	FALSE
MW-6	11/18/1994	ND<5	FALSE
MW-6	1/12/1995	ND<5	FALSE
MW-6	2/6/1995	ND<5	FALSE
MW-6	9/12/1995	ND<5	FALSE
MW-6	4/19/1996	ND<5	FALSE
MW-6	**3/17/1997**	**161**	**TRUE**
MW-6	9/15/1997	ND<5	FALSE
MW-6	**3/3/1998**	**191**	**TRUE**
MW-6	**9/9/1998**	**178**	**TRUE**
MW-6	3/25/1999	ND<5	FALSE
MW-6	10/5/1999	103	FALSE
MW-6	3/1/2000	ND<5	FALSE
MW-6	9/21/2000	ND<5	FALSE
MW-6	3/8/2001	ND<5	FALSE
MW-6	9/27/2001	ND<5	FALSE
MW-6	3/27/2002	ND<5	FALSE

MW-6	9/19/2002	76	FALSE
MW-6	3/19/2003	ND<5	FALSE
MW-6	9/11/2003	ND<5	FALSE
MW-6	3/18/2004	81	FALSE
MW-6	9/30/2004	ND<5	FALSE
MW-6	3/29/2005	ND<5	FALSE
MW-6	9/29/2005	ND<5	FALSE
MW-6	3/3/2006	ND<5	FALSE
MW-6	9/21/2006	ND<5	FALSE
MW-6	3/19/2007	ND<5	FALSE
MW-6	9/13/2007	ND<5	FALSE
MW-6	3/28/2008	ND<5	FALSE
MW-6	9/29/2008	ND<5	FALSE
MW-6	3/30/2009	ND<5	FALSE
MW-6	9/8/2009	ND<5	FALSE
MW-6	3/30/2010	ND<5	FALSE
MW-6	**9/27/2010**	**110**	**TRUE**

MW-8	6/22/2007	ND<5	FALSE
MW-8	9/13/2007	ND<5	FALSE
MW-8	3/28/2008	ND<5	FALSE
MW-8	9/29/2008	ND<5	FALSE
MW-8	3/30/2009	ND<5	FALSE
MW-8	9/8/2009	ND<5	FALSE
MW-8	3/30/2010	ND<5	FALSE
MW-8	9/27/2010	22	FALSE

MW-5	9/15/1994	ND<5	FALSE
MW-5	11/18/1994	ND<5	FALSE
MW-5	1/12/1995	ND<5	FALSE
MW-5	2/6/1995	ND<5	FALSE
MW-5	9/12/1995	ND<5	FALSE
MW-5	4/19/1996	ND<5	FALSE
MW-5	3/17/1997	ND<5	FALSE
MW-5	9/15/1997	ND<5	FALSE
MW-5	3/3/1998	ND<5	FALSE
MW-5	9/9/1998	ND<5	FALSE
MW-5	3/25/1999	ND<5	FALSE
MW-5	10/5/1999	ND<5	FALSE
MW-5	3/1/2000	ND<5	FALSE
MW-5	9/21/2000	ND<5	FALSE
MW-5	3/8/2001	ND<5	FALSE
MW-5	9/27/2001	ND<5	FALSE
MW-5	3/27/2002	ND<5	FALSE
MW-5	9/19/2002	ND<5	FALSE
MW-5	3/19/2003	ND<5	FALSE
MW-5	9/11/2003	ND<5	FALSE
MW-5	3/18/2004	ND<5	FALSE
MW-5	9/30/2004	ND<5	FALSE
MW-5	3/29/2005	ND<5	FALSE
MW-5	9/29/2005	ND<5	FALSE
MW-5	3/3/2006	ND<5	FALSE
MW-5	9/21/2006	ND<5	FALSE
MW-5	3/19/2007	ND<5	FALSE
MW-5	9/13/2007	ND<5	FALSE
MW-5	3/28/2008	ND<5	FALSE
MW-5	9/29/2008	ND<5	FALSE
MW-5	3/30/2009	ND<5	FALSE
MW-5	9/8/2009	ND<5	FALSE
MW-5	3/30/2010	ND<5	FALSE
MW-5	9/27/2010	11	FALSE

Statistical Analysis
Test for Outliers

Rosner's Test for Outliers

Parameter: Arsenic, total

Location: MW-4

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Data set mean = 5.31429

10 most extreme of 35 measurements

by order of magnitude difference from the mean

1	9/27/2010	MW-4	16	10.6857
2	3/30/2010	MW-4	ND<5	-0.314286
3	9/8/2009	MW-4	ND<5	-0.314286
4	3/30/2009	MW-4	ND<5	-0.314286
5	9/29/2008	MW-4	ND<5	-0.314286
6	3/28/2008	MW-4	ND<5	-0.314286
7	9/13/2007	MW-4	ND<5	-0.314286
8	5/24/2007	MW-4	ND<5	-0.314286
9	3/19/2007	MW-4	ND<5	-0.314286
10	9/21/2006	MW-4	ND<5	-0.314286

Iteration i = 9

Mean of 26 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 9/21/2006 from location MW-4
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(35, 10, 0.05) = 2.84
0 < 2.84 -- No outliers detected for i = 9

Iteration i = 8

Mean of 27 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 3/19/2007 from location MW-4
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(35, 9, 0.05) = 2.856
0 < 2.856 -- No outliers detected for i = 8

Iteration i = 7

Mean of 28 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 5/24/2007 from location MW-4
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(35, 8, 0.05) = 2.872
0 < 2.872 -- No outliers detected for i = 7

Iteration i = 6

Mean of 29 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 9/13/2007 from location MW-4
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(35, 7, 0.05) = 2.888
0 < 2.888 -- No outliers detected for i = 6

Iteration i = 5

Mean of 30 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 3/28/2008 from location MW-4
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(35, 6, 0.05) = 2.904
0 < 2.904 -- No outliers detected for i = 5

Iteration i = 4

Mean of 31 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 9/29/2008 from location MW-4
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(35, 5, 0.05) = 2.92
0 < 2.92 -- No outliers detected for i = 4

Iteration i = 3

Mean of 32 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 3/30/2009 from location MW-4
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(35, 4, 0.05) = 2.94
0 < 2.94 -- No outliers detected for i = 3

Iteration i = 2

Mean of 33 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 9/8/2009 from location MW-4
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(35, 3, 0.05) = 2.95
0 < 2.95 -- No outliers detected for i = 2

Iteration i = 1

Mean of 34 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 3/30/2010 from location MW-4
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(35, 2, 0.05) = 2.97
0 < 2.97 -- No outliers detected for i = 1

Iteration i = 0

Mean of 35 measurements = 5.31429
Std Dev = 1.85934
x(i+1) = 16 from measurement 9/27/2010 from location MW-4
Rosner Statistic R = |16 - 5.31429|/1.85934 = 5.74705
Lambda(35, 1, 0.05) = 2.98
5.74705 > 2.98 -- Measurement 9/27/2010 for location MW-4 is an outlier

Discordance Outlier Test
Parameter: Arsenic, total
Location: MW-4
Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Values

Loc.	Date	Value	Bkgrnd
MW-4	9/15/1994	ND<5	
MW-4	11/18/1994	ND<5	
MW-4	1/12/1995	ND<5	
MW-4	2/6/1995	ND<5	
MW-4	9/12/1995	ND<5	
MW-4	4/19/1996	ND<5	
MW-4	3/17/1997	ND<5	
MW-4	9/15/1997	ND<5	
MW-4	3/3/1998	ND<5	
MW-4	9/9/1998	ND<5	
MW-4	3/25/1999	ND<5	
MW-4	10/5/1999	ND<5	
MW-4	3/1/2000	ND<5	
MW-4	9/21/2000	ND<5	
MW-4	3/8/2001	ND<5	
MW-4	9/27/2001	ND<5	
MW-4	3/27/2002	ND<5	
MW-4	9/19/2002	ND<5	
MW-4	3/19/2003	ND<5	
MW-4	9/11/2003	ND<5	
MW-4	3/18/2004	ND<5	
MW-4	9/30/2004	ND<5	
MW-4	3/29/2005	ND<5	
MW-4	9/29/2005	ND<5	
MW-4	3/3/2006	ND<5	
MW-4	9/21/2006	ND<5	
MW-4	3/19/2007	ND<5	
MW-4	5/24/2007	ND<5	
MW-4	9/13/2007	ND<5	
MW-4	3/28/2008	ND<5	
MW-4	9/29/2008	ND<5	
MW-4	3/30/2009	ND<5	
MW-4	9/8/2009	ND<5	
MW-4	3/30/2010	ND<5	
MW-4	9/27/2010	16	

Mean = 5.31429
Standard Deviation = 1.85934

D(maximum value) = 5.74705
95% Critical Value = 2.811 for 34 measurements

5.74705 > 2.811
MW-4 9/27/2010 16 is an outlier

Rosner's Test for Outliers

Parameter: Arsenic, total

Location: MW-6

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Data set mean = 5.38235

10 most extreme of 34 measurements

by order of magnitude difference from the mean

1	9/27/2010	MW-6	18	12.6176
2	3/30/2010	MW-6	ND<5	-0.382353
3	9/8/2009	MW-6	ND<5	-0.382353
4	3/30/2009	MW-6	ND<5	-0.382353
5	9/29/2008	MW-6	ND<5	-0.382353
6	3/28/2008	MW-6	ND<5	-0.382353
7	9/13/2007	MW-6	ND<5	-0.382353
8	3/19/2007	MW-6	ND<5	-0.382353
9	9/21/2006	MW-6	ND<5	-0.382353
10	3/3/2006	MW-6	ND<5	-0.382353

Iteration i = 9

Mean of 25 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 3/3/2006 from location MW-6
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(34, 10, 0.05) = 2.82
0 < 2.82 -- No outliers detected for i = 9

Iteration i = 8

Mean of 26 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 9/21/2006 from location MW-6
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(34, 9, 0.05) = 2.838
0 < 2.838 -- No outliers detected for i = 8

Iteration i = 7

Mean of 27 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 3/19/2007 from location MW-6
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(34, 8, 0.05) = 2.856
0 < 2.856 -- No outliers detected for i = 7

Iteration i = 6

Mean of 28 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 9/13/2007 from location MW-6
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(34, 7, 0.05) = 2.874
0 < 2.874 -- No outliers detected for i = 6

Iteration i = 5

Mean of 29 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 3/28/2008 from location MW-6
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(34, 6, 0.05) = 2.892
0 < 2.892 -- No outliers detected for i = 5

Iteration i = 4

Mean of 30 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 9/29/2008 from location MW-6
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(34, 5, 0.05) = 2.91
0 < 2.91 -- No outliers detected for i = 4

Iteration i = 3

Mean of 31 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 3/30/2009 from location MW-6
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(34, 4, 0.05) = 2.92
0 < 2.92 -- No outliers detected for i = 3

Iteration i = 2

Mean of 32 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 9/8/2009 from location MW-6
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(34, 3, 0.05) = 2.94
0 < 2.94 -- No outliers detected for i = 2

Iteration i = 1

Mean of 33 measurements = 5
Std Dev = 0
x(i+1) = 5 from measurement 3/30/2010 from location MW-6
Rosner Statistic R = |5 - 5|/0 = 0
Lambda(34, 2, 0.05) = 2.95
0 < 2.95 -- No outliers detected for i = 1

Iteration i = 0

Mean of 34 measurements = 5.38235
Std Dev = 2.22948
x(i+1) = 18 from measurement 9/27/2010 from location MW-6
Rosner Statistic R = |18 - 5.38235|/2.22948 = 5.65945
Lambda(34, 1, 0.05) = 2.97
5.65945 > 2.97 -- Measurement 9/27/2010 for location MW-6 is an outlier

Discordance Outlier Test
Parameter: Arsenic, total
Location: MW-6
Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Values

Loc.	Date	Value	Bkgrnd
MW-6	9/15/1994	ND<5	
MW-6	11/18/1994	ND<5	
MW-6	1/12/1995	ND<5	
MW-6	2/6/1995	ND<5	
MW-6	9/12/1995	ND<5	
MW-6	4/19/1996	ND<5	
MW-6	3/17/1997	ND<5	
MW-6	9/15/1997	ND<5	
MW-6	3/3/1998	ND<5	
MW-6	9/9/1998	ND<5	
MW-6	3/25/1999	ND<5	
MW-6	10/5/1999	ND<5	
MW-6	3/1/2000	ND<5	
MW-6	9/21/2000	ND<5	
MW-6	3/8/2001	ND<5	
MW-6	9/27/2001	ND<5	
MW-6	3/27/2002	ND<5	
MW-6	9/19/2002	ND<5	
MW-6	3/19/2003	ND<5	
MW-6	9/11/2003	ND<5	
MW-6	3/18/2004	ND<5	
MW-6	9/30/2004	ND<5	
MW-6	3/29/2005	ND<5	
MW-6	9/29/2005	ND<5	
MW-6	3/3/2006	ND<5	
MW-6	9/21/2006	ND<5	
MW-6	3/19/2007	ND<5	
MW-6	9/13/2007	ND<5	
MW-6	3/28/2008	ND<5	
MW-6	9/29/2008	ND<5	
MW-6	3/30/2009	ND<5	
MW-6	9/8/2009	ND<5	
MW-6	3/30/2010	ND<5	
MW-6	9/27/2010	18	

Mean = 5.38235
Standard Deviation = 2.22948

D(maximum value) = 5.65945
95% Critical Value = 2.799 for 33 measurements

5.65945 > 2.799
MW-6 9/27/2010 18 is an outlier

Rosner's Test for Outliers

Parameter: Cadmium, total

Location: MW-4

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Data set mean = 0.6

10 most extreme of 35 measurements

by order of magnitude difference from the mean

1	9/27/2010	MW-4	3	2.4
2	3/25/1999	MW-4	1	0.4
3	3/29/2005	MW-4	1	0.4
4	3/30/2010	MW-4	ND<0.5	-0.1
5	9/8/2009	MW-4	ND<0.5	-0.1
6	3/28/2008	MW-4	ND<0.5	-0.1
7	9/13/2007	MW-4	ND<0.5	-0.1
8	3/30/2009	MW-4	ND<0.5	-0.1
9	9/29/2008	MW-4	ND<0.5	-0.1
10	9/21/2006	MW-4	ND<0.5	-0.1

Iteration i = 9

Mean of 26 measurements = 0.5
Std Dev = 0
x(i+1) = 0.5 from measurement 9/21/2006 from location MW-4
Rosner Statistic R = |0.5 - 0.5|/0 = 0
Lambda(35, 10, 0.05) = 2.84
0 < 2.84 -- No outliers detected for i = 9

Iteration i = 8

Mean of 27 measurements = 0.5
Std Dev = 0
x(i+1) = 0.5 from measurement 9/29/2008 from location MW-4
Rosner Statistic R = |0.5 - 0.5|/0 = 0
Lambda(35, 9, 0.05) = 2.856
0 < 2.856 -- No outliers detected for i = 8

Iteration i = 7

Mean of 28 measurements = 0.5
Std Dev = 0
x(i+1) = 0.5 from measurement 3/30/2009 from location MW-4
Rosner Statistic R = |0.5 - 0.5|/0 = 0
Lambda(35, 8, 0.05) = 2.872
0 < 2.872 -- No outliers detected for i = 7

Iteration i = 6

Mean of 29 measurements = 0.5
Std Dev = 0
x(i+1) = 0.5 from measurement 9/13/2007 from location MW-4
Rosner Statistic R = |0.5 - 0.5|/0 = 0
Lambda(35, 7, 0.05) = 2.888
0 < 2.888 -- No outliers detected for i = 6

Iteration i = 5

Mean of 30 measurements = 0.5
Std Dev = 0
x(i+1) = 0.5 from measurement 3/28/2008 from location MW-4
Rosner Statistic R = |0.5 - 0.5|/0 = 0
Lambda(35, 6, 0.05) = 2.904
0 < 2.904 -- No outliers detected for i = 5

Iteration i = 4

Mean of 31 measurements = 0.5
Std Dev = 0
x(i+1) = 0.5 from measurement 9/8/2009 from location MW-4
Rosner Statistic R = |0.5 - 0.5|/0 = 0
Lambda(35, 5, 0.05) = 2.92
0 < 2.92 -- No outliers detected for i = 4

Iteration i = 3

Mean of 32 measurements = 0.5
Std Dev = 0
x(i+1) = 0.5 from measurement 3/30/2010 from location MW-4
Rosner Statistic R = |0.5 - 0.5|/0 = 0
Lambda(35, 4, 0.05) = 2.94
0 < 2.94 -- No outliers detected for i = 3

Iteration i = 2

Mean of 33 measurements = 0.515152
Std Dev = 0.0870388
x(i+1) = 1 from measurement 3/29/2005 from location MW-4
Rosner Statistic R = |1 - 0.515152|/0.0870388 = 5.57048
Lambda(35, 3, 0.05) = 2.95
5.57048 > 2.95 -- Measurement 3/29/2005 for location MW-4 is an outlier

Iteration i = 1

Mean of 34 measurements = 0.529412
Std Dev = 0.119416
x(i+1) = 1 from measurement 3/25/1999 from location MW-4
Rosner Statistic R = |1 - 0.529412|/0.119416 = 3.94074
Lambda(35, 2, 0.05) = 2.97
Measurement 3/25/1999 for location MW-4 is an outlier

Iteration i = 0

Mean of 35 measurements = 0.6
Std Dev = 0.433861
x(i+1) = 3 from measurement 9/27/2010 from location MW-4
Rosner Statistic R = |3 - 0.6|/0.433861 = 5.53173
Lambda(35, 1, 0.05) = 2.98
Measurement 9/27/2010 for location MW-4 is an outlier

Discordance Outlier Test
Parameter: Cadmium, total
Location: MW-4
Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Values

Loc.	Date	Value	Bkgrnd
MW-4	9/15/1994	ND<0.5	
MW-4	11/18/1994	ND<0.5	
MW-4	1/12/1995	ND<0.5	
MW-4	2/6/1995	ND<0.5	
MW-4	9/12/1995	ND<0.5	
MW-4	4/19/1996	ND<0.5	
MW-4	3/17/1997	ND<0.5	
MW-4	9/15/1997	ND<0.5	
MW-4	3/3/1998	ND<0.5	
MW-4	9/9/1998	ND<0.5	
MW-4	9/29/2005	ND<0.5	
MW-4	10/5/1999	ND<0.5	
MW-4	3/1/2000	ND<0.5	
MW-4	9/21/2000	ND<0.5	
MW-4	3/8/2001	ND<0.5	
MW-4	9/27/2001	ND<0.5	
MW-4	3/27/2002	ND<0.5	
MW-4	9/19/2002	ND<0.5	
MW-4	3/19/2003	ND<0.5	
MW-4	9/11/2003	ND<0.5	
MW-4	3/18/2004	ND<0.5	
MW-4	9/30/2004	ND<0.5	
MW-4	3/19/2007	ND<0.5	
MW-4	5/24/2007	ND<0.5	
MW-4	3/3/2006	ND<0.5	
MW-4	9/21/2006	ND<0.5	
MW-4	9/29/2008	ND<0.5	
MW-4	3/30/2009	ND<0.5	
MW-4	9/13/2007	ND<0.5	
MW-4	3/28/2008	ND<0.5	
MW-4	9/8/2009	ND<0.5	
MW-4	3/30/2010	ND<0.5	
MW-4	3/29/2005	1	
MW-4	3/25/1999	1	
MW-4	9/27/2010	3	

Mean = 0.6
Standard Deviation = 0.433861

D(maximum value) = 5.53173
95% Critical Value = 2.811 for 34 measurements

5.53173 > 2.811
MW-4 9/27/2010 3 is an outlier

Discordance Outlier Test
Parameter: Vanadium
Location: MW-7
Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Values

Loc.	Date	Value	Bkgrnd
MW-7	6/22/2007	ND<12.5	
MW-7	9/13/2007	ND<12.5	
MW-7	3/28/2008	ND<12.5	
MW-7	9/29/2008	ND<12.5	
MW-7	3/30/2009	ND<12.5	
MW-7	9/8/2009	ND<12.5	
MW-7	3/30/2010	ND<12.5	
MW-7	9/27/2010	26	

Mean = 14.1875
Standard Deviation = 4.77297

D(maximum value) = 2.47487
95% Critical Value = 2.032 for 7 measurements

2.47487 > 2.032
MW-7 9/27/2010 26 is an outlier

Discordance Outlier Test
Parameter: Vanadium
Location: MW-8
Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Values

Loc.	Date	Value	Bkgrnd
MW-8	6/22/2007	ND<12.5	
MW-8	9/13/2007	ND<12.5	
MW-8	3/28/2008	ND<12.5	
MW-8	9/29/2008	ND<12.5	
MW-8	3/30/2009	ND<12.5	
MW-8	9/8/2009	ND<12.5	
MW-8	3/30/2010	ND<12.5	
MW-8	9/27/2010	40	

Mean = 15.9375
Standard Deviation = 9.72272

D(maximum value) = 2.47487
95% Critical Value = 2.032 for 7 measurements

2.47487 > 2.032
MW-8 9/27/2010 40 is an outlier

Discordance Outlier Test
Parameter: Zinc, total
Location: MW-8
Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Values

Loc.	Date	Value	Bkgrnd
MW-8	6/22/2007	ND<5	
MW-8	9/13/2007	ND<5	
MW-8	3/28/2008	ND<5	
MW-8	9/29/2008	ND<5	
MW-8	3/30/2009	ND<5	
MW-8	9/8/2009	ND<5	
MW-8	3/30/2010	ND<5	
MW-8	9/27/2010	22	

Mean = 7.125
Standard Deviation = 6.01041

D(maximum value) = 2.47487
95% Critical Value = 2.032 for 7 measurements

2.47487 > 2.032
MW-8 9/27/2010 22 is an outlier

Discordance Outlier Test
Parameter: Zinc, total
Location: MW-4
Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Values

Loc.	Date	Value	Bkgrnd
MW-4	9/15/1994	ND<5	
MW-4	11/18/1994	ND<5	
MW-4	1/12/1995	ND<5	
MW-4	2/6/1995	ND<5	
MW-4	9/12/1995	ND<5	
MW-4	3/19/2003	ND<5	
MW-4	9/11/2003	ND<5	
MW-4	3/18/2004	ND<5	
MW-4	9/30/2004	ND<5	
MW-4	9/9/1998	ND<5	
MW-4	3/25/1999	ND<5	
MW-4	3/3/2006	ND<5	
MW-4	3/1/2000	ND<5	
MW-4	9/21/2000	ND<5	
MW-4	3/8/2001	ND<5	
MW-4	9/13/2007	ND<5	
MW-4	3/27/2002	ND<5	
MW-4	9/29/2008	ND<5	
MW-4	3/30/2009	ND<5	
MW-4	9/8/2009	ND<5	
MW-4	3/30/2010	ND<5	
MW-4	9/21/2006	ND<5	
MW-4	3/19/2007	ND<5	
MW-4	5/24/2007	ND<5	
MW-4	3/28/2008	ND<5	
MW-4	9/27/2001	56	
MW-4	10/5/1999	78	
MW-4	9/15/1997	79	
MW-4	3/17/1997	79	
MW-4	3/3/1998	81	
MW-4	9/29/2005	85	
MW-4	3/29/2005	92	
MW-4	9/19/2002	142	
MW-4	4/19/1996	238	
MW-4	9/27/2010	295	

Mean = 38.5714
Standard Deviation = 67.81

D(maximum value) = 3.78158
95% Critical Value = 2.811 for 34 measurements

3.78158 > 2.811
MW-4 9/27/2010 295 is an outlier

Discordance Outlier Test

Parameter: Zinc, total

Location: MW-8

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Values

Loc.	Date	Value	Bkgrnd
MW-8	6/22/2007	ND<5	
MW-8	9/13/2007	ND<5	
MW-8	3/28/2008	ND<5	
MW-8	9/29/2008	ND<5	
MW-8	3/30/2009	ND<5	
MW-8	9/8/2009	ND<5	
MW-8	3/30/2010	ND<5	
MW-8	9/27/2010	22	

Mean = 7.125
Standard Deviation = 6.01041

D(maximum value) = 2.47487
95% Critical Value = 2.032 for 7 measurements

2.47487 > 2.032
MW-8 9/27/2010 22 is an outlier

Rosner's Test for Outliers

Parameter: Zinc, total

Location: MW-4

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Data set mean = 38.5714

10 most extreme of 35 measurements

by order of magnitude difference from the mean

1	9/27/2010	MW-4	295	256.429
2	4/19/1996	MW-4	238	199.429
3	9/19/2002	MW-4	142	103.429
4	3/29/2005	MW-4	92	53.4286
5	9/29/2005	MW-4	85	46.4286
6	3/3/1998	MW-4	81	42.4286
7	3/17/1997	MW-4	79	40.4286
8	9/15/1997	MW-4	79	40.4286
9	10/5/1999	MW-4	78	39.4286
10	3/28/2008	MW-4	ND<5	-33.5714

Iteration i = 9

Mean of 26 measurements = 6.96154
Std Dev = 10.0019
x(i+1) = 5 from measurement 3/28/2008 from location MW-4
Rosner Statistic R = |5 - 6.96154|/10.0019 = 0.196116
Lambda(35, 10, 0.05) = 2.84
0.196116 < 2.84 -- No outliers detected for i = 9

Iteration i = 8

Mean of 27 measurements = 9.59259
Std Dev = 16.8255
x(i+1) = 78 from measurement 10/5/1999 from location MW-4
Rosner Statistic R = |78 - 9.59259|/16.8255 = 4.0657
Lambda(35, 9, 0.05) = 2.856
4.0657 > 2.856 -- Measurement 10/5/1999 for location MW-4 is an outlier

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Iteration i = 7

Mean of 28 measurements = 12.0714
Std Dev = 21.087
x(i+1) = 79 from measurement 9/15/1997 from location MW-4
Rosner Statistic R = |79 - 12.0714|/21.087 = 3.17393
Lambda(35, 8, 0.05) = 2.872
Measurement 9/15/1997 for location MW-4 is an outlier

Iteration i = 6

Mean of 29 measurements = 14.3793
Std Dev = 24.1504
x(i+1) = 79 from measurement 3/17/1997 from location MW-4
Rosner Statistic R = |79 - 14.3793|/24.1504 = 2.67576
Lambda(35, 7, 0.05) = 2.888
Measurement 3/17/1997 for location MW-4 is an outlier

Iteration i = 5

Mean of 30 measurements = 16.6
Std Dev = 26.666
x(i+1) = 81 from measurement 3/3/1998 from location MW-4
Rosner Statistic R = |81 - 16.6|/26.666 = 2.41506
Lambda(35, 6, 0.05) = 2.904
Measurement 3/3/1998 for location MW-4 is an outlier

Iteration i = 4

Mean of 31 measurements = 18.8065
Std Dev = 28.9533
x(i+1) = 85 from measurement 9/29/2005 from location MW-4
Rosner Statistic R = |85 - 18.8065|/28.9533 = 2.28622
Lambda(35, 5, 0.05) = 2.92
Measurement 9/29/2005 for location MW-4 is an outlier

Iteration i = 3

Mean of 32 measurements = 21.0938
Std Dev = 31.2837
x(i+1) = 92 from measurement 3/29/2005 from location MW-4
Rosner Statistic R = |92 - 21.0938|/31.2837 = 2.26656
Lambda(35, 4, 0.05) = 2.94
Measurement 3/29/2005 for location MW-4 is an outlier

Iteration i = 2

Mean of 33 measurements = 24.7576
Std Dev = 37.297
x(i+1) = 142 from measurement 9/19/2002 from location MW-4
Rosner Statistic R = |142 - 24.7576|/37.297 = 3.14348
Lambda(35, 3, 0.05) = 2.95
Measurement 9/19/2002 for location MW-4 is an outlier

Iteration i = 1

Mean of 34 measurements = 31.0294
Std Dev = 51.8298
x(i+1) = 238 from measurement 4/19/1996 from location MW-4
Rosner Statistic R = |238 - 31.0294|/51.8298 = 3.99327
Lambda(35, 2, 0.05) = 2.97
Measurement 4/19/1996 for location MW-4 is an outlier

Iteration i = 0

Mean of 35 measurements = 38.5714
Std Dev = 67.81
x(i+1) = 295 from measurement 9/27/2010 from location MW-4
Rosner Statistic R = |295 - 38.5714|/67.81 = 3.78158
Lambda(35, 1, 0.05) = 2.98
Measurement 9/27/2010 for location MW-4 is an outlier

Rosner's Test for Outliers

Parameter: Barium, total

Location: MW-4

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Data set mean = 132.676

10 most extreme of 37 measurements

by order of magnitude difference from the mean

1	4/19/1996	MW-4	900	767.324
2	9/27/2010	MW-4	803	670.324
3	9/19/2002	MW-4	680	547.324
4	3/17/1997	MW-4	590	457.324
5	9/8/2009	MW-4	ND<50	-82.6757
6	3/29/2005	MW-4	ND<50	-82.6757
7	9/30/2004	MW-4	ND<50	-82.6757
8	3/28/2008	MW-4	ND<50	-82.6757
9	9/13/2007	MW-4	ND<50	-82.6757
10	5/24/2007	MW-4	ND<50	-82.6757

Iteration i = 9

Mean of 28 measurements = 60.2143
Std Dev = 37.5039
x(i+1) = 50 from measurement 5/24/2007 from location MW-4
Rosner Statistic R = |50 - 60.2143|/37.5039 = 0.272352
Lambda(37, 10, 0.05) = 2.88
0.272352 < 2.88 -- No outliers detected for i = 9

Iteration i = 8

Mean of 29 measurements = 59.8621
Std Dev = 36.8769
x(i+1) = 50 from measurement 9/13/2007 from location MW-4
Rosner Statistic R = |50 - 59.8621|/36.8769 = 0.267432
Lambda(37, 9, 0.05) = 2.894
0.267432 < 2.894 -- No outliers detected for i = 8

Iteration i = 7

Mean of 30 measurements = 59.5333
Std Dev = 36.2803
x(i+1) = 50 from measurement 3/28/2008 from location MW-4
Rosner Statistic R = |50 - 59.5333|/36.2803 = 0.262769
Lambda(37, 8, 0.05) = 2.908
0.262769 < 2.908 -- No outliers detected for i = 7

Iteration i = 6

Mean of 31 measurements = 59.2258
Std Dev = 35.7115
x(i+1) = 50 from measurement 9/30/2004 from location MW-4
Rosner Statistic R = |50 - 59.2258|/35.7115 = 0.258342
Lambda(37, 7, 0.05) = 2.922
0.258342 < 2.922 -- No outliers detected for i = 6

Iteration i = 5

Mean of 32 measurements = 58.9375
Std Dev = 35.1687
x(i+1) = 50 from measurement 3/29/2005 from location MW-4
Rosner Statistic R = |50 - 58.9375|/35.1687 = 0.254133
Lambda(37, 6, 0.05) = 2.936
0.254133 < 2.936 -- No outliers detected for i = 5

Iteration i = 4

Mean of 33 measurements = 58.6667
Std Dev = 34.6497
x(i+1) = 50 from measurement 9/8/2009 from location MW-4
Rosner Statistic R = |50 - 58.6667|/34.6497 = 0.250122
Lambda(37, 5, 0.05) = 2.95
0.250122 < 2.95 -- No outliers detected for i = 4

Iteration i = 3

Mean of 34 measurements = 74.2941
Std Dev = 97.3016
x(i+1) = 590 from measurement 3/17/1997 from location MW-4
Rosner Statistic R = |590 - 74.2941|/97.3016 = 5.30007
Lambda(37, 4, 0.05) = 2.97
5.30007 > 2.97 -- Measurement 3/17/1997 for location MW-4 is an outlier

Iteration i = 2

Mean of 35 measurements = 91.6
Std Dev = 140.255
x(i+1) = 680 from measurement 9/19/2002 from location MW-4
Rosner Statistic R = |680 - 91.6|/140.255 = 4.19522
Lambda(37, 3, 0.05) = 2.98
Measurement 9/19/2002 for location MW-4 is an outlier

Iteration i = 1

Mean of 36 measurements = 111.361
Std Dev = 182.119
x(i+1) = 803 from measurement 9/27/2010 from location MW-4
Rosner Statistic R = |803 - 111.361|/182.119 = 3.79772
Lambda(37, 2, 0.05) = 2.99
Measurement 9/27/2010 for location MW-4 is an outlier

Iteration i = 0

Mean of 37 measurements = 132.676
Std Dev = 221.485
x(i+1) = 900 from measurement 4/19/1996 from location MW-4
Rosner Statistic R = |900 - 132.676|/221.485 = 3.46445
Lambda(37, 1, 0.05) = 3
Measurement 4/19/1996 for location MW-4 is an outlier

Rosner's Test for Outliers

Parameter: Barium, total

Location: MW-6

Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL

Data set mean = 110.889

10 most extreme of 36 measurements

by order of magnitude difference from the mean

1	3/17/1997	MW-6	680	569.111
2	3/3/1998	MW-6	640	529.111
3	9/9/1998	MW-6	540	429.111
4	9/27/2010	MW-6	532	421.111
5	3/30/2010	MW-6	ND<50	-60.8889
6	9/8/2009	MW-6	ND<50	-60.8889
7	9/29/2008	MW-6	ND<50	-60.8889
8	3/28/2008	MW-6	ND<50	-60.8889
9	9/13/2007	MW-6	ND<50	-60.8889
10	3/30/2009	MW-6	ND<50	-60.8889

Iteration i = 9

Mean of 27 measurements = 50
Std Dev = 0
x(i+1) = 50 from measurement 3/30/2009 from location MW-6
Rosner Statistic R = |50 - 50|/0 = 0
Lambda(36, 10, 0.05) = 2.86
0 < 2.86 -- No outliers detected for i = 9

Iteration i = 8

Mean of 28 measurements = 50
Std Dev = 0
x(i+1) = 50 from measurement 9/13/2007 from location MW-6
Rosner Statistic R = |50 - 50|/0 = 0
Lambda(36, 9, 0.05) = 2.876
0 < 2.876 -- No outliers detected for i = 8

Iteration i = 7

Mean of 29 measurements = 50
Std Dev = 0
x(i+1) = 50 from measurement 3/28/2008 from location MW-6
Rosner Statistic R = |50 - 50|/0 = 0
Lambda(36, 8, 0.05) = 2.892
0 < 2.892 -- No outliers detected for i = 7

Iteration i = 6

Mean of 30 measurements = 50
Std Dev = 0
x(i+1) = 50 from measurement 9/29/2008 from location MW-6
Rosner Statistic R = |50 - 50|/0 = 0
Lambda(36, 7, 0.05) = 2.908
0 < 2.908 -- No outliers detected for i = 6

Iteration i = 5

Mean of 31 measurements = 50
Std Dev = 0
x(i+1) = 50 from measurement 9/8/2009 from location MW-6
Rosner Statistic R = |50 - 50|/0 = 0
Lambda(36, 6, 0.05) = 2.924
0 < 2.924 -- No outliers detected for i = 5

Iteration i = 4

Mean of 32 measurements = 50
Std Dev = 0
x(i+1) = 50 from measurement 3/30/2010 from location MW-6
Rosner Statistic R = |50 - 50|/0 = 0
Lambda(36, 5, 0.05) = 2.94
0 < 2.94 -- No outliers detected for i = 4

Iteration i = 3

Mean of 33 measurements = 64.6061
Std Dev = 83.9054
x(i+1) = 532 from measurement 9/27/2010 from location MW-6
Rosner Statistic R = |532 - 64.6061|/83.9054 = 5.57048
Lambda(36, 4, 0.05) = 2.95
5.57048 > 2.95 -- Measurement 9/27/2010 for location MW-6 is an outlier

Iteration i = 2

Mean of 34 measurements = 78.5882
Std Dev = 116.077
x(i+1) = 540 from measurement 9/9/1998 from location MW-6
Rosner Statistic R = |540 - 78.5882|/116.077 = 3.97506
Lambda(36, 3, 0.05) = 2.97
Measurement 9/9/1998 for location MW-6 is an outlier

Iteration i = 1

Mean of 35 measurements = 94.6286
Std Dev = 148.603
x(i+1) = 640 from measurement 3/3/1998 from location MW-6
Rosner Statistic R = |640 - 94.6286|/148.603 = 3.67
Lambda(36, 2, 0.05) = 2.98
Measurement 3/3/1998 for location MW-6 is an outlier

Iteration i = 0

Mean of 36 measurements = 110.889
Std Dev = 175.983
x(i+1) = 680 from measurement 3/17/1997 from location MW-6
Rosner Statistic R = |680 - 110.889|/175.983 = 3.23389
Lambda(36, 1, 0.05) = 2.99
Measurement 3/17/1997 for location MW-6 is an outlier

Statistical Analysis
Threshold Report(s)

Threshold Report
Parameter: Benzene
Detected Values Only
Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
There is 1 background location

Loc.	Obs.	ND	Date	Conc.
MW-1R	37	37 (100%)		

There are 5 compliance locations

Loc.	Obs.	ND	Date	Conc.
MW-6	35	35 (100%)		
MW-4	35	27 (77.1429%)	3/19/2007	3.9
			9/13/2007	1
			3/28/2008	2.2
			9/29/2008	3.4
			3/30/2009	5.8
			9/8/2009	3.5
			3/30/2010	5.3
			9/27/2010	2.5
MW-5	34	31 (91.1765%)	3/28/2008	0.3
			3/30/2009	0.6
			3/30/2010	0.6
MW-7	9	9 (100%)		
MW-8	9	9 (100%)		

Threshold Report
Parameter: Paradichlorobenzene
Detected Values Only
Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
There is 1 background location

Loc.	Obs.	ND	Date	Conc.
MW-1R	37	37 (100%)		

There are 5 compliance locations

Loc.	Obs.	ND	Date	Conc.
MW-6	35	35 (100%)		
MW-5	35	34 (97.1429%)	3/30/2009	0.5
MW-7	9	9 (100%)		
MW-4	35	26 (74.2857%)	3/19/2007	3.4
			5/24/2007	2.4
			9/13/2007	2.9
			3/28/2008	3.9
			9/29/2008	5.9
			3/30/2009	7.2
			9/8/2009	4.5
			3/30/2010	5.3
			9/27/2010	3
MW-8	9	9 (100%)		

Threshold Report

Parameter: cis-1,2-Dichloroethylene

Detected Values Only

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

There is 1 background location

Loc.	Obs.	ND	Date	Conc.
MW-1R	37	37 (100%)		

There are 5 compliance locations

Loc.	Obs.	ND	Date	Conc.
MW-6	35	35 (100%)		
MW-5	33	27 (81.8182%)	9/13/2007	0.4
			3/28/2008	1.5
			9/29/2008	0.4
			3/30/2009	2.3
			9/8/2009	0.7
			3/30/2010	2.1
MW-4	35	24 (68.5714%)	3/29/2005	9.4
			3/3/2006	10.8
			9/21/2006	14.3
			5/24/2007	10
			9/13/2007	9
			3/28/2008	10.2
			9/29/2008	11.6
			3/30/2009	14
			9/8/2009	9.1
			3/30/2010	13.7
			9/27/2010	6.8
MW-8	9	9 (100%)		
MW-7	9	9 (100%)		

Threshold Report
Parameter: Chloroethene
Detected Values Only
Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
There is 1 background location

Loc.	Obs.	ND	Date	Conc.
MW-1R	36	36 (100%)		

There are 5 compliance locations

Loc.	Obs.	ND	Date	Conc.
MW-4	35	26 (74.2857%)	3/19/2007	5.5
			5/24/2007	2.6
			9/13/2007	2.5
			3/28/2008	4.7
			9/29/2008	7
			3/30/2009	10.2
			9/8/2009	6
			3/30/2010	10.3
			9/27/2010	4.1
MW-6	35	35 (100%)		
MW-5	33	30 (90.9091%)	3/28/2008	0.4
			3/30/2009	2.3
			3/30/2010	2.9
MW-8	9	9 (100%)		
MW-7	9	9 (100%)		

Threshold Report
Parameter: Toluene
Detected Values Only
Original Data (Not Transformed)
Non-Detects Replaced with 1/2 DL
There is 1 background location

Loc.	Obs.	ND	Date	Conc.
MW-1R	37	37 (100%)		

There are 5 compliance locations

Loc.	Obs.	ND	Date	Conc.
MW-5	35	35 (100%)		
MW-4	34	27 (79.4118%)	9/29/2005	10.4
			5/24/2007	1.1
			9/13/2007	2.3
			9/29/2008	1.9
			3/30/2009	1.6
			9/8/2009	2.8
			3/30/2010	1
MW-6	35	35 (100%)		
MW-8	9	9 (100%)		
MW-7	9	9 (100%)		

APPENDIX B
Monitored Natural Attenuation Update

Corrective Action Summary

The Greene County Closed Unlined Municipal Solid Waste Landfill (MSWLF) and Active Construction and Demolition (C&D) Landfill located near Waltonburg, NC, currently operating under permit #40-02 has progressed with Monitored Natural Attenuation (MNA) monitoring in accordance with the Corrective Action Plan (CAP) approved February 2010. This is the second MNA sampling event; collected with traditional semi-annual sampling on September 27, 2010.

As proposed in the CAP, Environment 1 (E1) reported groundwater sampling results and tested for MNA parameters from two monitoring wells (MW-1R and MW-4). Sampling was conducted per the methodology listed in the approved CAP Groundwater and Surface Water Sampling and Analysis Plan. **Plate 3,** depicts the most recent sampling event detections above the 2L standard at each respective well. Only benzene and vinyl chloride in MW-4 were detected above 2L standards. Detections occurred within the 250 foot compliance boundary.

Table 1 lists the wells with their required MNA sampling parameter results. The COCs include both hydrocarbons and chlorinated solvents; therefore, biodegradation can occur on two fronts. **Table 2** shows the breakdown of chlorinated solvents through reductive chlorination during the first two sampling events. **Table 3** establishes the conditions present for existing dissolved hydrocarbons at plume locations. A biochlor model is also provided. The Corrective Action Evaluation Report (CAER), required by the Solid Waste Section, will be submitted following the fourth baseline sampling event.

Table 1: MNA Parameters at Monitoring Well Locations Summary

Parameters	Method	mdl*	Units	MW-1R	MW-4
				09/27/10	09/27/10
VFA – Acetic Acid	AM23G	6	ug/L	15	33
VFA – Butyric Acid	AM23G	4	ug/L	<4	<4
VFA – Hexanoic Acid	AM23G	6	ug/L	<6	<6
VFA – i-Hexanoic Acid	AM23G	6	ug/L	<6	<6
VFA – i-Pentanoic Acid	AM23G	44	ug/L	<44	<44
VFA – Lactic Acid	AM23G	10	ug/L	57	93
VFA – Pentaonic Acid	AM23G	12	ug/L	<12	<12
VFA – Propionic Acid	AM23G	7	ug/L	<7	<7
VFA – Pyruvic Acid	AM23G	33	ug/L	<33	<33
Hydrogen	AM20GAX	0.25	nM	1.6	2
Methane	AM20GAX	0.003	ug/L	0.89	450
Ethene	AM20GAX	0.002	ug/L	0.004	0.08
Ethane	AM20GAX	0.001	ug/L	<0.01	<0.01
CO2-Dissolved	SM4500CO2C	1000	ug/L	102000	318000
Alkalinity	SM 2320B	1000	ug/L	<1000	132000
Sulfate	SM426C	5000	ug/L	<5000	5100
Sulfide	SM4500-S2D	100	ug/L	<100	<100
Chloride	SM 4500-CLB	5000	ug/L	67000	8000/67000
TOC	SM 5310C	150	ug/L	1340	4690
COD	HACH8000	10000	ug/L	16000	29000
BOD	SM5210B	2000	ug/L	<2000	2400
Iron	SM3111B	13.8	ug/L	708	133700
Nitrate	EPA 353.2	30	ug/L	2990	<30
Temperature	SM2550B	0	Degrees C	18.28	22.21
ORP	SM2580B	-900	mV	225.3	-71.2
DO	SM4500OG	100	ug/L	1470	500
pH	SM4500HB	0	Standard Units	4.45	5.69
Specific Conductance	SM2510B	1	umhos	259	275
Turbidity	SM2130B	1	NTU	13.7	877

Notes:

VFA = Volatile Fatty Acids

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

Table 2: Reductive Dechlorination Assessment

	Tetrachloroethene (Perchloroethene – PCE)				Trichloroethene (TCE)				1,1-Dichloroethene (1,1-DCE)				cis-1,2-Dichlorethene (cis-1,2-DCE)			
	Mar-10	Sep-10			Mar-10	Sep-10			Mar-10	Sep-10			Mar-10	Sep-10		
MW-1R	BQL	<0.17			BQL	<0.23			BQL	<0.17			BQL	<0.25		
MW-4	BQL	<0.17			0.60	<0.23			BQL	<0.17			13.70	6.80		

Notes:
1. The selected chlorinated solvents consist of the target parent compound and several target daughter compounds.
2. Analytes were analyzed per EPA Test Method 8260. Detections are presented in micrograms per liter (µg/L).
3. BQL = Below Quantitation Limit
4. Red Text identifies an increase in concentration when compared with the prior event.
5. Green Text identifies a decrease in concentration when compared with the prior event.

Table 2: Reductive Dechlorination Assessment

Vinyl Chloride (VC)				Ethene (ETH)				Ethane (ETH)			
Mar-10	Sep-10			Mar-10	Sep-10			Mar-10	Sep-10		
BQL	<0.63			BQL	<0.01			BQL	0.004		
10.30	4.10			0.150	<0.01			BQL	0.08		

Table 3: Natural Attenuation Properties

	Oxygen (DO)				Nitrate (NO3)				Iron			
	Mar-10	Sep-10			Mar-10	Sep-10			Mar-10	Sep-10		
MW-1R	1.66	1470			2760	2990			65775	708		
MW-4	0.57	500			40	<30			495	133700		

Note:
1. The selected parameters consist of target properties to help identify the attenuation environment.
2. Analytes were analyzed in accordance with the appropriate method, listed on Table 1.
3. DO detections are presented in milligrams per liter (mg/L); other detections are presented in micrograms per liter (ug/L).
4. BQL = Below Quantitation Limit.
5. NS = Not Sampled.
6. Red Text identifies an increase in concentration when compared with the prior event.
7. Green Text identifies a decrease in concentration when compared with the prior event.

Table 3: Natural Attenuation Properties

	Sulfate (SO4)				Methane			
	Mar-10	Sep-10			Mar-10	Sep-10		
MW-1R	12200	<5000			7.4	0.890		
MW-4	11600	5100			8500	450		

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2
Excel 2000

Greene County
Closed Landfill
Run Name

Data Input Instructions:

115 → 1. Enter value directly....or
↑ *or* 2. Calculate by filling in gray
0.02 cells. Press Enter, then C
(To restore formulas, hit "Restore Formulas" button)
Variable* → Data used directly in model.

Test if Biotransformation is Occurring → Natural Attenuation Screening Protocol

TYPE OF CHLORINATED SOLVENT: Ethenes ◉ Ethanes ○

1. ADVECTION

Seepage Velocity*	Vs	35.8	(ft/yr)
or			
Hydraulic Conductivity	K	1.1E-04	(cm/sec)
Hydraulic Gradient	i	0.02199	(ft/ft)
Effective Porosity	n	0.07	(-)

2. DISPERSION

Alpha x*	7.1	(ft)
(Alpha y) / (Alpha x)*	0.7	(-)
(Alpha z) / (Alpha x)*	1.E-99	(-)

Calc. Alpha x

3. ADSORPTION

Retardation Factor* → R

or

Soil Bulk Density, rho	1.7	(kg/L)		
FractionOrganicCarbon, foc	1.0E-3	(-)		
Partition Coefficient	Koc			
PCE	426	(L/kg)	11.35	(-)
TCE	130	(L/kg)	4.16	(-)
DCE	125	(L/kg)	4.04	(-)
VC	30	(L/kg)	1.72	(-)
ETH	0	(L/kg)	1.00	(-)
Common R (used in model)* =			**4.04**	

4. BIOTRANSFORMATION

-1st Order Decay Coefficient*

Zone 1	λ (1/yr)	half-life (yrs)	Yield
PCE → TCE	0.000		0.79
TCE → DCE	0.000		0.74
DCE → VC	3.300	3.90	0.64
VC → ETH	2.567	5.80	0.45

Zone 2	λ (1/yr)	half-life (yrs)
PCE → TCE	0.000	
TCE → DCE	0.000	
DCE → VC	0.000	
VC → ETH	0.000	

λ HELP

5. GENERAL

Simulation Time*	5	(yr)
Modeled Area Width*	100	(ft)
Modeled Area Length*	500	(ft)
Zone 1 Length*	500	(ft)
Zone 2 Length*	0	(ft)

L, W

Zone 2= L - Zone 1

6. SOURCE DATA

TYPE: Decaying Single Planar

Source Options

Source Thickness in Sat. Zone* 10 (ft)

Vertical Plane Source: Determine Source Well Location and Input Solvent Concentrations

	Y1	
Width* (ft)	100	
Conc. (mg/L)*	C1	k_s* (1/yr)
PCE	0.00	0.1
TCE	0.00	0.1
DCE	0.00	0.1
VC	0.500	0.1
ETH	0	0.1

View of Plume Looking Down

Observed Centerline Conc. at Monitoring Wells

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)	.0										
TCE Conc. (mg/L)	.0										
DCE Conc. (mg/L)	.0										
VC Conc. (mg/L)	4.1E-03										
ETH Conc. (mg/L)	8.0E-05										
Distance from Source (ft)	100										
Date Data Collected	2010										

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE | RUN ARRAY | Help | Restore Formulas | RESET | SEE OUTPUT | Paste Example

Start Here → ○ PCE ○ TCE ○ DCE ◉ VC ○ ETH

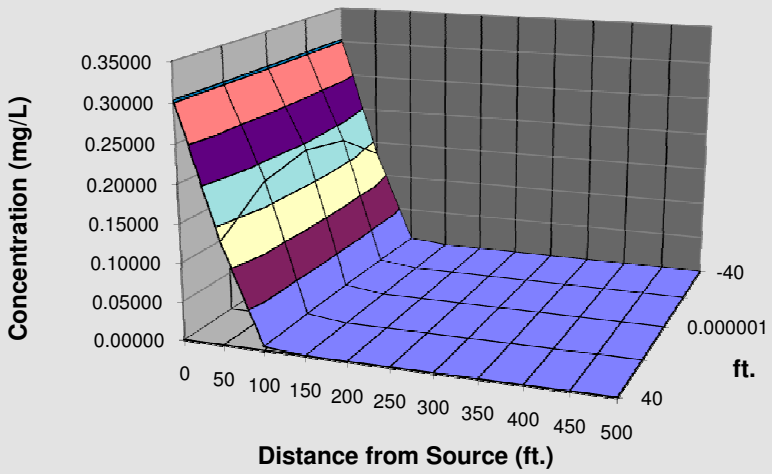
DISSOLVED SOLVENT CONCENTRATIONS IN PLUME

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
40	3.033E-01	1.326E-01	4.880E-03	4.902E-06	6.339E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
20	3.033E-01	1.792E-01	6.401E-03	6.178E-06	7.728E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0	3.033E-01	1.920E-01	6.958E-03	6.659E-06	8.249E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-20	3.033E-01	1.792E-01	6.401E-03	6.178E-06	7.728E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-40	3.033E-01	1.326E-01	4.880E-03	4.902E-06	6.339E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MASS RATE (mg/day)	5.9E+1	3.2E+1	1.1E+0	1.1E-3	1.4E-8	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0

Show No Degradation

Show Biotransformation

Time: 5 yr Target Level: 0.002 mg/L Displayed Model: Biotransformation Displayed Compound: VC



Plume Mass (Order-of-Magnitude Accuracy)

See Gallons

Plume Mass If No Degradation	1.357E-01	(Kg)
- Plume Mass If Biotransformation/Production	1.282E-01	(Kg)
Mass Removed	7.561E-03	(Kg)
% Biotransformed =	**+5.6%**	
% Change in Mass Rate =	**100.0 %**	(source to edge)

If "Can't Calc.", make model area longer

See acre-ft

Current Volume of Ground Water in Plume	6.807E-02	MGal
Flow Rate of Water Through Source Area	5.129E-05	MGD

Compare to Pump and Treat

Pumping Rate		(gpm)
# Pore Volumes Removed Per Yr.	0.00	
# Pore Volumes to Clean-Up		
Clean-Up Time		(yr)

Plot All Data Plot Data > Target Mass HELP To Centerline Return to Input

Start Here → ○ PCE ○ TCE ○ DCE ◉ VC ○ ETH

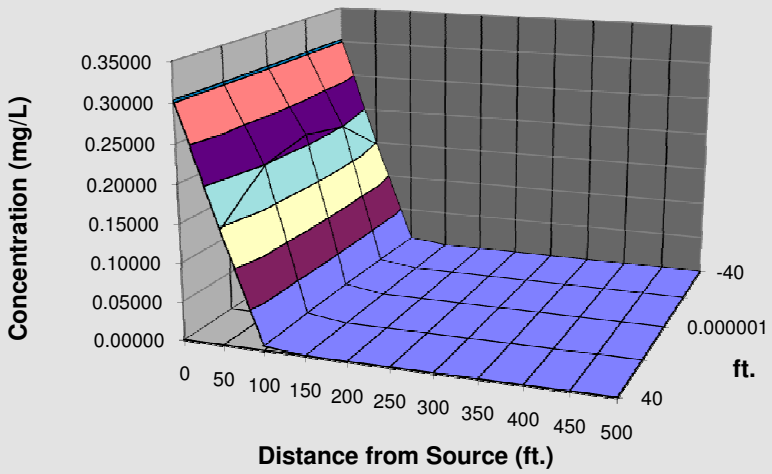
DISSOLVED SOLVENT CONCENTRATIONS IN PLUME

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
40	3.033E-01	1.473E-01	5.571E-03	5.639E-06	7.244E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
20	3.033E-01	1.991E-01	7.306E-03	7.107E-06	8.832E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0	3.033E-01	2.133E-01	7.942E-03	7.661E-06	9.427E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-20	3.033E-01	1.991E-01	7.306E-03	7.107E-06	8.832E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-40	3.033E-01	1.473E-01	5.571E-03	5.639E-06	7.244E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MASS RATE (mg/day)	5.9E+1	3.5E+1	1.3E+0	1.3E-3	1.6E-8	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0

Show No Degradation

Show Biotransformation

Time: 5 yr Target Level: 0.002 mg/L Displayed Model: No Degradation Displayed Compound: VC



Plume Mass (Order-of-Magnitude Accuracy)

See Gallons

Plume Mass If No Degradation	1.357E-01	(Kg)
- Plume Mass If Biotransformation/Production	1.282E-01	(Kg)
Mass Removed	7.561E-03	(Kg)
% Biotransformed =	**+5.6%**	
% Change in Mass Rate =	**100.0 %**	(source to edge)

If "Can't Calc.", make model area longer

See acre-ft

Current Volume of Ground Water in Plume	7.854E-02	MGal
Flow Rate of Water Through Source Area	5.129E-05	MGD

Compare to Pump and Treat

Pumping Rate		(gpm)
# Pore Volumes Removed Per Yr.	0.00	
# Pore Volumes to Clean-Up		
Clean-Up Time		(yr)

Plot All Data Plot Data > Target Mass HELP To Centerline Return to Input

Start Here → ○ PCE
○ TCE
○ DCE
○ VC
◉ ETH

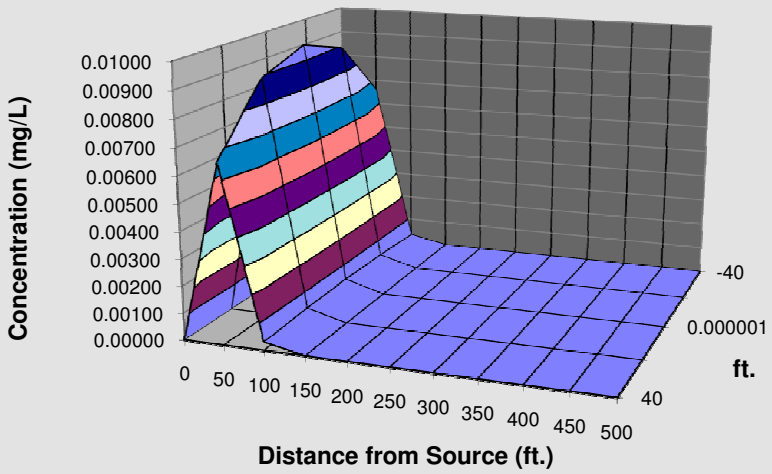
DISSOLVED SOLVENT CONCENTRATIONS IN PLUME

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
40	4.639E-09	6.606E-03	3.104E-04	3.315E-07	4.070E-12	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
20	4.639E-09	8.930E-03	4.070E-04	4.178E-07	4.962E-12	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0	4.639E-09	9.569E-03	4.425E-04	4.504E-07	5.296E-12	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-20	4.639E-09	8.930E-03	4.070E-04	4.178E-07	4.962E-12	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-40	4.639E-09	6.606E-03	3.104E-04	3.315E-07	4.070E-12	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MASS RATE (mg/day)	9.0E-7	1.6E+0	7.3E-2	7.6E-5	9.1E-10	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0

Show No Degradation

Show Biotransformation

Time: 5 yr Target Level: mg/L Displayed Model: Biotransformation Displayed Compound: ETH



Plume Mass (Order-of-Magnitude Accuracy)

See Gallons

Plume Mass If No Degradation	0.000E+00	(Kg)
- Plume Mass If Biotransformation/Production	3.399E-03	(Kg)
Mass Removed	-3.399E-03	(Kg)
% Biotransformed =		
% Change in Mass Rate =	100.0 %	(source to edge)

If "Can't Calc.", make model area longer

See acre-ft

Current Volume of Ground Water in Plume	2.618E-02	MGal
Flow Rate of Water Through Source Area	5.129E-05	MGD

Compare to Pump and Treat

Pumping Rate		(gpm)
# Pore Volumes Removed Per Yr.	0.00	
# Pore Volumes to Clean-Up		
Clean-Up Time		(yr)

Plot All Data Plot Data > Target Mass HELP To Centerline Return to Input

BIOCHLOR Natural Attenuation Decision Support System

Version 2.2
Excel 2000

Greene County
Closed Landfill
Run Name

Data Input Instructions:

115 → 1. Enter value directly....or
↑ *or* 2. Calculate by filling in gray
0.02 cells. Press Enter, then C
(To restore formulas, hit "Restore Formulas" button)
Variable* → Data used directly in model.

Test if Biotransformation is Occurring → Natural Attenuation Screening Protocol

TYPE OF CHLORINATED SOLVENT: Ethenes ◉ Ethanes ○

1. ADVECTION

Seepage Velocity*	Vs	35.8	(ft/yr)
or			
Hydraulic Conductivity	K	1.1E-04	(cm/sec)
Hydraulic Gradient	i	0.02199	(ft/ft)
Effective Porosity	n	0.07	(-)

2. DISPERSION

Alpha x*	7.1	(ft)
(Alpha y) / (Alpha x)*	0.7	(-)
(Alpha z) / (Alpha x)*	1.E-99	(-)

Calc. Alpha x

3. ADSORPTION

Retardation Factor* → R

or

Soil Bulk Density, rho	1.7	(kg/L)		
FractionOrganicCarbon, foc	1.0E-3	(-)		
Partition Coefficient	Koc			
PCE	426	(L/kg)	11.35	(-)
TCE	130	(L/kg)	4.16	(-)
DCE	125	(L/kg)	4.04	(-)
VC	30	(L/kg)	1.72	(-)
ETH	0	(L/kg)	1.00	(-)
Common R (used in model)* =			**4.04**	

4. BIOTRANSFORMATION

-1st Order Decay Coefficient*

	λ (1/yr)	half-life (yrs)	Yield
Zone 1			
PCE → TCE	0.000		0.79
TCE → DCE	0.000		0.74
DCE → VC	3.300	0.21	0.64
VC → ETH	2.567	0.27	0.45
Zone 2	λ (1/yr)	half-life (yrs)	
PCE → TCE	0.000		
TCE → DCE	0.000		
DCE → VC	0.000		
VC → ETH	0.000		

λ HELP

5. GENERAL

Simulation Time*	5	(yr)
Modeled Area Width*	100	(ft)
Modeled Area Length*	500	(ft)
Zone 1 Length*	500	(ft)
Zone 2 Length*	0	(ft)

L, W

Zone 2= L - Zone 1

6. SOURCE DATA

TYPE: Decaying Single Planar

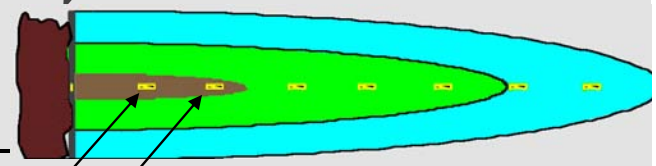
Source Options

Source Thickness in Sat. Zone* 10 (ft)

Width* (ft) Y1 100

Conc. (mg/L)*	C1	k_s* (1/yr)
PCE	0.00	0.1
TCE	0.00	0.1
DCE	0.00	0.1
VC	0.500	0.1
ETH	0	0.1

Vertical Plane Source: Determine Source Well Location and Input Solvent Concentrations



View of Plume Looking Down

Observed Centerline Conc. at Monitoring Wells

7. FIELD DATA FOR COMPARISON

PCE Conc. (mg/L)	.0										
TCE Conc. (mg/L)	.0										
DCE Conc. (mg/L)	.0										
VC Conc. (mg/L)	4.1E-03										
ETH Conc. (mg/L)	8.0E-05										
Distance from Source (ft)	100										
Date Data Collected	2010										

8. CHOOSE TYPE OF OUTPUT TO SEE:

RUN CENTERLINE | RUN ARRAY | Help | Restore Formulas | RESET | SEE OUTPUT | Paste Example

Start Here → ○ PCE ○ TCE ○ DCE ◉ VC ○ ETH

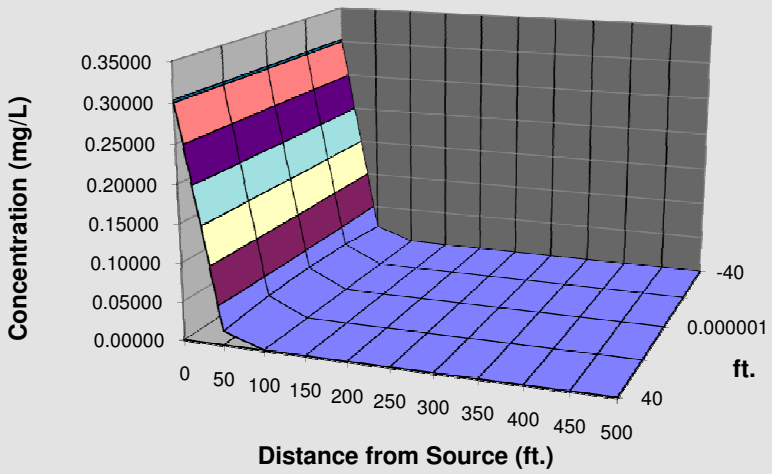
DISSOLVED SOLVENT CONCENTRATIONS IN PLUME

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
40	3.033E-01	1.813E-02	3.385E-04	2.039E-07	3.827E-12	1.547E-18	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
20	3.033E-01	2.451E-02	4.440E-04	2.569E-07	4.666E-12	1.838E-18	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0	3.033E-01	2.627E-02	4.827E-04	2.769E-07	4.981E-12	1.946E-18	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-20	3.033E-01	2.451E-02	4.440E-04	2.569E-07	4.666E-12	1.838E-18	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-40	3.033E-01	1.813E-02	3.385E-04	2.039E-07	3.827E-12	1.547E-18	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MASS RATE (mg/day)	5.9E+1	4.3E+0	7.9E-2	4.7E-5	8.5E-10	3.4E-16	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0

Show No Degradation

Show Biotransformation

Time: 5 yr Target Level: **0.002** mg/L Displayed Model: **Biotransformation** Displayed Compound: **VC**



Plume Mass (Order-of-Magnitude Accuracy)

See Gallons

Plume Mass If No Degradation	1.357E-01	*(Kg)*
- Plume Mass If Biotransformation/Production	6.970E-02	*(Kg)*
Mass Removed	6.605E-02	*(Kg)*

If "Can't Calc.", make model area longer

% Biotransformed = **+48.7%**

% Change in Mass Rate = **100.0 %** (source to edge)

See acre-ft

Current Volume of Ground Water in Plume	5.236E-02	*MGal*
Flow Rate of Water Through Source Area	5.129E-05	*MGD*

Compare to Pump and Treat

Pumping Rate		*(gpm)*
# Pore Volumes Removed Per Yr.	0.00	
# Pore Volumes to Clean-Up		
Clean-Up Time		*(yr)*

Plot All Data Plot Data > Target **Mass HELP** **To Centerline** **Return to Input**

Start Here → ○ PCE ○ TCE ○ DCE ◉ VC ○ ETH

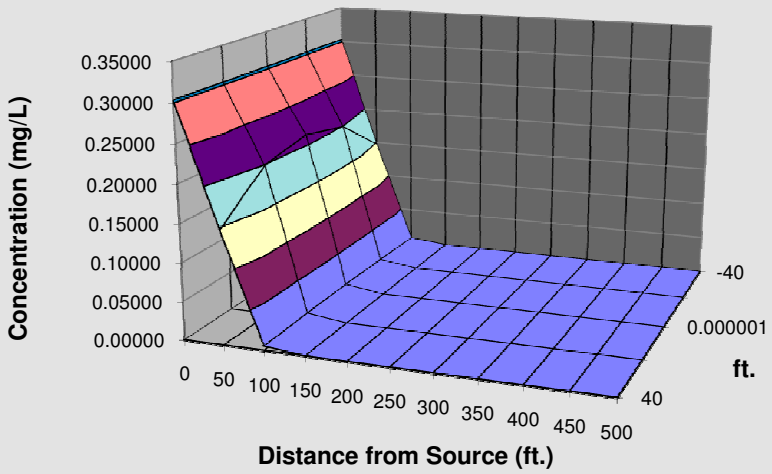
DISSOLVED SOLVENT CONCENTRATIONS IN PLUME

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
40	3.033E-01	1.473E-01	5.571E-03	5.639E-06	7.244E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
20	3.033E-01	1.991E-01	7.306E-03	7.107E-06	8.832E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0	3.033E-01	2.133E-01	7.942E-03	7.661E-06	9.427E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-20	3.033E-01	1.991E-01	7.306E-03	7.107E-06	8.832E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-40	3.033E-01	1.473E-01	5.571E-03	5.639E-06	7.244E-11	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MASS RATE (mg/day)	5.9E+1	3.5E+1	1.3E+0	1.3E-3	1.6E-8	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0

Show No Degradation

Show Biotransformation

Time: 5 yr Target Level: 0.002 mg/L Displayed Model: No Degradation Displayed Compound: VC



Plume Mass (Order-of-Magnitude Accuracy)

See Gallons

Plume Mass If No Degradation	1.357E-01	(Kg)
- Plume Mass If Biotransformation/Production	6.970E-02	(Kg)
Mass Removed	6.605E-02	(Kg)
% Biotransformed =	+48.7%	
% Change in Mass Rate =	100.0 %	(source to edge)

If "Can't Calc.", make model area longer

See acre-ft

Current Volume of Ground Water in Plume	7.854E-02	MGal
Flow Rate of Water Through Source Area	5.129E-05	MGD

Compare to Pump and Treat

Pumping Rate		(gpm)
# Pore Volumes Removed Per Yr.	0.00	
# Pore Volumes to Clean-Up		
Clean-Up Time		(yr)

Plot All Data Plot Data > Target Mass HELP To Centerline Return to Input

Start Here → ○ PCE ○ TCE ○ DCE ○ VC ◉ ETH

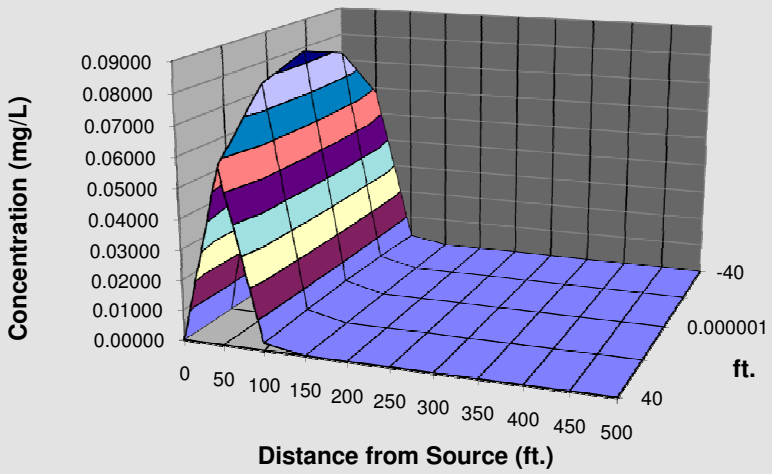
DISSOLVED SOLVENT CONCENTRATIONS IN PLUME

Transverse Distance (ft) ↓ / Distance from Source (ft)	0	50	100	150	200	250	300	350	400	450	500
40	7.570E-08	5.806E-02	2.352E-03	2.444E-06	3.085E-11	1.000E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
20	7.570E-08	7.848E-02	3.085E-03	3.080E-06	3.761E-11	1.000E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
0	7.570E-08	8.410E-02	3.354E-03	3.320E-06	4.015E-11	1.000E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-20	7.570E-08	7.848E-02	3.085E-03	3.080E-06	3.761E-11	1.000E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
-40	7.570E-08	5.806E-02	2.352E-03	2.444E-06	3.085E-11	1.000E-04	0.000E+00	0.000E+00	0.000E+00	0.000E+00	0.000E+00
MASS RATE (mg/day)	1.5E-5	1.4E+1	5.5E-1	5.6E-4	6.9E-9	1.9E-2	0.0E+0	0.0E+0	0.0E+0	0.0E+0	0.0E+0

Show No Degradation

Show Biotransformation

Time: 5 yr Target Level: mg/L Displayed Model: Biotransformation Displayed Compound: ETH



Plume Mass (Order-of-Magnitude Accuracy)

See Gallons

Plume Mass If No Degradation	0.000E+00	(Kg)
- Plume Mass If Biotransformation/Production	2.973E-02	(Kg)
Mass Removed	-2.973E-02	(Kg)
% Biotransformed =		
% Change in Mass Rate =	100.0 %	(source to edge)

If "Can't Calc.", make model area longer

See acre-ft

Current Volume of Ground Water in Plume	2.618E-02	MGal
Flow Rate of Water Through Source Area	5.129E-05	MGD

Compare to Pump and Treat

Pumping Rate		(gpm)
# Pore Volumes Removed Per Yr.	0.00	
# Pore Volumes to Clean-Up		
Clean-Up Time		(yr)

Plot All Data Plot Data > Target Mass HELP To Centerline Return to Input

Appendix C
Laboratory Analysis Report
Chains of Custody
Field Parameter Data Sheet(s)

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: 09/27/10
DATE REPORTED : 10/22/10

REVIEWED BY:

PARAMETERS	MDL	SWSL	Upstream	Downstream	Well #4	Well #5	Well #6	Analysis Date	Analyst	Method Code
PH (field measurement), Units			Missing	6.22	5.69	4.81	4.90	09/27/10	RJH	SM4500HB
Chloride, mg/l	5.0	5.0			8	10	11	09/29/10	HLB	SM4500-CLB
Cyanide, ug/l	5.0	10.0			--- U	--- U	--- U	09/30/10	SRJ	SM4500 CN-
Antimony, ug/l	0.22	6.0	Missing	--- U	0.6 J	0.3 J	--- U	10/01/10	CMF	EPA200.8
Arsenic, ug/l	0.04	10.0	Missing	1.6 J		6.7 J		10/01/10	CMF	EPA200.8
Arsenic, ug/l	0.04	10.0			16		18	10/15/10	CMF	SM3113B
Barium, ug/l	0.03	100.0	Missing	34.1 J	803	25.0 J	532	10/01/10	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	Missing	0.1 J	8	0.1 J	4	10/01/10	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	Missing	0.1 J	3	0.4 J	0.8 J	10/01/10	CMF	EPA200.8
Cobalt, ug/l	0.10	10.0	Missing	0.4 J	4.7 J	0.4 J	3.6 J	10/01/10	CMF	EPA200.8
Copper, ug/l	0.03	10.0	Missing	3.3 J	9.2 J	3.8 J	3.6 J	10/01/10	CMF	EPA200.8
Total Chromium, ug/l	0.03	10.0	Missing	5.3 J	28	1.0 J	28	10/01/10	CMF	EPA200.8
Lead, ug/l	0.01	10.0	Missing	6.8 J	121	4.9 J	76	10/01/10	CMF	EPA200.8
Mercury, ug/l	0.08	0.20			0.15 J		--- U	10/01/10	CMF	EPA200.8
Mercury, ug/l	0.08	0.20				0.37		10/14/10	ADD	EPA245.1
Nickel, ug/l	0.05	50.0	Missing	1.6 J	7.2 J	0.8 J	6.1 J	10/01/10	CMF	EPA200.8
Selenium, ug/l	0.32	10.0	Missing	--- U	8.4 J	0.8 J	2.2 J	10/01/10	CMF	EPA200.8
Silver, ug/l	0.03	10.0	Missing	--- U	0.7 J	0.2 J	0.2 J	10/01/10	CMF	EPA200.8
Thallium, ug/l	0.05	5.5	Missing	--- U	1.0 J	--- U	0.5 J	10/01/10	CMF	EPA200.8
Tin, ug/l	0.11	100.0			2.1 J	0.5 J	1.8 J	10/01/10	CMF	EPA200.8
Vanadium, ug/l	0.03	25.0	Missing	10.8 J	74	2.8 J	36	10/01/10	CMF	EPA200.8
Zinc, ug/l	0.08	10.0	Missing	17	295	11	110	10/01/10	CMF	EPA200.8
Turbidity, NTU	1.0	1.0	Missing	280	877	234	159	09/27/10	RJH	SM2130B
Sulfide, ug/l	100	1000			--- U	--- U	--- U	09/30/10	LFJ	SM4500-S2D
Conductivity (at 25c), uMhos	1.0	1.0	Missing	104	275	64	43	09/27/10	RJH	SM2510B
Dissolved Oxygen, mg/l	0.1	0.1	Missing	5.70	0.50	1.62	2.33	09/27/10	RJH	SM4500OG
Temperature, °C			Missing	21.87	18.28	18.41	20.77	09/27/10	RJH	SM2550B
Static Water Level, feet					21.44	21.00	14.08	09/27/10	RJH	
Well Depth, feet					26.16	28.34	26.87	09/27/10	RJH	
ORP, mv			Missing	148.4	-71.2	161.6	274.8	09/27/10	RJH	SM2580B

J = Between MDL and SWSL, U = Below ALL Quanititation 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: 09/27/10
DATE REPORTED : 10/22/10

REVIEWED BY:

PARAMETERS	MDL	SWSL	Well #7	Well #8	Well #1R	Piezometer #2	Equipment Blank	Analysis Date	Analyst	Method Code
PH (field measurement), Units			4.53	4.40	4.45			09/27/10	RJH	SM4500HB
Chloride, mg/l	5.0	5.0	--- U	5	67		10	09/29/10	HLB	SM4500-CLB
Cyanide, ug/l	5.0	10.0	--- U	--- U	--- U		--- U	09/30/10	SEJ	SM4500 CN-
Antimony, ug/l	0.22	6.0	--- U	--- U	--- U		--- U	10/01/10	CMF	EPA200.8
Arsenic, ug/l	0.04	10.0	8.3 J	4.3 J	0.3 J		--- U	10/01/10	CMF	EPA200.8
Barium, ug/l	0.03	100.0	72.1 J	64.4 J	114		0.1 J	10/01/10	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	0.9 J	1	0.3 J		--- U	10/01/10	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	0.2 J	0.3 J	0.1 J		--- U	10/01/10	CMF	EPA200.8
Cobalt, ug/l	0.10	10.0	1.3 J	0.8 J	0.4 J		--- U	10/01/10	CMF	EPA200.8
Copper, ug/l	0.03	10.0	4.4 J	3.0 J	1.2 J		--- U	10/01/10	CMF	EPA200.8
Total Chromium, ug/l	0.03	10.0	21	13	0.3 J		--- U	10/01/10	CMF	EPA200.8
Lead, ug/l	0.01	10.0	13	28	1.6 J		0.1 J	10/01/10	CMF	EPA200.8
Mercury, ug/l	0.08	0.20	--- U	--- U	--- U		--- U	10/01/10	CMF	EPA200.8
Nickel, ug/l	0.05	50.0	2.7 J	1.7 J	1.1 J		--- U	10/01/10	CMF	EPA200.8
Selenium, ug/l	0.32	10.0	0.7 J	0.6 J	--- U		--- U	10/01/10	CMF	EPA200.8
Silver, ug/l	0.03	10.0	0.1 J	0.1 J	--- U		--- U	10/01/10	CMF	EPA200.8
Thallium, ug/l	0.05	5.5	0.1 J	0.1 J	0.1 J		--- U	10/01/10	CMF	EPA200.8
Tin, ug/l	0.11	100.0	1.4 J	1.9 J	0.4 J		0.3 J	10/01/10	CMF	EPA200.8
Vanadium, ug/l	0.03	25.0	26	40	0.6 J		0.3 J	10/01/10	CMF	EPA200.8
Zinc, ug/l	0.08	10.0	34	22	5.1 J		0.2 J	10/01/10	CMF	EPA200.8
Turbidity, NTU	1.0	1.0	535	255	13.7			09/27/10	RJH	SM2130B
Sulfide, ug/l	100	1000	--- U	--- U	--- U		--- U	09/30/10	LFJ	SM4500-S2D
Conductivity (at 25c), uMhos	1.0	1.0	50	35	259			09/27/10	RJH	SM2510B
Dissolved Oxygen, mg/l	0.1	0.1	5.82	6.63	1.47			09/27/10	RJH	SM4500OG
Temperature, °C			19.46	19.40	22.21			09/27/10	RJH	SM2550B
Static Water Level, feet			16.19	14.50	8.41	21.04		09/27/10	RJH	
Well Depth, feet			21.38	20.24	19.51			09/27/10	RJH	
ORP, mv			327.7	261.3	225.3			09/27/10	RJH	SM2580B

J = Between MDL and SWSL, U = Below ALL Quanititation 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

REVIEWED BY:

CLIENT ID: 6005

ANALYST: CHS
DATE COLLECTED: 09/27/10
DATE EXTRACTED: 09/29/10
DATE ANALYZED: 10/06/10
DATE REPORTED: 10/22/10

PESTICIDES AND PCB'S
EPA METHOD 8081B

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

J = Between MDL and SWSL, U = Below ALL Quanititation 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: 09/27/10
DATE EXTRACTED: 09/29/10
DATE ANALYZED: 10/06/10
DATE REPORTED: 10/22/10

REVIEWED BY: _____

PESTICIDES AND PCB'S
EPA METHOD 8081B

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-DDE	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

NOTE: Surrogate recovery for Wells 4,6,7,8 & 1R was not within control limits due to matrix interference

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

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: 09/27/10
DATE EXTRACTED: 09/30/10
DATE ANALYZED: 09/30/10
DATE REPORTED: 10/22/10

REVIEWED BY: _____

LANDFILL APPENDIX II
EPA METHOD 8151A

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

NOTE: Surrogate recovery for well MW-7 was not within control limits due to matrix interference

J = Between MDL and SWSL, U = Below ALL Quanititation 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: 09/27/10
DATE EXTRACTED: 09/30/10
DATE ANALYZED: 09/30/10
DATE REPORTED: 10/22/10

REVIEWED BY: _____

LANDFILL APPENDIX II
EPA METHOD 8151A

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

J = Between MDL and SWSL, U = Below ALL Quanititation 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
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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: 09/27/10
DATE ANALYZED: 10/05/10
DATE REPORTED: 10/22/10

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Downstream
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 Quanititation 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
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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: 09/27/10
DATE EXTRACTED: 09/28/10
DATE ANALYZED: 09/28/10
DATE REPORTED: 10/22/10

REVIEWED BY:

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #5	Well #6	Well #7	Well #8
1. Acenaphthene	2.66	10.0	--- U	--- U	--- U	--- U	--- U
2. Acenaphthylene	2.60	10.0	--- U	--- U	--- U	--- U	--- U
3. Anthracene	2.97	10.0	--- U	--- U	--- U	--- U	--- U
4. Benzo[a]antrhacene	4.16	10.0	--- U	--- U	--- U	--- U	--- U
5. Benzo[b]fluoranthene	3.32	10.0	--- U	--- U	--- U	--- U	--- U
6. Benzo[k]fluoranthene	4.23	10.0	--- U	--- U	--- U	--- U	--- U
7. Benzo[g,h,i]perylene	2.61	10.0	--- U	--- U	--- U	--- U	--- U
8. Benzo[a]pyrene	3.27	10.0	--- U	--- U	--- U	--- U	--- U
9. 4-Bromophenyl Phenyl Ether	2.63	10.0	--- U	--- U	--- U	--- U	--- U
10. Butyl Benzyl Phthalate	5.78	10.0	--- U	--- U	--- U	--- U	--- U
11. Bis-(2-Chloroethoxy) Methane	3.14	10.0	--- U	--- U	--- U	--- U	--- U
12. Bis-(2-Chloroethyl) Ether	2.58	10.0	--- U	--- U	--- U	--- U	--- U
13. Bis-(2-Chloroisopropyl) Ether	2.58	10.0	--- U	--- U	--- U	--- U	--- U
14. 2-Chloronaphthalene	2.17	10.0	--- U	--- U	--- U	--- U	--- U
15. 4-Chlorophenyl Phenyl Ether	2.42	10.0	--- U	--- U	--- U	--- U	--- U
16. Chrysene	4.04	10.0	--- U	--- U	--- U	--- U	--- U
17. Dibenzo[a,h]anthracene	2.78	10.0	--- U	--- U	--- U	--- U	--- U
18. Di-N-Butyl Phthalate	3.09	10.0	--- U	--- U	--- U	--- U	--- U
19. Dimethyl Phthalate	3.78	10.0	--- U	--- U	--- U	--- U	--- U
20. Diethyl Phthalate	3.92	6000	--- U	--- U	--- U	--- U	--- U
21. 2,4-Dinitrotoluene	3.95	10.0	--- U	--- U	--- U	--- U	--- U
22. 2,6-Dinitrotoluene	3.88	10.0	--- U	--- U	--- U	--- U	--- U
23. Di-N-Octyl Phthalate	2.81	10.0	--- U	--- U	--- U	--- U	--- U
24. Bis-(2-Ethylhexyl) Phthalate	9.97	15.0	--- U	--- U	14.10 J	--- U	--- U
25. Fluoranthene	3.92	10.0	--- U	--- U	--- U	--- U	--- U
26. Fluorene	2.95	10.0	--- U	--- U	--- U	--- U	--- U
27. Hexachlorobenzene	2.61	10.0	--- U	--- U	--- U	--- U	--- U
28. Hexachlorocyclopentadiene	4.16	10.0	--- U	--- U	--- U	--- U	--- U
29. Indeno[1,2,3-Cd]pyrene	2.91	10.0	--- U	--- U	--- U	--- U	--- U
30. Isophorone	3.74	10.0	--- U	--- U	--- U	--- U	--- U
31. Nitrobenzene	2.85	10.0	--- U	--- U	--- U	--- U	--- U
32. N-Nitrosodimethylamine	4.25	10.0	--- U	--- U	--- U	--- U	--- U
33. N-Nitrosodiphenylamine	3.95	10.0	--- U	--- U	--- U	--- U	--- U
34. N-Nitrosodi-N-Propylamine	4.06	10.0	--- U	--- U	--- U	--- U	--- U
35. Phenanthrene	3.24	10.0	--- U	--- U	--- U	--- U	--- U
36. Pyrene	3.63	10.0	--- U	--- U	--- U	--- U	--- U
37. 4-Chloro-3-Methylphenol	3.79	20.0	--- U	--- U	--- U	--- U	--- U
38. 2-Chlorophenol	2.75	10.0	--- U	--- U	--- U	--- U	--- U
39. O-Cresol	3.68	10.0	--- U	--- U	--- U	--- U	--- U
40. P-Cresol	4.12	10.0	--- U	--- U	--- U	--- U	--- U
41. 2,4-Dichlorophenol	5.19	10.0	--- U	--- U	--- U	--- U	--- U
42. 2,6-Dichlorophenol	4.89	10.0	--- U	--- U	--- U	--- U	--- U
43. 2,4-Dimethylphenol	3.21	10.0	--- U	--- U	--- U	--- U	--- U
44. 4,6-Dinitro-2-Methylphenol	4.77	50.0	--- U	--- U	--- U	--- U	--- U
45. 2,4-Dinitrophenol	4.37	50.0	--- U	--- U	--- U	--- U	--- U
46. Ethyl Methanesulfonate	5.26	20.0	--- U	--- U	--- U	--- U	--- U
47. Methyl Methanesulfonate	4.92	10.0	--- U	--- U	--- U	--- U	--- U
48. 2-Nitrophenol	3.64	10.0	--- U	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quanititation 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: 09/27/10
DATE EXTRACTED: 09/28/10
DATE ANALYZED: 09/28/10
DATE REPORTED: 10/22/10

REVIEWED BY:

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

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

J = Between MDL and SWSL, U = Below ALL Quanititation 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: 09/27/10
DATE EXTRACTED: 09/28/10
DATE ANALYZED: 09/28/10
DATE REPORTED: 10/22/10

REVIEWED BY: _____

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

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

NOTE: Surrogate recovery for wells MW-4 & MW-6 was not within control limits due to matrix interference

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

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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SNOW HILL, NC 28580

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DATE COLLECTED: 09/27/10
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REVIEWED BY: _____

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

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]antrhacene	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	6000	--- 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 Quanititation 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: 09/27/10
DATE EXTRACTED: 09/28/10
DATE ANALYZED: 09/28/10
DATE REPORTED: 10/22/10

REVIEWED BY: _____

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

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 Quanititation 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

REVIEWED BY: _____

CLIENT ID: 6005

ANALYST: CHS
DATE COLLECTED: 09/27/10
DATE EXTRACTED: 09/28/10
DATE ANALYZED: 09/28/10
DATE REPORTED: 10/22/10

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

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

J = Between MDL and SWSL, U = Below ALL Quanititation 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: 09/27/10
DATE ANALYZED: 10/05/10
DATE REPORTED: 10/22/10

REVIEWED BY: _____

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #5	Well #6	Well #7	Well #8
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	0.80 J
2. Vinyl Chloride	0.63	1.0	4.10	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	8.50 J	--- 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	0.70 J	--- 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	1.70 J	--- 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	6.80	1.00 J	--- 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	0.30 J
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	2.50	--- 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	1.00	--- 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	0.90 J	--- 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	3.00	--- 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
48. Acrolein	40.57	53.0	--- U	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quanititation 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: 09/27/10
DATE ANALYZED: 10/05/10
DATE REPORTED: 10/22/10

REVIEWED BY: _____

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #5	Well #6	Well #7	Well #8
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

J = Between MDL and SWSL, U = Below ALL Quanititation 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
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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: 09/27/10
DATE ANALYZED: 10/05/10
DATE REPORTED: 10/22/10

REVIEWED BY: _____

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Well #1R	Equipment Blank	Trip Blank
1. Chloromethane	0.77	1.0	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.21	1.0	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U
48. Acrolein	40.57	53.0	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quanititation 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: 09/27/10
DATE ANALYZED: 10/05/10
DATE REPORTED: 10/22/10

REVIEWED BY: _____

LANDFILL APPENDIX II
EPA METHOD 8260B

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

J = Between MDL and SWSL, U = Below ALL Quanititation 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:** 37

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

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

CHLORINE NEUTRALIZED AT COLLECTION																		
pH CHECK (LAB)			7/2			7					<2	<2	<2					
CONTAINER TYPE, P/G	P	P	P	P	P	P	P	P	P		G	G	G	G	G	G		
CHEMICAL PRESERVATION	A	A	D	A	A	F D	A	A	A		E	E	E	A	A	A		

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

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	Chloride	Cyanide	Metals	Turbidity	Sulfide	Conductivity	DO	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2	EPA 8270C	8270C Dup. 1	EPA 8081B
~~Upstream~~					4	■			■	■		■	■	■		■	■				
Downstream	09 27 10	1555		21.87	4	G			G	G		G	G	G		G	G				
Well #4	09 27 10	1509 RJH ~~1000~~		18.26	11	G	G	G	G	G	G	G	G	G	G		G		G	G	G
Well #5	09 27 10	1105		18.41	12	G	G	G	G	G	G	G	G	G	G		G		G	G	G
Well #6	09 27 10	1310		20.77	12	G	G	G	G	G	G	G	G	G	G		G		G	G	G
Well #7	09 27 10	0940		19.46	12	G	G	G	G	G	G	G	G	G	G		G		G	G	G
Well #8	09 27 10	0920		19.40	12	G	G	G	G	G	G	G	G	G	G		G		G	G	G
Well #1R	09 27 10	1200		22.21	13	G	G	G	G	G	G	G	G	G	G		G	G	G	G	G
Piezometer #2	09 27 10	1540			1										G						
Equipment Blank	09 27 10	0905			6		G	G	G		G						G				
Trip Blank					2												■				

PARAMETERS

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

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

SAMPLES COLLECTED BY: (Please Print) H Lope Fox

SAMPLES RECEIVED IN LAB AT 1.6 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob H Lope	09 27 10 4:45PM	[signature]	9/27/10 4:45PM
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS: DP - DRY

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.

№ 209138

FORM #5

Environment 2, 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:** 37

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

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

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

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

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	8081B Duplicate	8260B App. II	8151A Landfill	ORP
						G	G	G	P
						A	E	A	A
Upstream	09 27 10				4				G
Downstream	09 27 10	1555		21.87	4				G
Well #4	09 27 10	1505		18.28	11	G	G	G	G
Well #5	09 27 10	1105		18.41	12	G	G	G	G
Well #6	09 27 10	1310		20.77	12	G	G	G	G
Well #7	09 27 10	0940		19.46	12	G	G	G	G
Well #8	09 27 10	0920		19.40	12	G	G	G	G
Well #1R	09 27 10	1200		22.21	13	G	G	G	G
Piezometer #2					1				
Equipment Blank	09 27 10	0905			6		G		
Trip Blank					2		G		

PARAMETERS

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

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

SAMPLES COLLECTED BY: (Please Print) H Hogge / EOT

SAMPLES RECEIVED IN LAB AT 1.6 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob H Hogge	09 27 10 4:45PM	[illegible]	9/27/10 4:45PM
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.

№ 209137

FORM #5

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: 09/27/10
DATE REPORTED : 10/25/10

REVIEWED BY:

PARAMETERS	MDL	SWSL	Well #4	Well #1R	Equipment Blank	Trip Blank	Analysis Date	Analyst	Method Code
PH (field measurement), Units			5.69	4.45			09/27/10	RJH	SM4500HB
BOD, mg/l	2.0	2.0	2.4	--- U			09/28/10	TRB	SM5210B
COD, mg/l	10.0	10.0	29				09/28/10	TRB	HACH8000
COD, mg/l	10.0	10.0		16			10/05/10	TRB	HACH8000
Nitrate Nitrogen as N, mg/l	0.03	10.0	--- U	2.99 J			09/29/10	ANO	EPA353.2
Total Organic Carbon, mg/l	0.15	1.0	4.69	1.34			10/05/10	SEJ	SM5310C
Total Alkalinity, mg/l	1.0	1.0	132				09/28/10	TRB	SM2320B
Total Alkalinity, mg/l	1.0	1.0		--- U			09/27/10	TRB	SM2320B
Chloride, mg/l	5.0	5.0	67	67			09/29/10	HLB	SM4500-CLB
Cyanide, ug/l	5.0	10.0	--- U	--- U			09/30/10	SEJ	SM4500 CN-E
Sulfate, mg/l	5.0	250.0	5.1 J	--- U			10/04/10	TRB	SM426C
Antimony, ug/l	0.22	6.0	0.6 J	--- U	--- U		10/01/10	CMF	EPA200.8
Arsenic, ug/l	0.04	10.0	16				10/15/10	CMF	SM3113B
Arsenic, ug/l	0.04	10.0		0.3 J	--- U		10/01/10	CMF	EPA200.8
Barium, ug/l	0.03	100.0	803	114	0.1 J		10/01/10	CMF	EPA200.8
Beryllium, ug/l	0.02	1.0	8	0.3 J	--- U		10/01/10	CMF	EPA200.8
Cadmium, ug/l	0.02	1.0	3	0.1 J	--- U		10/01/10	CMF	EPA200.8
Cobalt, ug/l	0.10	10.0	4.7 J	0.4 J	--- U		10/01/10	CMF	EPA200.8
Copper, ug/l	0.03	10.0	9.2 J	1.2 J	--- U		10/01/10	CMF	EPA200.8
Total Chromium, ug/l	0.03	10.0	28	0.3 J	--- U		10/01/10	CMF	EPA200.8
Iron, ug/l	13.8	300.0	133700	708	70 J		10/12/10	ADD	SM3111B
Lead, ug/l	0.01	10.0	121	1.6 J	0.1 J		10/01/10	CMF	EPA200.8
Mercury, ug/l	0.08	0.20	0.15 J	--- U	--- U		10/01/10	CMF	EPA200.8
Nickel, ug/l	0.05	50.0	7.2 J	1.1 J	--- U		10/01/10	CMF	EPA200.8
Selenium, ug/l	0.32	10.0	8.4 J	--- U	--- U		10/01/10	CMF	EPA200.8
Silver, ug/l	0.03	10.0	0.7 J	--- U	--- U		10/01/10	CMF	EPA200.8
Thallium, ug/l	0.05	5.5	1.0 J	0.1 J	--- U		10/01/10	CMF	EPA200.8
Tin, ug/l	0.11	100.0	2.1 J	0.4 J	0.3 J		10/01/10	CMF	EPA200.8
Vanadium, ug/l	0.03	25.0	74	0.6 J	0.3 J		10/01/10	CMF	EPA200.8
Zinc, ug/l	0.08	10.0	295	5.1 J	0.2 J		10/01/10	CMF	EPA200.8
Turbidity, NTU	1.0	1.0	877	13.7			09/27/10	RJH	SM2130B
Sulfide, ug/l	100	1000	--- U				09/30/10	LFJ	SM4500-S2D
Sulfide, ug/l	100	1000		--- U			09/27/10	LFJ	SM4500-S2D
Conductivity (at 25c), uMhos	1.0	1.0	275	259			09/27/10	RJH	SM2510B
Dissolved Oxygen, mg/l	0.1	0.1	0.50	1.47			09/27/10	RJH	SM4500OG
Temperature, °C			18.28	22.21			09/27/10	RJH	SM2550B
Static Water Level, feet			21.44	8.41			09/27/10	RJH	
Carbon Dioxide, mg/l	1.0	1.0	318	102			09/28/10	TRB	SM4500CO2C
ORP, mv			-71.2	225.3			09/27/10	RJH	SM2580B

J = Between MDL and SWSL, U = Below ALL Quanititation 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 A

ANALYST: CHS
DATE COLLECTED: 09/27/10
DATE EXTRACTED: 09/29/10
DATE ANALYZED: 10/06/10
DATE REPORTED: 10/25/10

REVIEWED BY:

PESTICIDES AND PCB'S
EPA METHOD 8081B

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #1R
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-DDE	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

NOTE: Surrogate recovery for wells 4 & 1R was outside control limits due to matrix interference

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

<<< LABORATORY COPY >>>

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 A

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

REVIEWED BY: _____

LANDFILL APPENDIX II
EPA METHOD 8151A

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #1R
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

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

<<< LABORATORY COPY >>>

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 A

ANALYST: CHS
DATE COLLECTED: 09/27/10
DATE EXTRACTED: 09/28/10
DATE ANALYZED: 09/28/10
DATE REPORTED: 10/25/10

REVIEWED BY:

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #1R
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]antrhacene	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	6000	--- 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 Quanititation 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 A

ANALYST: CHS
DATE COLLECTED: 09/27/10
DATE EXTRACTED: 09/28/10
DATE ANALYZED: 09/28/10
DATE REPORTED: 10/25/10

REVIEWED BY: _____

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #1R
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 Quanititation 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 A

ANALYST: CHS
DATE COLLECTED: 09/27/10
DATE EXTRACTED: 09/28/10
DATE ANALYZED: 09/28/10
DATE REPORTED: 10/25/10

REVIEWED BY: _____

SEMI-VOLATILE ORGANICS
EPA METHOD 8270C

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #1R
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

NOTE: Surrogate recovery for well 4 was outside control limits due to matrix interference

J = Between MDL and SWSL, U = Below ALL Quanititation 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 A

ANALYST: MAO
DATE COLLECTED: 09/27/10
DATE ANALYZED: 10/05/10
DATE REPORTED: 10/25/10

REVIEWED BY: _____

LANDFILL APPENDIX II
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Well #4	Well #1R	Equipment Blank	Trip Blank
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	4.10	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	8.50 J	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	0.70 J	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	1.70 J	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	6.80	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	2.50	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.21	1.0	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	1.00	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	0.90 J	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	3.00	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U
48. Acrolein	40.57	53.0	--- U	--- U	--- U	--- U

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

<<< LABORATORY COPY >>>

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 A

ANALYST: MAO
DATE COLLECTED: 09/27/10
DATE ANALYZED: 10/05/10
DATE REPORTED: 10/25/10

REVIEWED BY: _____

LANDFILL APPENDIX II
EPA METHOD 8260B

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

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

<<< LABORATORY COPY >>>

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: 37**

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

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

	Field pH	BOD	COD	Nitrate	TOC	Alkalinity	Chloride	Cyanide	Sulfate	Metals	Turbidity	Sulfide	Conductivity	DO	Temperature	Field Parameter
CHLORINE NEUTRALIZED AT COLLECTION																
pH CHECK (LAB)			<2		<2			>12				9				
CONTAINER TYPE, P/G	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
CHEMICAL PRESERVATION	A	A	C	A	C	A	A	D	A	A	A	F D	A	A	A	

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

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	BOD	COD	Nitrate	TOC	Alkalinity	Chloride	Cyanide	Sulfate	Metals	Turbidity	Sulfide	Conductivity	DO	Temperature	Field Parameter
Well #4	09 27 10	1505		1828	18	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Well #1R	09 27 10	1200		2221	18	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G
Equipment Blank	09 27 10	0905			3										G						
Trip Blank					2																

PARAMETERS

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

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

SAMPLES COLLECTED BY: (Please Print) H Lagoe / E Q

SAMPLES RECEIVED IN LAB AT 1.6 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob H Lagoe	09 27 10 4:45PM	[illegible]	9/27/10 4:45PM
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.

№ 209136

FORM #5

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: 37**

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

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	8260 Dup. 1	EPA 8270C	8270C Dup. 1	EPA 8081B	8081B Duplicate	8260B App. II	8151A Landfill	CO2	ORP
CHLORINE NEUTRALIZED AT COLLECTION														
pH CHECK (LAB)														
CONTAINER TYPE, P/G						G	G	G	G	G	G	G	P	P
CHEMICAL PRESERVATION						E	A	A	A	A	E	A	A	A
Well #4	09 27 10	1505		18.28	18	G	G	G	G	G	G	G	G	G
Well #1R	09 27 10	1200		22.21	18	G	G	G	G	G	G	G	G	G
Equipment Blank	09 27 10	0905			3	G					G			
Trip Blank					2									

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE
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) H Lane / FOT

SAMPLES RECEIVED IN LAB AT 1.6 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob H Lane	09 27 10 4:45pm	[signature]	9/27/10 4:45pm
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

№ 209135

microseeps
From insight comes solutions

Client Name: Environment 1, Inc.
Contact: Steve Jones
Address: PO Box 7085
114 Oakmont Drive
Greenville, NC 27835

Page: Page 1 of 3
Lab Proj #: P1009447
Report Date: 10/12/10
Client Proj Name: Greene County
Client Proj #: Greene County

Laboratory Results

Total pages in data package: 4

Lab Sample #	Client Sample ID
P1009447-01	WL1R
P1009447-02	WEL 4

Microseeps test results meet all the requirements of the NELAC standards or provide reasons and/or justification if they do not.

Approved By: Heather Hauser ***Date:*** 10·12·10

Project Manager: Heather Hauser

The analytical results reported here are reliable and usable to the precision expressed in this report. As required by some regulating authorities, a full discussion of the uncertainty in our analytical results can be obtained at our web site or through customer service. Unless otherwise specified, all results are reported on a wet weight basis.

As a valued client we would appreciate your comments on our service.
Please call customer service at (412)826-5245 or email customerservice@microseeps.com.

Case Narrative:

Client Name: Environment 1, Inc.
Contact: Steve Jones
Address: PO Box 7085
114 Oakmont Drive
Greenville, NC 27835

Lab Proj #: P1009447
Report Date: 10/12/10
Client Proj Name: Greene County
Client Proj #: Greene County

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
WL1R	Vapor	P1009447-01	27 Sep. 10 12:00	29 Sep. 10 13:06

Analyte(s)	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis						
N Ethane	<0.010	0.010	ug/L	AM20GAX	10/8/10	sl
N Ethene	<0.010	0.010	ug/L	AM20GAX	10/8/10	sl
N Hydrogen	1.600	0.600	nM	AM20GAX	10/8/10	sl
N Methane	0.890	0.015	ug/L	AM20GAX	10/8/10	sl
SemiVolatiles						
N Acetic Acid	<0.070	0.070	mg/L	AM23G	10/5/10	kb
N Butyric Acid	<0.050	0.050	mg/L	AM23G	10/5/10	kb
N Hexanoic Acid	<0.050	0.050	mg/L	AM23G	10/5/10	kb
N i-Hexanoic Acid	<0.050	0.050	mg/L	AM23G	10/5/10	kb
N i-Pentanoic Acid	<0.150	0.150	mg/L	AM23G	10/5/10	kb
N Lactic Acid	<0.100	0.100	mg/L	AM23G	10/5/10	kb
N Pentanoic Acid	<0.070	0.070	mg/L	AM23G	10/5/10	kb
N Propionic Acid	<0.050	0.050	mg/L	AM23G	10/5/10	kb
N Pyruvic Acid	<0.150	0.150	mg/L	AM23G	10/5/10	kb

N - NELAC certified analysis
PA02-00538

Client Name: Environment 1, Inc.
Contact: Steve Jones
Address: PO Box 7085
114 Oakmont Drive
Greenville, NC 27835

Lab Proj #: P1009447
Report Date: 10/12/10
Client Proj Name: Greene County
Client Proj #: Greene County

Sample Description	Matrix	Lab Sample #	Sampled Date/Time	Received
WEL 4	Vapor	P1009447-02	27 Sep. 10 15:05	29 Sep. 10 13:06

Analyte(s)	Result	PQL	Units	Method #	Analysis Date	By
RiskAnalysis						
N Ethane	<0.010	0.010	ug/L	AM20GAX	10/8/10	sl
N Ethene	0.080	0.010	ug/L	AM20GAX	10/8/10	sl
N Hydrogen	2.000	0.600	nM	AM20GAX	10/8/10	sl
N Methane	450.000	0.015	ug/L	AM20GAX	10/8/10	sl
SemiVolatiles						
N Acetic Acid	<0.070	0.070	mg/L	AM23G	10/5/10	kb
N Butyric Acid	<0.050	0.050	mg/L	AM23G	10/5/10	kb
N Hexanoic Acid	<0.050	0.050	mg/L	AM23G	10/5/10	kb
N i-Hexanoic Acid	<0.050	0.050	mg/L	AM23G	10/5/10	kb
N i-Pentanoic Acid	<0.150	0.150	mg/L	AM23G	10/5/10	kb
N Lactic Acid	<0.100	0.100	mg/L	AM23G	10/5/10	kb
N Pentanoic Acid	<0.070	0.070	mg/L	AM23G	10/5/10	kb
N Propionic Acid	<0.050	0.050	mg/L	AM23G	10/5/10	kb
N Pyruvic Acid	<0.150	0.150	mg/L	AM23G	10/5/10	kb

N - NELAC certified analysis
PA02-00538

Microseeps Lab. Proj. # _____

CHAIN - OF - CUSTODY RECORD

Microseeps COC cont. # 79

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 LANDFILL

Sampler's signature : _____

Cooler Temp. 5°C

Results to : E1

Invoice to : E1

Sample ID	Sample Description	Sample Type: Water	Vapor	Solid	Date	Time	# bottles		ANARGON	LL VFA	METHANE/ETHANE/ETHENE								Remarks :
WL/R	WEL #1R	✓	✓		9/27/10	2000	4		✓	✓	✓								
WEL 4	WEL #4	✓	✓		9/27/10	1505	4		✓	✓	✓								

Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
[signature]	ENVIRONMENT 1	9/28/10	9:15A				
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

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