PREPARED FOR:

COBLE'S SANDROCK, INC.
5833 FOSTER STORE ROAD
LIBERTY, NORTH CAROLINA 27298

COBLE'S SANDROCK CONSTRUCTION & DEMOLITION DEBRIS LANDFILL
PERMIT NO. 01-05

FIRST SEMIANNUAL WATER QUALITY MONITORING REPORT OF 2013

JUNE 2013

PREPARED BY:

JOYCE ENGINEERING

2211 WEST MEADOWVIEW ROAD, SUITE 101
GREENSBORO, NORTH CAROLINA 27407
NC LICENSE NUMBER C-0782
PHONE: (336) 323-0092
FAX: (336) 323-0093

JOYCE PROJECT NO. 00419.1301.12

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):

Joyce Engineering, Inc.

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

Name: G. Van Ness Burbach, Ph.D., P.G. Phone: (336) 323-0092

E-mail: vburbach@joyceengineering.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Coble's Sandrock, Inc. C&D Debris Landfill	5833 Foster Store Road Liberty, NC 27928	01-05	.0500	April 1-2, 2013

Environmental Status: (Check all that apply)

☐ Initial/Background Monitoring ☒ Detection Monitoring ☐ Assessment Monitoring ☐ Corrective Action

Type of data submitted: (Check all that apply)

☒ Groundwater monitoring data from monitoring wells
☐ Groundwater monitoring data from private water supply wells
☐ Leachate monitoring data
☒ Surface water monitoring data
☐ Methane gas monitoring data
☐ Corrective action data (specify) _____
☐ 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.

G. VanNess Burbach, Ph.D., PG — Technical Consultant — (336) 323-0092

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

Signature — Date: 6/5/13

Affix NC Licensed Professional Geologist Seal

NORTH CAROLINA LICENSED SEAL 1349 GEOLOGIST G. VAN NESS BURBACH

2211 West Meadowview Road, Suite 101 Greensboro, NC 27407

Facility Representative Address

C-0782

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

Revised 6/2009

First Semiannual Water Quality Monitoring Report of 2013
Coble's Sandrock Construction & Demolition Debris Landfill
Alamance County, North Carolina

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1.0 INTRODUCTION

1.1 Site Information

The Coble's Sandrock Construction and Demolition (C&D) Debris Landfill is owned and operated by Kent and Brenda Coble under Permit No. 01-05. The current C & D facility has been in operation since 1998. The property consists of approximately 154 acres in Alamance County, one half mile east of Kimesville, North Carolina and approximately eight miles south of Burlington, North Carolina. It includes 24.76 acres approved for waste disposal, including Phase 1 (7.0 acres), Phase 2A (1.1 acres), Phase 2B (4.76 acres), Phase 3A (6.3 acres), and Phase 3B (5.6 acres).

The site is located in the Piedmont physiographic province on a group of knolls and valleys. The northeast-flowing Poppaw Creek is located along the northern facility property line. Two primary drainage features (small, intermittent creeks) transect the site and flow into Poppaw Creek. One of the drainage features flows west-southwest across the southern half of the site and has a 2- to 4-acre man-made pond at its upstream limit in the southeastern corner of the proposed site. The other drainage feature flows north-northwest, roughly parallel to the eastern site boundary, and is fed by outflow from a small pond located on the site property and by two smaller, spring-fed drainage feature which flow into it from off the site property to east. These streams and ponds are shown on Drawing No. 1. Adjoining land uses are primarily agricultural and residential. The regional topography is shown on an excerpt of the USGS 7.5 Minute Topographic Quadrangle for Kimesville, North Carolina included as Figure No. 1.

1.2 Site Geology

The site is located within the Carolina Slate Belt in the central Piedmont physiographic and geological province. The Carolina Slate Belt consists of metamorphosed sediments, volcanics, and intrusive igneous rocks and the site is underlain by a felsic intrusive complex. The complex is described as white to gray, fine- to coarse-grained, massive to foliated, metamorphosed bodies of assemblages of intimately associated felsic intrusive rock types. The rock types vary from granite, granodiorite, quartz diorite, to quartz monzonite. Narrow mafic dikes are common within the felsic intrusive units. This region is also characterized by regional- and small-scale Mesozoic diabase dikes. Most of the dikes are near-vertical and trend north-south to northwest-southeast and are characterized by plagioclase, augite and olivine minerals (Ragland, 1991).

The rock seen in float and/or large outcrops, as well as rock core from this site was predominantly medium-grained biotite-muscovite granite with foliation observed locally. Otherwise, site outcrops of granite are massive, with very little to no observed structure or foliation. No diabase dikes have been observed at the site, but numerous mafic (meta-volcanic) dikes do exist.

1.3 Regulatory Status

The Coble's Sandrock C&D Debris Landfill is currently in the detection monitoring program for C&D landfills under Section .0544 of the North Carolina Solid Waste Management Rules. The facility initially monitored for the eight RCRA metals and NC Appendix I list of volatile organic compounds. Beginning with the April 2010 groundwater monitoring event samples have been analyzed for NC Appendix I constituents plus the additional C&D parameters (mercury, chloride, manganese, sulfate, iron, alkalinity, tetrahydrofuran (THF), and total dissolved solids (TDS)).

2.0 FACILITY MONITORING PROGRAM

2.1 Groundwater Monitoring Program

Seven active groundwater monitoring wells comprise the monitoring network at the Coble's Sandrock C&D Debris Landfill. The current compliance network consists of the following monitoring wells: MW-2, MW-4, MW-6 (facility background well), MW-7, MW-8, MW-10S, and PZ-19S. Monitoring wells MW-5 and MW-10D are monitored for water levels only.

Monitoring Well	Date Installed	Classification	Monitoring Program	Total Depth from TOC (ft)	Lithology of Screened Interval
MW-1	3/25/97	-	Abandoned	35.85	Saprolite/Part. Weathered Rock
MW-2	3/28/97	Compliance	Detection (C&D)	22.98	Saprolite/Part. Weathered Rock
MW-3	3/31/97	-	Abandoned	59.82	Bedrock
MW-4	4/01/97	Compliance	Detection (C&D)	24.22	Saprolite/Part. Weathered Rock
MW-5	1/18/02	Observation	Water Level	17.20	Saprolite/Part. Weathered Rock
MW-6	8/05/97	Background	Detection (C&D)	41.00	Bedrock
MW-7	12/19/02	Compliance	Detection (C&D)	16.00	Saprolite/Part. Weathered Rock
MW-8	3/21/05	Compliance	Detection (C&D)	22.76	Saprolite/Part. Weathered Rock
MW-9	3/21/05	-	Abandoned	40.16	Partially Weathered Rock
MW-10S	3/22/05	Compliance	Detection (C&D)	24.34	Bedrock
MW-10D	3/25/05	Observation	Water Level	66.86	Bedrock
PZ-19S	1/31/02	Compliance	Detection (C&D)	13.00	Saprolite

Three monitoring wells (MW-1, MW-2, and MW-4) were installed during the Phase 1 site suitability study to characterize the uppermost aquifer. A letter dated September 18, 1998 from Trigon Engineering Consultants, Inc. to the Solid Waste Section stated that piezometer P-1 was converted to an upgradient monitoring well now known as MW-3. After April 2003, MW-3 was replaced with MW-6 (formerly P-3) as the upgradient background well. PZ-19S was installed originally as a piezometer for the new Phase 3 Expansion in January 2002 but has been since converted to a monitoring well for future compliance monitoring. Well MW-5 was added to the compliance network before the April 2002 sampling event, but was replaced by MW-7 before

the November 2003 sampling event at the request of the Solid Waste Section. Four monitoring wells (MW-8, MW-9, MW-10S, and MW-10D) were installed in and around the Phase 3A waste cell limits between March 21 and 25, 2005. Monitoring wells, MW-1, MW-3, and MW-9, were abandoned on September 30 and 31, 2008 for the Phase 3A and 3B expansion.

2.2 Surface Water Monitoring Program

Surface water monitoring at the Coble's Sandrock C&D Debris Landfill is completed in accordance with NCSWMR §0602 (Surface Water Monitoring) and the approved Water Quality Monitoring Plan for the facility.

Surface Point	Classification	Monitoring Program
SW-1	Compliance	Surface Water
SW-2	Compliance	Surface Water

The two surface water monitoring points are monitored semiannually for the full list of NC Appendix I constituents and additional C&D parameters. Surface water point SW-1 is located in Poppaw Creek, shortly after it enters the site. The sample location is at the property line near the northwest edge of the site. Surface water monitoring point SW-2 serves as a downstream monitoring point. Samples from this point are collected at a location approximately 350 feet northeast of the proposed Phase 3 disposal area near the northeastern corner of the site and where a small tributary that flows adjacent to the eastern property boundary discharges into Poppaw Creek. Surface water monitoring point locations are shown on Drawing No. 1.

3.0 FIRST SEMIANNUAL SAMPLING EVENT OF 2013

3.1 Field Work and Visual Inspection

In order to detect potential releases of leachate and/or landfill gas migration in a timely manner, a visual inspection program has been implemented at the Coble's Sandrock C&D Debris Landfill. This inspection program involves field personnel making the following observations:

- Observation of stress induced on the biological community (i.e., dead or dying vegetation),
- Indications of leachate impact (i.e., seeps, impacted surface water),
- Observations of erosion; and
- Negative changes around the waste facility.

On April 1-2, 2013 personnel from JOYCE visited Coble's Sandrock C&D Debris Landfill to purge and sample monitoring wells MW-2, MW-4, MW-6, MW-7, MW-8, MW-10S, and P-19S. Surface water monitoring points SW-1 and SW-2 were also sampled during the April 2013 event. Beginning with the background well (MW-6), depth-to-water measurements were obtained to the nearest 0.01 foot using an electronic water level indicator for all monitoring wells in the compliance network prior to purging. Historical groundwater elevations can be found in Table 1.

Monitoring wells were purged and sampled using disposable bailers. Measurements of temperature, pH, specific conductivity, and turbidity were recorded in the dedicated site log book prior to purging, after each purge volume, and during sampling. Prior to sampling, laboratory-supplied containers were prepared with the following information:

- Monitoring well number (completed by field personnel),
- Date and time of sample collection (completed by field personnel),
- Initials of sampling personnel (completed by field personnel),
- Project name and number (completed by the laboratory),
- Chemical preservative (completed by the laboratory); and
- Requested chemical analysis (completed by the laboratory).

Groundwater samples from each monitoring well were collected directly from the disposable bailers in the provided laboratory containers either immediately after purging or within 24 hours of the final purge volume. Immediately after collection, the samples were placed on ice in a laboratory provided cooler. Field data logs are provided in Appendix 1.

3.2 Laboratory Analysis and Quality Control

The April 2013 groundwater and surface water samples were submitted to Pace Analytical Services, Inc. of Huntersville, North Carolina under chain-of-custody control for analysis. As presented earlier, the April 2013 groundwater samples were analyzed for the NC Appendix I list of constituents plus the additional C&D parameters. JOYCE requested a Level II data report for each final laboratory report. The samples were received by the laboratory on April 3, 2013 in good condition, properly preserved, and within analyses hold times.

In addition to samples collected for compliance monitoring at the Coble's Sandrock C&D Debris Landfill, a Field Blank was collected by JOYCE personnel as part of the April 2013 sampling event. Also, a Trip Blank was prepared by the laboratory to accompany the volatile sampling containers to and from the laboratory for the April 2013 sampling event. The April 2013 Field Blank was analyzed for the NC Appendix I list of constituents plus the additional C&D parameters. The Trip Blank was analyzed for NC Appendix I volatile organic compounds plus THF.

Upon receipt of the laboratory data packages, the data was reviewed by JOYCE personnel for the following:

- General typographical errors,
- Correct analyses performed and within method specified hold times,
- Biased data results based on Surrogate Recoveries, Matrix Spike, Matrix Spike Duplicate, and Laboratory Control Samples,
- Blank qualified data (B-flags),
- Detections above the NC 2L Groundwater Standards (NC 2L), Groundwater Water Protection Standards (GWPS), and/or NC 2B Surface Water Standards (NC 2B); and
- Detections that are above historical levels.

4.0 HYDROGEOLOGICAL CONDITIONS

The surficial aquifer beneath the site occurs within saprolite, partially weathered rock (PWR), and bedrock. Generally, the saprolite and PWR units are relatively thin (5 to 40 feet) at and around the waste disposal areas. The saprolite and PWR are expected to behave as a relatively isotropic, porous medium, whereas groundwater flow in the bedrock is primarily through fractures; however, the bedrock is highly fractured and well connected to the overlying units so they are expected to behave as a single aquifer. The groundwater potentiometric surface, based on water level measurements taken on April 1, 2013, is shown on Drawing No. 1.

Horizontal hydraulic gradients for the site were calculated using three groundwater flow line segments indicated on the groundwater surface contour map (Drawing No. 1). Average linear groundwater flow velocities were calculated using the modified Darcy equation:

$$\mathbf{V = Ki/n}$$

where **V** = average linear velocity (feet per day), **K** = hydraulic conductivity (ft/day), **i** = horizontal hydraulic gradient, and **n** = effective porosity. An effective porosity of **n** = 0.21 (21%) was assumed based on average porosities for saprolite and PWR determined by laboratory analysis of soil samples. The average gradients (**i**) were determined for each flow path shown on Drawing No. 1. The geometric mean of the hydraulic conductivities of all slug tests conducted on the site (**K** = 1.97×10^{-1} ft/day) was used for groundwater flow calculations for the site.

The above equation is based on the simplifying assumptions of a homogeneous, isotropic aquifer in a porous medium. Groundwater flow velocities were calculated using saprolite and PWR data because the site's uppermost aquifer is primarily in those hydrogeologic units. An average linear groundwater flow velocity was calculated across areas where bedrock is the surficial aquifer because rock cores have shown that bedrock is highly fractured to the point that groundwater flow is expected to behave relatively similar to the unconsolidated hydrogeologic units. Also, aquifer tests conducted on bedrock wells and piezometers showed similar range of values for hydraulic conductivity. Groundwater flow velocities within the fractured bedrock aquifer are likely to be variable.

Data and calculations for the horizontal gradients and flow velocities are presented in Table 2. The calculated horizontal gradients from three flow line segments across the site range from 0.021 to 0.063 ft/ft. Calculated linear groundwater velocities ranged from approximately 0.019 to 0.059 ft/day.

5.0 DATA ANALYSIS

Results from the April 2013 sampling event were received April 18, 2013 from Pace Analytical Services, Inc. and are found in Appendix 1.

5.1 Statistical Methods

The background data for inorganic constituents were evaluated using the Shapiro-Wilk Test, Parametric Prediction Limits, Parametric Tolerance Intervals, Aitchison's Adjustment, Non-Parametric Prediction Limits, and Poisson Prediction Limits as appropriate. Background data, tests for normality, outliers, Aitchison's adjustment, tolerance interval, or prediction limits are used, as appropriate based on the background data. The statistical test by which downgradient data are compared to facility background data is based upon the nature of the data and the number of data values that are less than the laboratory limit of detection. All statistical tests are evaluated at the 0.05 level of significance, 95% confidence level, and are conducted as one-tailed tests.

5.2 Statistical Results

Background concentrations for inorganic constituents were determined using statistical procedures as discussed in **Section 5.1,** using data from historical semiannual sampling events at the facility through this event. A summary of the April 2013 statistical background calculations are provided in the following table. Detailed statistical analysis worksheets can be found in Appendix 2. The data set from well MW-6 (current background well) in addition to background monitoring event data from MW-3, MW-8, MW-10S, and PZ-19S were evaluated to determine the appropriate procedure for calculation of the background value for each parameter.

Constituent	Data Distribution	Statistical Method used to Establish Background	Background Concentration	Noted Increases
Barium	Non-Normal	Non Parametric Prediction Interval	357	None
Cobalt**	N/A	Non Parametric Prediction Interval	32.8	MW-7** and P-19S**
Iron*	Log-Normal	Upper Tolerance Limit	255,073	None
Manganese*	Non-Normal	Non Parametric Prediction Interval	1,890	MW-7* and P-19S*
Alkalinity	Log-Normal	Upper Tolerance Limit	23,838	MW-2,4,7,8,10S and P-19S
Chloride	Log-Normal	Upper Tolerance Limit	11,184	MW-7 and P-19S
TDS	Log-Normal	Upper Tolerance Limit	202,629	MW-7 and P-19S

Concentrations are in micrograms per liter (µg/L)
N/A = Not Applicable
*= Alternate Source Demonstration approved August 2010
**= Alternate Source Demonstration approved April 2012

5.3 Analytical Results for Groundwater and Comparisons to Standards

The following inorganic and organic constituents were detected in groundwater during the April 2013 sampling event.

Constituent	NC 2L/ GWPS	Background	Downgradient						Blanks
		MW-6	MW-2	MW-4	MW-7	MW-8	MW-10S	P-19S	
Barium	700	42.5 J	22.0 J	28.1 J	231	11.9 J	47.4 J	214	ND
*Cobalt***	1	ND	ND	ND	36.4	ND	ND	61.9	ND
*Iron**	300	101 J	698	778	15,400	242 J	1,650	38,700	ND
*Manganese**	50	6.4 J	53.4	44.0 J	17,800	ND	102	5,020	ND
Alkalinity	NE	9,940	24,100	27,600	909,000	61,400	36,200	101,000	ND
TDS	500,000	147,000	116,000	165,000	1,430,000	106,000	180,000	207,000	ND

Chloride	250,000	8,650	ND	7,060	128,000	ND	11,000	11,200	ND

ND = Not detected above laboratory detection limits.
NE = Not established.
NS = Not sampled.
* = Alternate Source Demonstration approved August 2010
** = Alternate Source Demonstration approved April 2012
GWPS = Ground Water Protection Standard (Solid Waste Section)
J = Estimated value below the SWSL
All Concentrations in µg/L
Highlighted values above their respective NC 2L or GWPS
NC 2L= Groundwater Standards established by 15A NC AC 2L.0202

In general, the inorganic and organic results are consistent with historical data. Historical groundwater data can be found in Table 3. Cobalt was detected above its GWPS in MW- 7 and P-19S. An Alternate Source Demonstration (ASD) for cobalt was approved in April 2012. Iron and manganese were detected above the NC 2L in MW-2, MW-4, MW-7 and P-19S. An ASD for iron and manganese was approved in August 2010. TDS and was detected above the NC 2L in MW-7 during April 2013 sampling event.

5.4 Analytical Results for Surface Water and Comparisons to Standards

The following inorganic and organic constituents were detected in surface water during the April 2013 sampling event.

Constituent	NC 2B	SW-1	SW-2	Blanks
Iron	1,000	1,650	1,580	ND
Manganese	NE	391	448	ND
Alkalinity	NE	36,900	36,000	ND
Total Dissolved Solids	NE	91,000	89,000	ND
Chloride	230,000	7,670	7,190	ND

ND = Not detected above laboratory detection limits.
NE = Not established.
J = Estimated value below the SWSL
B = Blank Qualified
All Concentrations in µg/L
Highlighted values above the NC 2B

Historical surface water data can be found in Table 4. Iron was detected above its NC 2B standard in SW-1; however, SW-1 is located where Poppaw Creek enters the site and is considered to be the representative of the background levels. In addition, elevated concentrations of iron in surface waters appear to be naturally occurring due to the concentrations of iron in local soils.

6.0 CONCLUSIONS

Cobalt was detected above its GWPS in MW- 7 and P-19S. An ASD for cobalt was approved in April 2012. Iron and manganese were detected above the NC 2L in MW-2, MW-4, MW-7 and P-19S. An ASD for iron and manganese was approved in August 2010. TDS was detected above the NC 2L in MW-7 during April 2013 sampling event. In general, the results are consistent with historical data.

Based on the analytical results from the April 2013 Coble's Sandrock C&D Debris Landfill will remain in the Detection Monitoring Program for C&D landfills with continued evaluation of C&D indicator parameters. The next semiannual monitoring event is scheduled for October 2013.

7.0 REFERENCES

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United States Geological Survey. Kimesville 7.5 minute Quadrangle.

Tables

Table 1 Summary of Groundwater Elevations
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TABLE 1

SUMMARY OF GROUNDWATER ELEVATIONS

Location	Background	Downgradient											
	MW-6	MW-1	MW-2	MW-3	MW-4	MW-5	MW-7	MW-8	MW-9	MW-10S	MW-10D	PZ-19S	PZ-19D
TOC Elevation	652.56	602.46	582.31	613.05	582.64	577.41	583.33	574.26	589.09	592.46	592.76	572.18	571.85
Well Depth	41.00	35.85	22.98	59.82	24.22	17.20	16.00	22.76	40.16	24.34	66.86	13.00	62.20
Apr-00	NA	569.59	569.81	579.91	569.07	NI	NI	NI	NI	NI	NI	NI	NI
Aug-00	627.42	568.21	566.97	578.23	568.08	NI	NI	NI	NI	NI	NI	NI	NI
Oct-00	NA	569.30	568.55	578.25	568.81	NI	NI	NI	NI	NI	NI	NI	NI
Nov-00	627.30	568.09	566.87	577.47	567.04	NI	NI	NI	NI	NI	NI	NI	NI
Apr-01	627.17	571.48	569.72	578.67	569.06	NI	NI	NI	NI	NI	NI	NI	NI
Dec-01	621.78	567.28	565.31	575.90	566.21	NI	NI	NI	NI	NI	NI	NI	NI
Apr-02	623.94	568.17	567.84	576.09	568.21	569.32	NI	NI	NI	NI	NI	NI	NI
Nov-02	626.32	570.60	570.36	578.47	569.74	570.45	NI	NI	NI	NI	NI	NI	NI
Apr-03	633.40	571.66	569.18	579.70	568.84	570.32	574.38	NI	NI	NI	NI	567.41	567.38
Nov-03	632.53	568.49	567.38	578.54	567.47	569.59	572.44	NI	NI	NI	NI	566.78	567.01
Apr-04	630.13	568.54	568.44	578.92	567.83	569.86	573.63	NI	NI	NI	NI	567.04	567.19
Oct-04	628.60	567.86	567.92	577.61	567.91	570.30	573.30	NI	NI	NI	NI	567.15	567.14
Apr-05	630.65	568.90	568.69	578.54	568.16	570.76	574.54	NS	NS	NS	NS	567.19	567.45
Oct-05	625.65	567.16	565.52	576.33	566.43	569.12	571.24	NS	NS	NS	NS	565.66	565.45
27-Apr-06	624.46	567.84	569.36	NS	569.34	NS	572.77	NS	NS	NS	NS	568.10	567.55
11-Oct-06	624.45	567.91	567.22	577.59	568.29	570.11	571.77	567.03	567.92	583.95	583.62	NS	NS
16-Apr-07	629.42	570.33	570.04	NS	569.38	571.49	574.94	569.10	569.76	584.80	585.37	NS	NS
11-Oct-07	624.91	566.74	563.35	NS	564.43	NS	570.18	NS	NS	580.07	580.28	NS	NS
15-Apr-08	625.12	569.67	569.41	NS	568.87	569.99	574.03	568.85	569.57	584.34	584.73	NS	NS
15-Oct-08	625.86	AB	568.11	AB	569.00	570.33	573.64	564.91	AB	NS	NS	NS	NS
18-Mar-09	NS	AB	NS	AB	NS	NS	NS	569.89	AB	585.42	NS	567.97	NS
21-Apr-09	629.77	AB	569.89	AB	569.21	NS	575.52	569.14	AB	585.07	NS	567.90	NS
21-May-09	NS	AB	NS	AB	NS	NS	NS	567.96	AB	584.17	NS	567.28	NS
08-Oct-09	626.40	AB	564.24	AB	565.47	NS	571.25	565.47	AB	582.81	NS	564.00	NS
26-Apr-10	631.51	AB	578.23	AB	568.27	570.13	574.57	567.94	AB	584.10	584.16	567.22	567.00
11-Oct-10	627.03	AB	565.73	AB	567.18	NS	572.48	566.57	AB	583.41	NS	565.80	NS
13-Apr-11	626.21	AB	569.58	AB	568.67	570.34	574.47	569.03	AB	584.63	583.79	567.35	567.50
12-Oct-11	623.62	AB	565.82	AB	566.70	569.31	572.49	567.21	AB	NS	NS	565.56	565.57
17-Apr-12	626.94	AB	568.76	AB	568.76	NS	574.62	568.53	AB	NS	NS	567.02	567.10
08-Oct-12	624.65	AB	567.82	AB	568.78	NS	573.24	568.50	AB	NS	NS	567.39	NS
01-Apr-13	626.42	AB	569.51	AB	569.52	570.57	574.33	569.91	AB	585.15	584.19	571.55	567.64

Notes:

1. Water levels are measured from top of casing (TOC).
2. NS = Not sampled and/or water levels not measured.
3. AB = Monitoring well has been abandoned.
4. NI = Monitoring well has not been installed.
5. NA = Data not available.

TABLE 2

SUMMARY OF HORIZONTAL HYDRAULIC GRADIENTS AND LINEAR VELOCITIES

GRADIENT CALCULATION SEGMENT	FLOW LINE LENGTH (feet)	FLOW DIRECTION	GROUNDWATER ELEVATION (feet)	HORIZONTAL GRADIENT i (ft/ft)	HYDRAULIC CONDUCTIVITY K (ft/day)	EFFECTIVE POROSITY n	LINEAR VELOCITY V (ft/day)
i_1	1460	NW	630 / 600	0.021	1.97E-01	0.21	0.019
i_2	472	N	590 / 570	0.042	1.97E-01	0.21	0.040
i_3	317	W	590 / 570	0.063	1.97E-01	0.21	0.059
			Average:	0.042		Average:	0.039

NOTES:

1. The hydraulic conductivity (**K**) is taken from the geometric mean of **K** estimated from slug tests performed during hydrogeologic investigations.
2. The effective porosity (**n**) is taken from the average **n** determined by laboratory analysis of soil samples.
3. The horizontal hydraulic gradient (**i**) is the change in groundwater elevation divided by the segment length.
4. The groundwater flow velocity (**V**) is calculated based on the modified Darcy equation: **V=Ki/n**.

TABLE 3

SUMMARY OF HISTORICAL GROUNDWATER CONSTITUENTS

Constituent	Date	DL	RL	Background MW-6	MW-1	MW-2	MW-3	MW-4	MW-5	MW-7	MW-8	MW-10S	P-19S	Blanks
				Concentration (µg/L)										
				Background	Downgradient									
Antimony	19-Mar-09	2.6	6.0	NS	AB	NS	AB	NS	NS	NS	3.1 J	ND	ND	ND
	22-Apr-09	2.6	6.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
	14-May-09	2.6	6.0	NS	AB	NS	AB	NS	NS	NS	ND	ND	ND	ND
	8-Oct-09	2.6	6.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
GWPS = 1.4 µg/L (01/01/10)	27-Apr-10	2.6	6.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
GWPS = 1 µg/L (08/01/10)	12-Oct-10	2.6	6.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
	14-Apr-11	2.6	6.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
	13-Oct-11	5.0	6.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	17-Apr-12	5.0	6.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	9-Oct-12	5.0	6.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	2-Apr-13	5.0	6.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
Arsenic	Apr-00	8	10	NA	ND	ND	10 J	ND	NI	NI	NI	NI	NI	ND
	Nov-00	NR	10	WL	ND	ND	ND	ND	NI	NI	NI	NI	NI	ND
	Apr-01	NR	10	Wl	ND	ND	ND	ND	NI	NI	NI	NI	NI	ND
	Dec-01	NR	10	WL	ND	ND	ND	ND	NI	NI	NI	NI	NI	ND
	Apr-02	NR	10	WL	ND	ND	ND	ND	ND	NI	NI	NI	WL	ND
	Nov-02	NR	10	WL	ND	ND	ND	ND	ND	NI	NI	NI	WL	ND
	Apr-03	NR	10	WL	ND	ND	ND	ND	ND	WL	NI	NI	WL	ND
	Nov-03	NR	10	ND	ND	ND	WL	ND	WL	ND	NI	NI	WL	ND
	Apr-04	NR	10	ND	ND	ND	WL	ND	WL	ND	NI	NI	WL	ND
	Oct-04	NR	10	ND	ND	ND	WL	ND	WL	ND	NI	NI	WL	ND
	Apr-05	NR	10	ND	ND	ND	WL	ND	WL	ND	WL	WL	WL	ND
	Oct-05	NR	10	ND	NS	ND	WL	ND	WL	ND	WL	WL	WL	ND
	28-Apr-06	NR	10	ND	ND	ND	NS	ND	NS	ND	WL	WL	WL	ND
	11-Oct-06	NR	10	ND	ND	ND	WL	ND	WL	ND	WL	WL	WL	ND
	19-Apr-07	2.0	10	ND	ND	ND	NS	2.0 B	WL	ND	WL	WL	WL	2.1 J
	11-Oct-07	3.0	10	ND	NS	ND	NS	ND	NS	ND	WL	WL	WL	ND
NC 2L = 50 µg/L (10/23/07)	15-Apr-08	2.7	10.0	ND	ND	ND	NS	ND	WL	ND	WL	WL	WL	ND
	15-Oct-08	2.7	10.0	ND	AB	ND	AB	ND	WL	ND	WL	WL	WL	ND
	19-Mar-09	2.7	10.0	NS	AB	NS	AB	NS	NS	NS	4.8 J	3.1 J	ND	ND
	22-Apr-09	2.7	10.0	ND	AB	ND	AB	ND	NS	11.4	ND	ND	ND	ND
	14-May-09	2.7	10.0	NS	AB	NS	AB	NS	NS	NS	ND	ND	ND	ND
	08-Oct-09	2.7	10.0	ND	AB	2.9 J	AB	ND	NS	11.0	ND	ND	ND	ND
NC 2L = 10 µg/L (01/01/10)	27-Apr-10	2.7	10.0	ND	AB	ND	AB	ND	NS	5.8 J	ND	ND	ND	ND
	12-Oct-10	2.7	10.0	ND	AB	ND	AB	ND	NS	8.2 J	ND	ND	ND	ND
	14-Apr-11	2.7	10.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
	13-Oct-11	5.0	10.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	17-Apr-12	5.0	10.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	9-Oct-12	5.0	10.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	2-Apr-13	5.0	10.0	ND	AB	ND	AB	ND	NS	7.2 J	ND	ND	ND	ND
Barium	Apr-00	2	8	NA	240	180	340	ND	NI	NI	NI	NI	NI	ND
	Nov-00	NR	500	WL	ND	ND	ND	ND	NI	NI	NI	NI	NI	ND
	Apr-01	NR	500	WL	ND	ND	ND	ND	NI	NI	NI	NI	NI	ND
	Dec-01	NR	500	WL	ND	ND	ND	ND	NI	NI	NI	NI	NI	ND
	Apr-02	NR	500	WL	ND	ND	ND	ND	ND	NI	NI	NI	WL	ND
	Nov-02	NR	500	WL	ND	ND	ND	ND	ND	NI	NI	NI	WL	ND
	Apr-03	NR	500	WL	ND	ND	ND	ND	ND	WL	NI	NI	WL	ND
	Nov-03	NR	500	ND	ND	ND	WL	ND	WL	ND	NI	NI	WL	ND
	Apr-04	NR	500	ND	ND	ND	WL	ND	WL	ND	NI	NI	WL	ND
	Oct-04	NR	500	ND	ND	ND	WL	ND	WL	ND	NI	NI	WL	ND
	Apr-05	NR	500	ND	ND	ND	WL	ND	WL	ND	WL	WL	WL	ND
	Oct-05	NR	500	ND	NS	ND	WL	ND	WL	ND	WL	WL	WL	ND
	28-Apr-06	NR	500	ND	ND	ND	NS	ND	NS	ND	WL	WL	WL	ND
	11-Oct-06	NR	500	ND	ND	ND	WL	ND	WL	ND	WL	WL	WL	ND
	19-Apr-07	0.20	100	58.8 J	19.4 J	66.0 J	NS	24.9 J	WL	140	WL	WL	WL	0.30 J
	11-Oct-07	2.0	100	38.2 B	NS	478	NS	45.8 B	NS	241	WL	WL	WL	35.8 J
NC 2L = 2,000 µg/L (10/23/07)	15-Apr-08	0.20	100	37.8 J	19.9 J	44.0 J	NS	31.3 J	WL	156	WL	WL	WL	ND
	15-Oct-08	0.20	100	41.3 J	AB	73.8 J	AB	19.9 J	WL	175	WL	WL	WL	ND
	19-Mar-09	0.20	100	NS	AB	NS	AB	NS	NS	NS	357	59.0 J	62.4 J	11.5 J
	22-Apr-09	0.20	100	46.4 B	AB	48.3 B	AB	19.8 B	NS	300	95.0 J	56.5 B	63.2 B	13.4 (13.8) J
	14-May-09	0.20	100	NS	AB	NS	AB	NS	NS	NS	101	49.1 B	74.1	12.5 J
	08-Oct-09	0.20	100	39.7 B	AB	77.9 B	AB	106	NS	259	120	85.5 J	113	18.5 (15.4) J
NC 2L = 700 µg/L (01/01/10)	27-Apr-10	0.20	100	42.1 B	AB	54.9 B	AB	111 B	NS	333	74.9 B	62.0 B	79.7 B	27.2 J
	12-Oct-10	0.20	100	48.8 J	AB	72.5 J	AB	117	NS	285	95.3 J	93.0 J	147	0.54 J
Resample	14-Dec-10	0.20	100	NS	AB	NS	AB	NS	NS	309	NS	NS	94.6 J	ND
	14-Apr-11	0.20	100	46.5 B	AB	35.9 B	AB	43.6 B	NS	250	52.4 B	51.2 B	89.6 J	12.0 J
	13-Oct-11	5.0	100	36.9 J	AB	40.6 J	AB	126	NS	323	61.3 J	NS	107	ND
	17-Apr-12	5.0	100	42.8 J	AB	26.1 J	AB	61.7 J	NS	258	31.0 J	NS	74.3 J	ND
	9-Oct-12	5.0	100	32.3 J	AB	17.7 J	AB	19.8 J	NS	257	11.5 J	NS	115	ND
	2-Apr-13	5.0	100	42.5 J	AB	22.0 J	AB	28.1 J	NS	231	11.9 J	47.4 J	214	ND

TABLE 3

SUMMARY OF HISTORICAL GROUNDWATER CONSTITUENTS

Constituent	Date	Concentration (µg/L)																											
		DL	RL	Background				Downgradient																				Blanks	
				MW-6		MW-1		MW-2		MW-3		MW-4		MW-5		MW-7		MW-8		MW-10S		P-19S							
Beryllium	19-Mar-09	0.10	1.0	NS		AB		NS		AB		NS		NS		NS		1.3		0.13	J	ND						ND	
GWPS = 4 µg/L (10/23/07)	22-Apr-09	0.10	1.0	ND		AB		ND		AB		ND		NS		ND		0.20	J	ND		ND						ND	
	14-May-09	0.10	1.0	NS		AB		NS		AB		NS		NS		NS		0.21		ND		ND						ND	
	08-Oct-09	0.10	1.0	ND		AB		ND		AB		ND		NS		ND		0.48	B	0.23	B	ND						0.1	J
	27-Apr-10	0.10	1.0	0.32	J	AB		0.38	J	AB		0.16	J	NS		ND		0.21	J	0.13	J	ND						ND	
	12-Oct-10	0.10	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND						ND	
	14-Apr-11	0.10	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND						ND	
	13-Oct-11	1.0	1.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND						ND	
	17-Apr-12	1.0	1.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND						ND	
	9-Oct-12	1.0	1.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND						ND	
	2-Apr-13	1.0	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND						ND	
Cadmium	Apr-00	1	4	NA		2	J	2	J	4		ND		NI		NI		NI		NI		NI						ND	
	Nov-00	NR	1	WL		2		ND		ND		ND		NI		NI		NI		NI		NI						ND	
	Apr-01	NR	1	WL		ND		ND		ND		ND		NI		NI		NI		NI		NI						ND	
	Dec-01	NR	1	WL		3.5		1.0		ND		ND		NI		NI		NI		NI		NI						ND	
	Apr-02	NR	1	WL		ND		ND		ND		ND		ND		NI		NI		NI		WL						ND	
	Nov-02	NR	1	WL		1.3		ND		ND		1.2		1.0		NI		NI		NI		WL						ND	
	Apr-03	NR	1	WL		2.0		1.4		1.9		1.7		2.6		WL		NI		NI		WL						ND	
	Nov-03	NR	1	ND		3.2		1.1		WL		1.4		WL		ND		NI		NI		WL						ND	
	Apr-04	NR	1	1.8		ND		1.7		WL		ND		WL		ND		NI		NI		WL						ND	
	Oct-04	NR	1	1		ND		ND		WL		ND		WL		ND		NI		NI		WL						ND	
	Apr-05	NR	1	ND		ND		ND		WL		ND		WL		ND		WL		WL		WL						ND	
	Oct-05	NR	1	ND		NS		ND		WL		ND		WL		ND		WL		WL		WL						ND	
	28-Apr-06	NR	1	ND		ND		ND		NS		ND		NS		ND		WL		WL		WL						ND	
	11-Oct-06	NR	1.00	ND		ND		ND		WL		ND		WL		ND		WL		WL		WL						ND	
	19-Apr-07	0.50	1	ND		ND		ND		NS		ND		WL		ND		WL		WL		WL						ND	
	11-Oct-07	0.1	1	ND		NS		0.4	J	NS		ND		NS		ND		WL		WL		WL						ND	
NC 2L = 1.75 µg/L (10/23/07)	15-Apr-08	0.50	1.0	ND		ND		ND		NS		ND		WL		ND		WL		WL		WL						ND	
	15-Oct-08	0.50	1.0	ND		AB		ND		AB		ND		WL		ND		WL		WL		WL						ND	
	19-Mar-09	0.50	1.0	NS		AB		NS		AB		NS		NS		NS		ND		ND		ND						ND	
	22-Apr-09	0.50	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND						ND	
	14-May-09	0.50	1.0	NS		AB		NS		AB		NS		NS		NS		ND		ND		ND						ND	
	08-Oct-09	0.50	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND						ND	
NC 2L = 2 µg/L (01/01/10)	27-Apr-10	0.50	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND						ND	
	12-Oct-10	0.50	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND						ND	
	14-Apr-11	0.50	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND						ND	
	13-Oct-11	1.0	1.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND						ND	
	17-Apr-12	1.0	1.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND						ND	
	9-Oct-12	1.0	1.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND						ND	
	2-Apr-13	1.0	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND						ND	
Chromium	Apr-00	3	12	NA		36		30		76		10	J	NI		NI		NI		NI		NI						ND	
	Nov-00	NR	10	WL		15		ND		ND		ND		NI		NI		NI		NI		NI						ND	
	Apr-01	NR	10	WL		ND		ND		ND		ND		NI		NI		NI		NI		NI						ND	
	Dec-01	NR	10	WL		31		10		ND		ND		NI		NI		NI		NI		NI						ND	
	Apr-02	NR	10	WL		ND		ND		ND		ND		ND		NI		NI		NI		WL						45	
	Nov-02	NR	10	WL		ND		ND		ND		ND		ND		NI		NI		NI		WL						ND	
	Apr-03	NR	10	WL		ND		ND		ND		ND		ND		WL		NI		NI		WL						ND	
	Nov-03	NR	10	ND		ND		ND		WL		ND		WL		ND		NI		NI		WL						ND	
	Apr-04	NR	10	ND		ND		ND		WL		ND		WL		ND		NI		NI		WL						ND	
	Oct-04	NR	10	ND		ND		ND		WL		ND		WL		ND		NI		NI		WL						ND	
	Apr-05	NR	10	ND		ND		ND		WL		ND		WL		ND		WL		WL		WL						ND	
	Oct-05	NR	10	ND		NS		14		WL		ND		WL		ND		WL		WL		WL						ND	
	28-Apr-06	NR	10	ND		ND		ND		NS		ND		NS		ND		WL		WL		WL						ND	
	11-Oct-06	NR	10.0	ND		ND		ND		WL		ND		WL		ND		WL		WL		WL						ND	
	19-Apr-07	2.0	10	ND		ND		10.9		NS		3.8	J	WL		ND		WL		WL		WL						ND	
	11-Oct-07	1.0	10	1.7	J	NS		121		NS		5.8	J	NS		12.7		WL		WL		WL						ND	
Resample	28-Dec-07	1.0	10	NS		NS		15.7		NS		NS		NS		NS		WL		WL		WL						ND	
NC 2L = 50 µg/L (10/23/07)	15-Apr-08	0.40	10.0	1.5	B	2.1	B	11.1		NS		7.7	J	WL		0.47	B	WL		WL		WL						0.61	J
	15-Oct-08	0.40	10.0	1.6	J	AB		15.3		AB		1.3	J	WL		1.8	J	WL		WL		WL						ND	
	19-Mar-09	0.40	10.0	NS		AB		NS		AB		NS		NS		NS		25.0		14.3		0.57	B					0.54	J
	22-Apr-09	0.40	10.0	0.53	J	AB		10.3		AB		2.6	J	NS		1.6	J	6.5	J	10.2		ND						ND	
	14-May-09	0.40	10.0	NS		AB		NS		AB		NS		NS		NS		6.3	J	7.6	J	ND						ND	
	08-Oct-09	0.40	10.0	0.41	J	AB		16.5		AB		0.71	J	NS		10.5		8.6	J	25.1		0.45	J					ND	
NC 2L = 10 µg/L (01/01/10)	27-Apr-10	0.40	10.0	0.41	J	AB		14.2		AB		1.9	J	NS		4.3	J	4.9	J	7.6	J	0.46	J					ND	
Resample	15-Jun-10	0.40	10.0	NS		AB		4.0	J	AB		NS		NS		NS		NS		NS		NS						ND	
	12-Oct-10	0.40	10.0	ND		AB		12.7		AB		2.9	J	NS		4.5	J	7.6	J	3.0	J	0.67	J					ND	
Resample	14-Dec-10	0.40	10.0	NS		AB		1.8	J	AB		NS		NS		NS		NS		NS		NS						ND	
	14-Apr-11	0.40	10.0	0.68	J	AB		3.2	J	AB		3.6	J	NS		5.0	J	3.5	J	8.9	J	0.88	J					ND	
	13-Oct-11	5.0	10.0	ND		AB		5.2	J	AB		ND		NS		ND		ND		NS		ND						ND	
	17-Apr-12	5.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND						ND	
	9-Oct-12	5.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND						ND	
	2-Apr-13	5.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND						ND	

TABLE 3

SUMMARY OF HISTORICAL GROUNDWATER CONSTITUENTS

Constituent	Date	Concentration (µg/L)																							
		DL	RL	Background		Downgradient																		Blanks	
				MW-6		MW-1		MW-2		MW-3		MW-4		MW-5		MW-7		MW-8		MW-10S		P-19S			
Cobalt	19-Mar-09	0.60	10.0	NS		AB		NS		AB		NS		NS		NS		32.8		4.5	B	9.9	B	4.5	J
GWPS = 70 µg/L (10/23/07)	22-Apr-09	0.60	10.0	NS		AB		NS		AB		NS		NS		NS		9.7	B	1.8	B	10.4	B	5.7	J
	14-May-09	0.60	10.0	NS		AB		NS		AB		NS		NS		NS		11.1	B	4.8	B	10.3	B	4.6	J
	08-Oct-09	0.60	10.0	NS		AB		NS		AB		NS		NS		NS		6.1	J	6.8	J	5.9	J	ND	
	27-Apr-10	0.60	10.0	ND		AB		ND		AB		1.4	J	NS		25.6		3.4	J	ND		4.4	J	ND	
GWPS = 1 µg/L (10/01/10)	12-Oct-10	0.60	10.0	ND		AB		ND		AB		4.2	B	NS		30.5		2.5	B	0.65	B	15.1		2.4	J
Resample	14-Dec-10	0.60	10.0	NS		AB		NS		AB		NS		NS		18.8		NS		NS		7.0	B	3.1	J
	14-Apr-11	0.60	10.0	2.7	B	AB		0.81	B	AB		6.0	B	NS		21.0	B	8.0	B	7.5	B	5.0	B	4.5	J
	13-Oct-11	5.0	10.0	ND		AB		ND		AB		7.9	J	NS		12.1		ND		NS		12.8		ND	
	17-Apr-12	5.0	10.0	ND		AB		ND		AB		ND		NS		16.9		ND		NS		5.0	J	ND	
	9-Oct-12	5.0	10.0	ND		AB		6.8	J	AB		8.6	J	NS		9.5	J	ND		NS		7.8	J	ND	
	2-Apr-13	5.0	10.0	ND		AB		ND		AB		ND		NS		36.4		ND		ND		61.9		ND	
Copper	19-Mar-09	0.30	10.0	NS		AB		NS		AB		NS		NS		NS		9.1	J	15.6		ND		ND	
NC 2L = 1,000 µg/L (10/23/07)	22-Apr-09	0.30	10.0	NS		AB		NS		AB		NS		NS		NS		2.1	B	15.3	B	0.52	B	0.78	J
	14-May-09	0.30	10.0	NS		AB		NS		AB		NS		NS		NS		1.9	J	11.8		ND		ND	
	08-Oct-09	0.30	10.0	NS		AB		NS		AB		NS		NS		NS		2.4	J	27.8		0.44	J	ND	
	27-Apr-10	0.30	10.0	ND		AB		9.4	J	AB		ND		NS		ND		1.4	J	8.0	J	1.1	J	ND	
	12-Oct-10	0.30	10.0	ND		AB		10.2		AB		ND		NS		ND		1.5	J	3.3	J	1.0	J	ND	
	14-Apr-11	0.30	10.0	1.4	B	AB		2.9	J	AB		2.6	J	NS		6.0	J	2.3	J	11.0		1.7	B	0.44	J
	13-Oct-11	5.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	17-Apr-12	5.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	9-Oct-12	5.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	2-Apr-13	5.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		5.3	J	ND		ND	
Iron	19-Mar-09	14.0	300	NS		AB		NS		AB		NS		NS		NS		54500		4810		3150		21.6	J
	22-Apr-09	14.0	300	NS		AB		NS		AB		NS		NS		NS		14600		3470		4130		ND	
	14-May-09	14.0	300	NS		AB		NS		AB		NS		NS		NS		15600		2680		2020		ND	
	08-Oct-09	14.0	300	NS		AB		NS		AB		NS		NS		NS		19400		9670		8060		ND	
NC 2L = 300 µg/L (01/01/10)	27-Apr-10	14.0	300	242	J	AB		10900		AB		642		NS		11300		11000		2940		1070		15.8	J
Resample	15-Jun-10	14.0	300	NS		AB		2910		AB		887		NS		13000		NS		NS		NS		26.5	J
	12-Oct-10	14.0	300	206	J	AB		12600		AB		559		NS		16800		14900		819		665		ND	
	14-Apr-11	14.0	300	918		AB		3020		AB		3520		NS		3370		7180		2900		595		ND	
	13-Oct-11	50.0	300	78.6	J	AB		5530		AB		177	J	NS		15100		8410		NS		960		ND	
	17-Apr-12	50.0	300	142	J	AB		4240		AB		926		NS		8490		3150		NS		968		ND	
	9-Oct-12	50.0	300	ND		AB		451		AB		8950		NS		18600		130	J	NS		8700		ND	
	2-Apr-13	50.0	300	101	J	AB		698		AB		778		NS		15400		242	J	1650		38700		ND	
Lead	Apr-00	3	12	NA		5	J	5	J	19		ND		NI		NI		NI		NI		NI		ND	
	Nov-00	NR	10	WL		ND		ND		ND		ND		NI		NI		NI		NI		NI		ND	
	Apr-01	NR	10	WL		ND		ND		ND		ND		NI		NI		NI		NI		NI		ND	
	Dec-01	NR	10	WL		11		ND		ND		ND		NI		NI		NI		NI		NI		ND	
	Apr-02	NR	10	WL		ND		ND		ND		ND		ND		NI		NI		NI		WL		ND	
	Nov-02	NR	10	WL		ND		ND		ND		ND		ND		NI		NI		NI		WL		ND	
	Apr-03	NR	10	WL		ND		ND		ND		ND		ND		WL		NI		NI		WL		ND	
	Nov-03	NR	10	ND		ND		ND		WL		ND		WL		ND		NI		NI		WL		ND	
	Apr-04	NR	10	ND		ND		ND		WL		ND		WL		ND		NI		NI		WL		ND	
	Oct-04	NR	10	ND		ND		ND		WL		ND		WL		ND		NI		NI		WL		ND	
	Apr-05	NR	10	ND		ND		ND		WL		ND		WL		ND		WL		WL		WL		ND	
	Oct-05	NR	10	ND		NS		ND		WL		ND		WL		ND		WL		WL		WL		ND	
	28-Apr-06	NR	10	ND		ND		ND		NS		ND		NS		ND		WL		WL		WL		ND	
	11-Oct-06	NR	10.0	ND		ND		ND		WL		ND		WL		ND		WL		WL		WL		ND	
	19-Apr-07	2.0	10	ND		ND		ND		NS		ND		WL		ND		WL		WL		WL		ND	
	11-Oct-07	6.0	10	ND		NS		ND		NS		ND		NS		ND		WL		WL		WL		ND	
NC 2L = 15 µg/L (10/23/07)	15-Apr-08	4.0	10.0	ND		ND		ND		NS		ND		WL		ND		WL		WL		WL		ND	
	15-Oct-08	4.0	10.0	ND		AB		ND		AB		ND		WL		ND		WL		WL		WL		ND	
	19-Mar-09	4.0	10.0	NS		AB		NS		AB		NS		NS		NS		ND		ND		ND		ND	
	22-Apr-09	4.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	
	14-May-09	4.0	10.0	NS		AB		NS		AB		NS		NS		NS		ND		ND		ND		ND	
	08-Oct-09	4.0	10.0	ND		AB		ND		AB		ND		NS		6.9	J	ND		ND		ND		ND	
	27-Apr-10	4.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	
	12-Oct-10	4.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	
	14-Apr-11	4.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	
	13-Oct-11	5.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	17-Apr-12	5.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	9-Oct-12	5.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	2-Apr-13	5.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	
Manganese	19-Mar-09	0.30	50.0	NS		AB		NS		AB		NS		NS		NS		830		359		1280		5.2	J
	22-Apr-09	0.30	50.0	NS		AB		NS		AB		NS		NS		NS		188		553		850		4.7	J
	14-May-09	0.30	50.0	NS		AB		NS		AB		NS		NS		NS		196		640		819		4.0	J
	08-Oct-09	0.30	50.0	NS		AB		NS		AB		NS		NS		NS		236		1050		1890		6.4	J
NC 2L = 50 µg/L (01/01/10)	27-Apr-10	0.30	50.0	9.4	B	AB		99.6		AB		750		NS		18600	D	137		347		793		4.8	J
Resample	15-Jun-10	0.30	50.0	NS		AB		29.3	B	AB		914		NS		19900	D	NS		NS		NS		7.4	J
	12-Oct-10	0.30	50.0	9.2	J	AB		103		AB		1390		NS		16900		180		592		1530		0.33	J
	14-Apr-11	0.30	50.0	25.6	J	AB		31.2	J	AB		62.6		NS		13700		88.0		250		786		1.7	J
	13-Oct-11	5.0	50.0	ND		AB		138		AB		2150		NS		18600		111		NS		1410		ND	
	17-Apr-12	5.0	50.0	6.0	J	AB		38.4	J	AB		571		NS		14000		37.0	J	NS		838		ND	
	9-Oct-12	5.0	50.0	ND		AB		1190		AB		795		NS		14200		ND		NS		1850		ND	
	2-Apr-13	5.0	50.0	6.4	J	AB		53.4		AB		44.0	J	NS		17800		ND		102		5020		ND	

TABLE 3

SUMMARY OF HISTORICAL GROUNDWATER CONSTITUENTS

Constituent	Date	DL	RL	Background	Concentration (µg/L) Downgradient									Blanks
				MW-6	MW-1	MW-2	MW-3	MW-4	MW-5	MW-7	MW-8	MW-10S	P-19S	
Mercury	19-Mar-09	0.070	0.20	NS	AB	NS	AB	NS	NS	NS	0.10 B	0.098 B	0.070	0.086 J
NC 2L = 1.05 µg/L (10/23/07)	22-Apr-09	0.070	0.20	ND	AB	ND	AB	ND	NS	0.12 J	ND	ND	ND	ND
	14-May-09	0.070	0.20	NS	AB	NS	AB	NS	NS	NS	ND	ND	ND	ND
	08-Oct-09	0.070	0.20	ND	AB	ND	AB	ND	NS	0.25	0.075 J	ND	ND	ND
NC 2L = 1 µg/L (01/01/10)	27-Apr-10	0.070	0.20	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
	12-Oct-10	0.070	0.20	ND	AB	ND	AB	0.10 J	NS	0.077 J	ND	ND	ND	ND
	14-Apr-11	0.10	0.20	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
	13-Oct-11	0.10	0.20	ND	AB	ND	AB	ND	NS	0.10 J	ND	NS	ND	ND
	17-Apr-12	0.10	0.20	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	9-Oct-12	0.10	0.20	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	2-Apr-13	0.10	0.20	ND	AB	ND	AB	ND	NS	0.15 J	ND	ND	ND	ND
Nickel	19-Mar-09	1.7	50.0	NS	AB	NS	AB	NS	NS	NS	25.0	8.2 B	2.0 B	1.8 J
NC 2L = 100 µg/L (10/23/07)	22-Apr-09	1.7	50.0	ND	AB	NS	AB	NS	NS	NS	6.6 B	6.3 B	ND	1.8 J
	14-May-09	1.7	50.0	NS	AB	NS	AB	NS	NS	NS	6.1 J	4.8 J	ND	ND
	08-Oct-09	1.7	50.0	ND	AB	NS	AB	NS	NS	NS	9.0 J	13.8 J	2.2 J	ND
	27-Apr-10	1.7	50.0	ND	AB	11.7 J	AB	ND	NS	ND	2.5 J	3.5 J	ND	ND
	12-Oct-10	1.7	50.0	ND	AB	8.1 J	AB	2.2 J	NS	ND	3.9 J	ND	2.0 J	ND
	14-Apr-11	1.7	50.0	ND	AB	ND	AB	ND	NS	2.0 B	ND	2.7 B	ND	3.8 J
	13-Oct-11	5.0	50.0	ND	AB	5.8 J	AB	7.4 J	NS	ND	ND	NS	ND	ND
	17-Apr-12	5.0	50.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	9-Oct-12	5.0	50.0	ND	AB	5.0 J	AB	ND	NS	ND	ND	NS	ND	ND
	2-Apr-13	5.0	50.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
Selenium	Apr-00	4	16	NA	ND	ND	13 J	ND	NI	NI	NI	NI	NI	ND
	Nov-00	NR	20	WL	ND	ND	ND	ND	NI	NI	NI	NI	NI	ND
	Apr-01	NR	20	WL	ND	ND	ND	ND	NI	NI	NI	NI	NI	ND
	Dec-01	NR	20	WL	ND	ND	ND	ND	NI	NI	NI	NI	NI	ND
	Apr-02	NR	20	WL	ND	ND	ND	ND	ND	NI	NI	NI	WL	ND
	Nov-02	NR	20	WL	ND	ND	ND	ND	ND	NI	NI	NI	WL	ND
	Apr-03	NR	20	WL	ND	ND	ND	ND	ND	WL	NI	NI	WL	ND
	Nov-03	NR	20	ND	ND	ND	WL	ND	WL	ND	NI	NI	WL	ND
	Apr-04	NR	20	ND	ND	ND	WL	ND	WL	ND	NI	NI	WL	ND
	Oct-04	NR	20	ND	ND	ND	WL	ND	WL	ND	NI	NI	WL	ND
	Apr-05	NR	20	ND	ND	ND	WL	ND	WL	ND	WL	WL	WL	ND
	Oct-05	NR	20	ND	NS	ND	WL	ND	WL	ND	WL	WL	WL	ND
	28-Apr-06	NR	20	ND	ND	ND	NS	ND	NS	ND	WL	WL	WL	ND
	11-Oct-06	NR	20.0	ND	ND	ND	WL	ND	WL	ND	WL	WL	WL	ND
	19-Apr-07	2.0	10	2.3 B	ND	ND	NS	ND	WL	ND	WL	WL	WL	3.5 J
	11-Oct-07	2.0	10	ND	NS	ND	NS	ND	NS	ND	WL	WL	WL	ND
NC 2L = 50 µg/L (10/23/07)	15-Apr-08	3.8	10.0	ND	ND	ND	NS	ND	WL	5.1 J	WL	WL	WL	ND
	15-Oct-08	3.8	10.0	ND	AB	4.4 B	AB	ND	WL	ND	WL	WL	WL	5.6 J
	19-Mar-09	3.8	10.0	NS	AB	NS	AB	NS	NS	NS	5.4 J	ND	ND	ND
	22-Apr-09	3.8	10.0	ND	AB	ND	AB	ND	NS	5.1 J	ND	ND	ND	ND
	14-May-09	3.8	10.0	NS	AB	NS	AB	NS	NS	NS	ND	ND	ND	ND
	08-Oct-09	3.8	10.0	ND	AB	ND	AB	ND	NS	7.0 J	ND	ND	ND	ND
NC 2L = 20 µg/L (01/01/10)	27-Apr-10	3.8	10.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
	12-Oct-10	3.8	10.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
	14-Apr-11	3.8	10.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
	13-Oct-11	10.0	10.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	17-Apr-12	10.0	10.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	9-Oct-12	10.0	10.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	2-Apr-13	10.0	10.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND
Silver	15-Apr-08	0.10	10.0	ND	ND	ND	NS	0.32 J	WL	ND	WL	WL	WL	ND
NC 2L = 17.5 µg/L (10/23/07)	15-Oct-08	0.10	10.0	0.27 J	AB	0.21 J	AB	ND	WL	2.8 J	WL	WL	WL	ND
	19-Mar-09	0.10	10.0	NS	AB	NS	AB	NS	NS	NS	0.55 J	0.32 J	ND	ND
	22-Apr-09	0.10	10.0	0.18 B	AB	0.29 B	AB	0.21 B	NS	2.9 J	0.33 B	0.46 B	0.24 B	0.14 J
	14-May-09	0.10	10.0	NS	AB	NS	AB	NS	NS	NS	0.18 B	0.25 B	0.11 B	0.29 J
	08-Oct-09	0.10	10.0	0.25 J	AB	0.51 J	AB	1.3 J	NS	2.4 J	0.41 B	0.6 J	0.27 B	ND (0.1) J
NC 2L = 20 µg/L (01/01/10)	27-Apr-10	0.10	10.0	ND	AB	0.20 J	AB	0.57 J	NS	1.5 J	ND	ND	ND	ND
	12-Oct-10	0.10	10.0	ND	AB	ND	AB	0.94 J	NS	1.3 J	ND	ND	ND	ND
	14-Apr-11	0.10	10.0	ND	AB	0.22 B	AB	0.11 B	NS	1.4 J	0.32 B	0.25 B	ND	0.21 J
	13-Oct-11	5.0	10.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	17-Apr-12	5.0	10.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	9-Oct-12	5.0	10.0	ND	AB	ND	AB	ND	NS	ND	ND	NS	ND	ND
	2-Apr-13	5.0	10.0	ND	AB	ND	AB	ND	NS	ND	ND	ND	ND	ND

TABLE 3

SUMMARY OF HISTORICAL GROUNDWATER CONSTITUENTS

Constituent	Date	Concentration (µg/L)																							
		DL	RL	Background		Downgradient																		Blanks	
				MW-6		MW-1		MW-2		MW-3		MW-4		MW-5		MW-7		MW-8		MW-10S		P-19S			
Thallium	19-Mar-09	3.0	5.5	NS		AB		NS		AB		NS		NS		NS		4.9	J	ND		3.8	J	ND	
GWPS = 0.28 µg/L (10/23/07)	22-Apr-09	3.0	5.5	NS		AB		NS		AB		NS		NS		NS		ND		ND		ND		ND	
	14-May-09	3.0	5.5	NS		AB		NS		AB		NS		NS		NS		ND		ND		ND		ND	
	08-Oct-09	3.0	5.5	NS		AB		NS		AB		NS		NS		NS		ND		ND		ND		ND	
	27-Apr-10	3.0	5.5	ND		AB		4.5	B	AB		4.6	B	NS		6.6	B	ND		ND		ND		3.0	J
GWPS = 0.2 µg/L (10/01/10)	12-Oct-10	3.0	5.5	ND		AB		ND		AB		5.5		NS		7.4		ND		ND		ND		ND	
Resample	14-Dec-10	3.0	5.5	NS		AB		NS		AB		ND		NS		3.1	J	NS		NS		NS		ND	
	14-Apr-11	3.0	5.5	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	
	13-Oct-11	5.4	5.5	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	17-Apr-12	5.4	5.5	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	9-Oct-12	5.4	5.5	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	2-Apr-13	5.4	5.5	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	
Vanadium	19-Mar-09	0.20	25.0	NS		AB		NS		AB		NS		NS		NS		73.1		16.0	J	1.6	B	0.86	J
GWPS = 3.5 µg/L (10/23/07)	22-Apr-09	0.20	25.0	NS		AB		NS		AB		NS		NS		NS		17.6	J	15.6	J	2.6	B	1.2	J
	14-May-09	0.20	25.0	NS		AB		NS		AB		NS		NS		NS		18.4	J	12.5	J	1.5	B	0.85	J
	08-Oct-09	0.20	25.0	NS		AB		NS		AB		NS		NS		NS		23.3	J	25.6		4.3	J	0.63	J
	27-Apr-10	0.20	25.0	0.55	B	AB		19.6	J	AB		1.6	B	NS		3.1	J	12.2	J	8.5	J	3.0	J	0.48	J
GWPS = 0.3 µg/L (10/01/10)	12-Oct-10	0.20	25.0	ND		AB		21.0	J	AB		ND		NS		ND		16.4	J	0.32	J	2.4	J	ND	
	14-Apr-11	0.20	25.0	0.85	J	AB		6.0	J	AB		7.6	J	NS		4.0	J	8.4	J	7.7	J	2.0	J	ND	
	13-Oct-11	5.0	25.0	ND		AB		11.2	J	AB		ND		NS		ND		9.0	J	NS		5.0	J	ND	
	17-Apr-12	5.0	25.0	ND		AB		9.9	J	AB		ND		NS		ND		ND		NS		ND		ND	
	9-Oct-12	5.0	25.0	ND		AB		10.9	J	AB		ND		NS		ND		ND		NS		ND		ND	
	2-Apr-13	5.0	25.0	ND		AB		ND		AB		ND		NS		ND		ND		6.2	J	14.4	J	ND	
Zinc	19-Mar-09	0.40	10.0	NS		AB		NS		AB		NS		NS		NS		161		11.0	B	4.1	B	6.7	J
NC 2L = 1,050 µg/L (10/23/07)	22-Apr-09	0.40	10.0	NS		AB		NS		AB		NS		NS		NS		34.9		5.9	B	3.8	B	1.6	J
	14-May-09	0.40	10.0	NS		AB		NS		AB		NS		NS		NS		32.3		4.0	B	1.2	B	2.9	J
	08-Oct-09	0.40	10.0	NS		AB		NS		AB		NS		NS		NS		39.2		14.0	B	1.9	B	2.9	J
NC 2L = 1,000 µg/L (01/01/10)	27-Apr-10	0.40	10.0	ND		AB		23.2		AB		ND		NS		ND		19.9		1.6	J	ND		ND	
	12-Oct-10	0.40	10.0	ND		AB		22.8		AB		5.4	J	NS		ND		31.4		ND		1.0	J	ND	
	14-Apr-11	0.40	10.0	12.8	B	AB		11.3	B	AB		13.1	B	NS		9.4	B	20.6	B	13.7	B	10.3	B	28.9	
	13-Oct-11	10.0	10.0	ND		AB		11.4		AB		ND		NS		ND		16.5		NS		ND		ND	
	17-Apr-12	10.0	10.0	ND		AB		ND		AB		ND		NS		ND		10.2		NS		ND		ND	
	9-Oct-12	10.0	10.0	ND		AB		ND		AB		ND		NS		19.4		ND		NS		ND		ND	
	2-Apr-13	10.0	10.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	
Acetone	27-Apr-10	2.2	100	ND		AB		ND		AB		5.6	J	NS		3.7	J	3.1	J	4.3	J	5.1	J	ND	
NC 2L = 6,000 µg/L (01/01/10)	12-Oct-10	2.2	100	ND		AB		ND		AB		11.5	B	NS		7.3	B	ND		ND		3.5	B	8.0	J
	14-Apr-11	2.2	100	ND		AB		ND		AB		ND		NS		ND		ND		ND		2.6	J	ND	
	13-Oct-11	2.2	100	ND		AB		ND		AB		5.1	B	NS		3.0	B	ND		NS		ND		2.4	J
	17-Apr-12	2.2	100	ND		AB		ND		AB		ND		NS		7.8	J	ND		NS		3.0	J	ND	
	9-Oct-12	10.0	100	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	2-Apr-13	10.0	100	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	
Benzene	08-Oct-09	0.25	1.0	ND		AB		ND		AB		0.46	J	NS		ND		ND		ND		ND		ND	
NC 2L = 1 µg/L (10/23/07)	27-Apr-10	0.25	1.0	ND		AB		ND		AB		0.86	J	NS		0.69	J	ND		ND		ND		ND	
	12-Oct-10	0.25	1.0	ND		AB		ND		AB		0.98	J	NS		ND		ND		ND		ND		ND	
	14-Apr-11	0.25	1.0	ND		AB		ND		AB		ND		NS		0.25	J	ND		ND		ND		ND	
	13-Oct-11	0.25	1.0	ND		AB		ND		AB		1.6		NS		ND		ND		NS		ND		ND	
Resample	15-Nov-11	0.25	1.0	NS		AB		NS		AB		ND		NS		NS		NS		NS		NS		ND	
	17-Apr-12	0.25	1.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	9-Oct-12	0.25	1.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	2-Apr-13	0.25	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	
1,4-Dichlorobenzene	27-Apr-10	0.33	1.0	ND		AB		ND		AB		0.46	J	NS		ND		ND		ND		ND		ND	
NC 2L = 6 µg/L (01/01/10)	12-Oct-10	0.33	1.0	ND		AB		ND		AB		0.40	J	NS		ND		ND		ND		ND		ND	
	14-Apr-11	0.33	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	
	13-Oct-11	0.33	1.0	ND		AB		ND		AB		0.70	J	NS		ND		ND		NS		ND		ND	
	17-Apr-12	0.33	1.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	9-Oct-12	0.33	1.0	ND		AB		ND		AB		ND		NS		ND		ND		NS		ND		ND	
	2-Apr-13	0.33	1.0	ND		AB		ND		AB		ND		NS		ND		ND		ND		ND		ND	

TABLE 3

SUMMARY OF HISTORICAL GROUNDWATER CONSTITUENTS

Constituent	Date	Concentration (µg/L)														
		DL	RL	Background	Downgradient											Blanks
				MW-6	MW-1	MW-2	MW-3	MW-4	MW-5	MW-7		MW-8	MW-10S	P-19S		
Cis-1,2-Dichloroethylene	11-Oct-07	0.2	5	ND	AB	ND	NS	ND	NS	0.4	J	WL	WL	WL		ND
NC 2L = 70 µg/L (10/23/07)	15-Apr-08	0.19	5.0	ND	ND	ND	NS	ND	WL	ND		WL	WL	WL		ND
	15-Oct-08	0.19	5.0	ND	AB	ND	AB	ND	WL	ND		WL	WL	WL		ND
	19-Mar-09	0.19	5.0	NS	AB	NS	AB	NS	NS	NS		ND	ND	ND		ND
	22-Apr-09	0.19	5.0	ND	AB	ND	AB	ND	NS	ND		ND	ND	ND		ND
	14-May-09	0.19	5.0	NS	AB	NS	AB	NS	NS	NS		ND	ND	ND		ND
	08-Oct-09	0.19	5.0	ND	AB	ND	AB	ND	NS	0.26	J	ND	ND	ND		ND
	27-Apr-10	0.19	5.0	ND	AB	ND	AB	ND	NS	0.28	J	ND	ND	ND		ND
	12-Oct-10	0.19	5.0	ND	AB	ND	AB	ND	NS	0.19	J	ND	ND	ND		ND
	14-Apr-11	0.19	5.0	ND	AB	ND	AB	ND	NS	ND		ND	ND	ND		ND
	13-Oct-11	0.19	5.0	ND	AB	ND	AB	ND	NS	0.22	J	ND	NS	ND		ND
	17-Apr-12	0.19	5.0	ND	AB	ND	AB	ND	NS	ND		ND	NS	ND		ND
	9-Oct-12	0.19	5.0	ND	AB	ND	AB	ND	NS	ND		ND	NS	ND		ND
	2-Apr-13	0.19	5.0	ND	AB	ND	AB	ND	NS	ND		ND	ND	ND		ND
4-Methyl-2-pentanone(MIBK)	08-Oct-09	0.33	100.0	ND	AB	ND	AB	0.46	J NS	ND		ND	ND	ND		ND
GWPS = 560 µg/L (10/23/07)	27-Apr-10	0.33	100	ND	AB	ND	AB	0.41	J NS	ND		ND	ND	ND		ND
	12-Oct-10	0.33	100	ND	AB	ND	AB	ND	NS	ND		ND	ND	ND		ND
	14-Apr-11	0.33	100	ND	AB	ND	AB	ND	NS	ND		ND	ND	ND		ND
	13-Oct-11	0.33	100	ND	AB	ND	AB	ND	NS	ND		ND	NS	ND		ND
	17-Apr-12	0.33	100	ND	AB	ND	AB	ND	NS	ND		ND	NS	ND		ND
	9-Oct-12	0.33	100	ND	AB	ND	AB	ND	NS	ND		ND	NS	ND		ND
	2-Apr-13	0.33	100	ND	AB	ND	AB	ND	NS	ND		ND	ND	ND		ND
Tetrahydrofuran	12-Oct-10	3.1	10.0	ND	AB	ND	AB	83.0	NS	7.4	J	ND	ND	ND		ND
NC 2L/GWPS = NE (10/01/10)	14-Apr-11	3.1	10.0	ND	AB	ND	AB	4.8	J NS	6.3	J	ND	ND	ND		ND
	13-Oct-11	3.1	10.0	ND	AB	ND	AB	93.0	NS	6.4	J	ND	NS	ND		ND
	17-Apr-12	3.1	10.0	ND	AB	ND	AB	22.3	NS	7.9	J	ND	NS	ND		ND
	9-Oct-12	3.1	10.0	ND	AB	ND	AB	ND	NS	5.7	J	ND	NS	ND		ND
	2-Apr-13	3.1	10.0	4.8	J AB	3.1	J AB	ND	NS	ND		ND	ND	ND		ND
Xylene(Total)	08-Oct-09	0.66	2.0	ND	AB	ND	AB	0.74	B NS	ND		ND	ND	ND		0.76 J
NC 2L = 500 µg/L (10/23/07)	27-Apr-10	0.66	2.0	ND	AB	ND	AB	ND	NS	ND		ND	ND	ND		ND
	12-Oct-10	0.66	2.0	ND	AB	ND	AB	ND	NS	ND		ND	ND	ND		ND
	14-Apr-11	0.66	2.0	ND	AB	ND	AB	ND	NS	ND		ND	ND	ND		ND
	13-Oct-11	0.66	2.0	ND	AB	ND	AB	ND	NS	ND		ND	NS	ND		ND
	17-Apr-12	0.66	2.0	ND	AB	ND	AB	ND	NS	ND		ND	NS	ND		ND
	9-Oct-12	0.66	2.0	ND	AB	ND	AB	ND	NS	ND		ND	NS	ND		ND
	2-Apr-13	0.66	2.0	ND	AB	ND	AB	ND	NS	ND		ND	ND	ND		ND
Alkalinity	19-Mar-09	5000	5000	NS	AB	NS	AB	NS	NS	NS		61000	B 52800	B 30500	B	26400
	22-Apr-09	5000	5000	NS	AB	NS	AB	NS	NS	NS		57300	B 52400	B 32500	B	23900
	14-May-09	5000	5000	NS	AB	NS	AB	NS	NS	NS		55700	B 59400	B 30700	B	22900
	08-Oct-09	5000	5000	NS	AB	NS	AB	NS	NS	NS		58000	B 74000	B 70000	B	26000
NC 2L/GWPS = NE (01/01/10)	27-Apr-10	5000	5000	8200	B AB	18700	B AB	72600	B NS	868000		61500	B 51200	B 24600	B	20500
	12-Oct-10	5000	5000	12400	AB	25700	AB	110000	NS	904000		56600	104000	8200		ND
	14-Apr-11	5000	5000	14000	AB	20100	AB	18100	NS	630000		58400	40800	19600		ND
	13-Oct-11	5000	5000	17700	AB	29200	AB	256000	NS	915000		57300	NS	11500		ND
	17-Apr-12	5000	5000	10100	AB	24300	AB	90100	NS	872000		60700	NS	32400		ND
	9-Oct-12	1000	5000	14100	AB	38800	AB	48700	NS	913000		61000	NS	41900		ND
	2-Apr-13	1000	5000	9940	AB	24100	AB	27600	NS	909000		61400	36200	101000		ND
Total Dissolved Solids	19-Mar-09	NR	40000	NS	AB	NS	AB	NS	NS	NS		104000	270000	100000		14000 J
	22-Apr-09	20000	20000	NS	AB	NS	AB	NS	NS	NS		104000	B 204000	B 84000	B	78000
	14-May-09	20000	20000	NS	AB	NS	AB	NS	NS	NS		94000	B 210000	B 110000	B	78000
	08-Oct-09	20000	20000	NS	AB	NS	AB	NS	NS	NS		164000	B 288000	B 152000	B	88000
NC 2L = 500,000 µg/L (01/01/10)	27-Apr-10	100000	100000	114000	B AB	160000	B AB	568000	NS	1550000		112000	B 180000	B 110000	B	60000
Resample	15-Jun-10	100000	100000	NS	AB	NS	AB	696000	NS	1560000		NS	NS	NS		ND
	12-Oct-10	25000	25000	141000	AB	389000	AB	703000	NS	1620000		137000	301000	196000		ND
Resample	14-Dec-10	25000	25000	NS	AB	NS	AB	352000	NS	1660000		NS	NS	NS		ND
	14-Apr-11	25000	25000	132000	AB	102000	AB	123000	NS	1380000		103000	149000	91000		ND
	13-Oct-11	25000	25000	170000	AB	224000	AB	1340000	NS	1690000		126000	NS	200000		ND
	17-Apr-12	25000	25000	127000	AB	142000	AB	361000	NS	1500000		107000	NS	109000		ND
	9-Oct-12	25000	25000	135000	AB	91000	AB	280000	NS	1490000		107000	NS	220000		ND
	2-Apr-13	25000	25000	147000	AB	116000	AB	165000	NS	1430000		106000	180000	207000		ND

TABLE 3

SUMMARY OF HISTORICAL GROUNDWATER CONSTITUENTS

Constituent	Date	Concentration (µg/L)																		
		DL	RL	Background		Downgradient														Blanks	
				MW-6		MW-1	MW-2		MW-3	MW-4		MW-5	MW-7		MW-8		MW-10S		P-19S			
Chloride	19-Mar-09	5000	5000	NS		AB	NS		AB	NS		NS	NS		6700	B	13100	B	10900	B	12000	
	22-Apr-09	5000	5000	NS		AB	NS		AB	NS		NS	NS		6900	B	13700	B	9500	B	11800	
	14-May-09	5000	5000	NS		AB	NS		AB	NS		NS	NS		7800	B	16400	B	11200	B	10700	
	08-Oct-09	5000	5000	NS		AB	NS		AB	NS		NS	NS		5500	B	17200	B	13100	B	11400	
NC 2L = 250,000 µg/L (01/01/10)	27-Apr-10	5000	5000	7900	B	AB	ND		AB	51100	D	NS	127000		ND		17500	B	12600	B	8000	
	12-Oct-10	5000	5000	9900		AB	ND		AB	52200		NS	149000		ND		24200		17900		ND	
	14-Apr-11	5000	5000	9410		AB	ND		AB	7120		NS	97600	D	ND		11900		12400		ND	
	13-Oct-11	5000	5000	9050		AB	ND		AB	93200		NS	161000		ND		NS		15700		ND	
	17-Apr-12	5000	5000	9840		AB	ND		AB	25800		NS	150000		ND		NS		11000		ND	
	9-Oct-12	1000	1000	8910		AB	2090		AB	50100		NS	149000		1350		NS		15000		ND	
	2-Apr-13	1000	1000	8650		AB	ND		AB	7060		NS	128000		ND		11000		11200		ND	
Sulfate	19-Mar-09	5000	250000	NS		AB	NS		AB	NS		NS	NS		8100	B	31400	B	16500	B	10700	J
	22-Apr-09	5000	250000	NS		AB	NS		AB	NS		NS	NS		5800	B	23300	B	16600	B	12200	J
	14-May-09	5000	250000	NS		AB	NS		AB	NS		NS	NS		11200	B	30400	B	15900	B	10700	J
	08-Oct-09	5000	250000	NS		AB	NS		AB	NS		NS	NS		ND		38500	B	6300	B	12100	J
NC 2L = 250,000 (01/01/10)	27-Apr-10	5000	250000	ND		AB	11800	B	AB	262000	D	NS	301000	D	ND		29300	B	24000	B	10600	J
	12-Oct-10	5000	5000	5600		AB	16000		AB	ND		NS	366000		6900		79300		89300		ND	
	14-Apr-11	5000	250000	ND		AB	25000	J	AB	34200	J	NS	393000	J,D	ND		17800	J	26400	J	ND	
	13-Oct-11	5000	5000	ND		AB	22300		AB	10600		NS	268000		ND		NS		94100		ND	
	17-Apr-12	5000	5000	ND		AB	8880		AB	134000		NS	281000		ND		NS		26600		ND	
	9-Oct-12	2000	250000	ND		AB	10100	J	AB	39000	J	NS	206000	J	ND		NS		30200	J	ND	
	2-Apr-13	2000	250000	2110	J	AB	8520	J	AB	36700	J	NS	212000	J	ND		18800	J	18500	J	ND	

Notes:

1. All concentrations are in micrograms per liter (ug/L).
2. MW = Groundwater monitoring well.
3. RL = Laboratory reporting limit (NC SWSL {or lower} beginning in April 2007 to present).
4. DL = Laboratory detection limit.
6. ND = Not detected above laboratory reporting limit November 2000 to October 2006, not detected above laboratory detection limit April 2000 and April 2007 to present.
7. J = Estimated value between the DL and the RL April 2000 and the DL and NC SWSL (or lower) from April 2007 to present.
8. B = Blank qualified data.
9. NC 2L Standard = North Carolina's groundwater quality standard established under 15A NCAC 2L, .0202. (specific concentration established by date).
10. GWPS = Groundwater Protection Standards (specific concentration established by date).
11. Shaded values are above the NC 2L or GWP Standards.
12. AB = Monitoring well has been abandoned.
13. NS = Not sampled and/or water levels not measured.
14. NR = Not reported. Detections limits not required prior to April 2007 sampling event.
15. WL = Water levels only.
16. NA = Not available.
17. NC SWSL = North Carolina Solid Waste Section limits.
18. D = Dilution; Laboratory performed a sample dilution, which may cause results to be estimated.

TABLE 4

SUMMARY OF HISTORICAL SURFACE WATER CONSTITUENTS

Constituent	Date	Concentration (µg/L)							
		DL	RL	SW-1		SW-2		Blanks	
Arsenic	Apr-00	8	10	ND		ND		ND	
	Nov-00	NR	10	ND		ND		ND	
	Apr-01	NR	10	ND		ND		ND	
	Dec-01	NR	10	ND		ND		ND	
	Apr-02	NR	10	ND		ND		ND	
	Nov-02	NR	10	ND		ND		ND	
	Apr-03	NR	10	ND		ND		ND	
	Nov-03	NR	10	ND		ND		ND	
	Apr-04	NR	10	ND		ND		ND	
	Oct-04	NR	10	ND		ND		ND	
	Apr-05	NR	10	ND		ND		ND	
	Oct-05	NR	10	ND		Dry		ND	
	28-Apr-06	NR	10	ND		ND		ND	
	11-Oct-06	NR	10	ND		ND		ND	
	19-Apr-07	2.0	10	ND		2.6	B	2.1	J
NC 2B = 50 µg/L (05/1/07)	11-Oct-07	3.0	10	Dry		Dry		ND	
	15-Apr-08	2.7	10.0	ND		ND		ND	
	15-Oct-08	2.7	10.0	ND		4.4	J	ND	
	22-Apr-09	2.7	10.0	ND		ND		ND	
	08-Oct-09	2.7	10.0	Dry		Dry		ND	
	27-Apr-10	2.7	10.0	ND		ND		ND	
	12-Oct-10	2.7	10.0	ND		ND		ND	
	14-Apr-11	2.7	10.0	ND		ND		ND	
	13-Oct-11	5.0	10.0	ND		ND		ND	
	17-Apr-12	5.0	10.0	ND		ND		ND	
	9-Oct-12	5.0	10.0	ND		ND		ND	
	2-Apr-13	5.0	10.0	ND		ND		ND	
Barium	Apr-00	2	8	ND		ND		ND	
	Nov-00	NR	500	ND		ND		ND	
	Apr-01	NR	500	ND		ND		ND	
	Dec-01	NR	500	ND		ND		ND	
	Apr-02	NR	500	ND		ND		ND	
	Nov-02	NR	500	ND		ND		ND	
	Apr-03	NR	500	ND		ND		ND	
	Nov-03	NR	500	ND		ND		ND	
	Apr-04	NR	500	ND		ND		ND	
	Oct-04	NR	500	ND		ND		ND	
	Apr-05	NR	500	ND		ND		ND	
	Oct-05	NR	500	ND		Dry		ND	
	28-Apr-06	NR	500	ND		ND		ND	
	11-Oct-06	NR	500	ND		ND		ND	
	19-Apr-07	0.20	100	28.1	J	40.7	J	0.30	J
NC 2B = NE µg/L (05/1/07)	11-Oct-07	2.0	100	Dry		Dry		35.8	J
	15-Apr-08	0.20	100	19.9	J	20.0	J	ND	
	15-Oct-08	0.20	100	32.5	J	41.2	J	ND	
	22-Apr-09	0.20	100	24.5	B	24.9	B	13.4	J
	08-Oct-09	0.20	100	Dry		Dry		18.5	J
	27-Apr-10	0.20	100	24.5	B	61.8	B	27.2	J
	12-Oct-10	0.20	100	46.2	J	50.5	J	0.54	J
	14-Apr-11	0.20	100	30.2	B	31.2	B	12.0	J
	13-Oct-11	5.0	100	77.2	J	83.9	J	ND	
	17-Apr-12	5.0	100	33.9	J	38.4	J	ND	
	9-Oct-12	5.0	100	48.8	J	49.1	J	ND	
	2-Apr-13	5.0	100	22.3	J	25.3	J	ND	

TABLE 4

SUMMARY OF HISTORICAL SURFACE WATER CONSTITUENTS

Constituent	Date	Concentration (µg/L)				
		DL	RL	SW-1	SW-2	Blanks
Beryllium	27-Apr-10	0.10	1.0	0.28 J	0.11 J	ND
NC 2B = 6.5 µg/L (05/1/07)	12-Oct-10	0.10	1.0	ND	ND	ND
	14-Apr-11	0.10	1.0	ND	ND	ND
	13-Oct-11	1.0	1.0	ND	ND	ND
	17-Apr-12	1.0	1.0	ND	ND	ND
	9-Oct-12	1.0	1.0	ND	ND	ND
	2-Apr-13	1.0	1.0	ND	ND	ND
Cadmium	Apr-00	1	4	ND	ND	ND
	Nov-00	NR	1	ND	ND	ND
	Apr-01	NR	1	ND	ND	ND
	Dec-01	NR	1	1.4	ND	ND
	Apr-02	NR	1	ND	ND	ND
	Nov-02	NR	1	ND	ND	ND
	Apr-03	NR	1	1.2	1.2	ND
	Nov-03	NR	1	ND	ND	ND
	Apr-04	NR	1	ND	ND	ND
	Oct-04	NR	1	ND	ND	ND
	Apr-05	NR	1	ND	ND	ND
	Oct-05	NR	1	ND	Dry	ND
	28-Apr-06	NR	1	ND	ND	ND
	11-Oct-06	NR	1.00	ND	ND	ND
	19-Apr-07	0.50	1	ND	ND	ND
NC 2B = 2 µg/L (05/1/07)	11-Oct-07	0.1	1	Dry	Dry	ND
	15-Apr-08	0.50	1.0	ND	ND	ND
	15-Oct-08	0.50	1.0	ND	ND	ND
	22-Apr-09	0.50	1.0	ND	ND	ND
	08-Oct-09	0.50	1.0	Dry	Dry	ND
	27-Apr-10	0.50	1.0	ND	ND	ND
	12-Oct-10	0.50	1.0	ND	ND	ND
	14-Apr-11	0.50	1.0	ND	ND	ND
	13-Oct-11	1.0	1.0	ND	ND	ND
	17-Apr-12	1.0	1.0	ND	ND	ND
	9-Oct-12	1.0	1.0	ND	ND	ND
	2-Apr-13	1.0	1.0	ND	ND	ND
Chromium	Apr-00	3	12	ND	ND	ND
	Nov-00	NR	10	ND	ND	ND
	Apr-01	NR	10	ND	ND	ND
	Dec-01	NR	10	ND	ND	ND
	Apr-02	NR	10	ND	310	45
	Nov-02	NR	10	ND	ND	ND
	Apr-03	NR	10	ND	ND	ND
	Nov-03	NR	10	ND	ND	ND
	Apr-04	NR	10	ND	ND	ND
	Oct-04	NR	10	ND	ND	ND
	Apr-05	NR	10	ND	ND	ND
	Oct-05	NR	10	ND	Dry	ND
	28-Apr-06	NR	10	ND	ND	ND
	11-Oct-06	NR	10.0	ND	ND	ND
	19-Apr-07	2.0	10	ND	ND	ND
NC 2B = 50 µg/L (05/1/07)	11-Oct-07	1.0	10	Dry	Dry	ND
	15-Apr-08	0.40	10.0	ND	0.93 B	0.61 J
	15-Oct-08	0.40	10.0	ND	ND	ND
	22-Apr-09	0.40	10.0	ND	ND	ND
	08-Oct-09	0.40	10.0	Dry	Dry	ND
	27-Apr-10	0.40	10.0	ND	0.93 J	ND
	12-Oct-10	0.40	10.0	0.94 J	0.46 J	ND
	14-Apr-11	0.40	10.0	ND	0.62 J	ND
	13-Oct-11	5.0	10.0	ND	ND	ND
	17-Apr-12	5.0	10.0	ND	ND	ND
	9-Oct-12	5.0	10.0	ND	ND	ND
	2-Apr-13	5.0	10.0	ND	ND	ND

TABLE 4

SUMMARY OF HISTORICAL SURFACE WATER CONSTITUENTS

Constituent	Date	Concentration (µg/L)							
		DL	RL	SW-1		SW-2		Blanks	
Cobalt	27-Apr-10	0.60	10.0	1.8	J	1.8	J	ND	
NC 2B= NE µg/L (05/1/07)	12-Oct-10	0.60	10.0	1.4	B	2.1	B	2.4	J
	14-Apr-11	0.60	10.0	6.8	B	4.3	B	4.5	J
	13-Oct-11	5.0	10.0	5.5	J	8.3	J	ND	
	17-Apr-12	5.0	10.0	ND		ND		ND	
	9-Oct-12	5.0	10.0	ND		ND		ND	
	2-Apr-13	5.0	10.0	ND		ND		ND	
Copper	27-Apr-10	0.30	10.0	1.4	J	ND		ND	
NC 2B = 7 µg/L (05/01/07)	12-Oct-10	0.30	10.0	1.6	J	1.6	J	ND	
	14-Apr-11	0.30	10.0	2.6	J	2.6	J	0.44	J
	13-Oct-11	5.0	10.0	ND		ND		ND	
	17-Apr-12	5.0	10.0	ND		ND		ND	
	9-Oct-12	5.0	10.0	ND		ND		ND	
	2-Apr-13	5.0	10.0	ND		ND		ND	
Iron	27-Apr-10	14.0	300	1480		717		15.8	J
NC 2B = 1,000 µg/L (05/01/07)	12-Oct-10	14.0	300	446		845		ND	
	14-Apr-11	14.0	300	2050		2110		ND	
	13-Oct-11	50.0	300	1280		2250		ND	
	17-Apr-12	50.0	300	1830		2000		ND	
	9-Oct-12	50.0	300	2650		733		ND	
	2-Apr-13	50.0	300	1650		1580		ND	
Lead	Apr-00	3	12	ND		ND		ND	
	Nov-00	NR	10	ND		ND		ND	
	Apr-01	NR	10	ND		ND		ND	
	Dec-01	NR	10	ND		ND		ND	
	Apr-02	NR	10	ND		ND		ND	
	Nov-02	NR	10	ND		ND		ND	
	Apr-03	NR	10	ND		ND		ND	
	Nov-03	NR	10	ND		ND		ND	
	Apr-04	NR	10	ND		ND		ND	
	Oct-04	NR	10	ND		ND		ND	
	Apr-05	NR	10	ND		ND		ND	
	Oct-05	NR	10	ND		Dry		ND	
	28-Apr-06	NR	10	ND		ND		ND	
	11-Oct-06	NR	10.0	ND		ND		ND	
	19-Apr-07	2.0	10	ND		ND		ND	
NC 2B = 25 µg/L (05/01/07)	11-Oct-07	6.0	10	Dry		Dry		ND	
	15-Apr-08	4.0	10.0	ND		ND		ND	
	15-Oct-08	4.0	10.0	ND		ND		ND	
	22-Apr-09	4.0	10.0	ND		ND		ND	
	08-Oct-09	4.0	10.0	Dry		Dry		ND	
	27-Apr-10	4.0	10.0	ND		ND		ND	
	12-Oct-10	4.0	10.0	ND		ND		ND	
	14-Apr-11	4.0	10.0	ND		ND		ND	
	13-Oct-11	5.0	10.0	ND		ND		ND	
	17-Apr-12	5.0	10.0	ND		ND		ND	
	9-Oct-12	5.0	10.0	ND		ND		ND	
	2-Apr-13	5.0	10.0	ND		ND		ND	
Manganese	27-Apr-10	0.30	50.0	378		653		4.8	J
NC 2B = NE µg/L (05/01/07)	12-Oct-10	0.30	50.0	298		549		0.33	J
	14-Apr-11	0.30	50.0	232		246		1.7	J
	13-Oct-11	5.0	50.0	2660		3220		ND	
	17-Apr-12	5.0	50.0	461		651		ND	
	9-Oct-12	5.0	50.0	1520		328		ND	
	2-Apr-13	5.0	50.0	391		448		ND	

TABLE 4

SUMMARY OF HISTORICAL SURFACE WATER CONSTITUENTS

Constituent	Date	Concentration (µg/L)				
		DL	RL	SW-1	SW-2	Blanks
Selenium	Apr-00	4	16	ND	ND	ND
	Nov-00	NR	20	ND	ND	ND
	Apr-01	NR	20	ND	ND	ND
	Dec-01	NR	20	ND	ND	ND
	Apr-02	NR	20	ND	ND	ND
	Nov-02	NR	20	ND	ND	ND
	Apr-03	NR	20	ND	ND	ND
	Nov-03	NR	20	ND	ND	ND
	Apr-04	NR	20	ND	ND	ND
	Oct-04	NR	20	ND	ND	ND
	Apr-05	NR	20	ND	ND	ND
	Oct-05	NR	20	ND	Dry	ND
	28-Apr-06	NR	20	ND	ND	ND
	11-Oct-06	NR	20.0	ND	ND	ND
	19-Apr-07	2.0	10	ND	ND	3.5 J
NC 2B = 5 µg/L (05/01/07)	11-Oct-07	2.0	10	Dry	Dry	ND
	15-Apr-08	3.8	10.0	ND	ND	ND
	15-Oct-08	3.8	10.0	ND	8.5 B	5.6 J
	22-Apr-09	3.8	10.0	ND	ND	ND
	08-Oct-09	3.8	10.0	Dry	Dry	ND
	27-Apr-10	3.8	10.0	ND	ND	ND
	12-Oct-10	3.8	10.0	ND	ND	ND
	14-Apr-11	3.8	10.0	ND	ND	ND
	13-Oct-11	10.0	10.0	ND	ND	ND
	17-Apr-12	10.0	10.0	ND	ND	ND
	9-Oct-12	10.0	10.0	ND	ND	ND
	2-Apr-13	10.0	10.0	ND	ND	ND
Silver	15-Apr-08	0.10	10.0	ND	ND	ND
NC 2B = 0.06 µg/L (05/01/07)	15-Oct-08	0.10	10.0	0.13 J	0.11 J	ND
	22-Apr-09	0.10	10.0	0.16 B	0.30 B	0.14 J
	08-Oct-09	0.10	10.0	Dry	Dry	ND
	27-Apr-10	0.10	10.0	0.38 J	ND	ND
	12-Oct-10	0.10	10.0	ND	ND	ND
	14-Apr-11	0.10	10.0	ND	ND	0.21 J
	13-Oct-11	5.0	10.0	ND	ND	ND
	17-Apr-12	5.0	10.0	ND	ND	ND
	9-Oct-12	5.0	10.0	ND	ND	ND
	2-Apr-13	5.0	10.0	ND	ND	ND
Vanadium	27-Apr-10	0.20	25.0	2.0 J	0.93 J	0.48 J
NC 2B = NE µg/L (05/01/07)	12-Oct-10	0.20	25.0	ND	ND	ND
	14-Apr-11	0.20	25.0	2.5 J	2.5 J	ND
	13-Oct-11	5.0	25.0	ND	ND	ND
	17-Apr-12	5.0	25.0	ND	ND	ND
	9-Oct-12	5.0	25.0	ND	ND	ND
	2-Apr-13	5.0	25.0	ND	ND	ND
Zinc	12-Oct-10	0.40	10.0	2.3 J	ND	ND
NC 2B = 50 µg/L (05/01/07)	14-Apr-11	0.40	10.0	3.3 B	7.7 B	28.9
	13-Oct-11	10.0	10.0	ND	ND	ND
	17-Apr-12	10.0	10.0	ND	ND	ND
	9-Oct-12	10.0	10.0	ND	ND	ND
	2-Apr-13	10.0	10.0	ND	ND	ND
Acetone	14-Apr-11	2.2	100	ND	2.4 J	ND
NC 2B = NE µg/L (05/01/07)	13-Oct-11	2.2	100	8.1 B	12.9 J	2.4 J
	17-Apr-12	2.2	100	ND	ND	ND
	9-Oct-12	10.0	100	ND	ND	ND
	2-Apr-13	10.0	100	ND	38.0 J	ND
2-Butanone	13-Oct-11	0.96	100	ND	2.0 J	ND
NC 2B = NE µg/L (05/01/07)	17-Apr-12	0.96	100	ND	ND	ND
	9-Oct-12	0.96	100	ND	ND	ND
	2-Apr-13	0.96	100	ND	ND	ND

TABLE 4

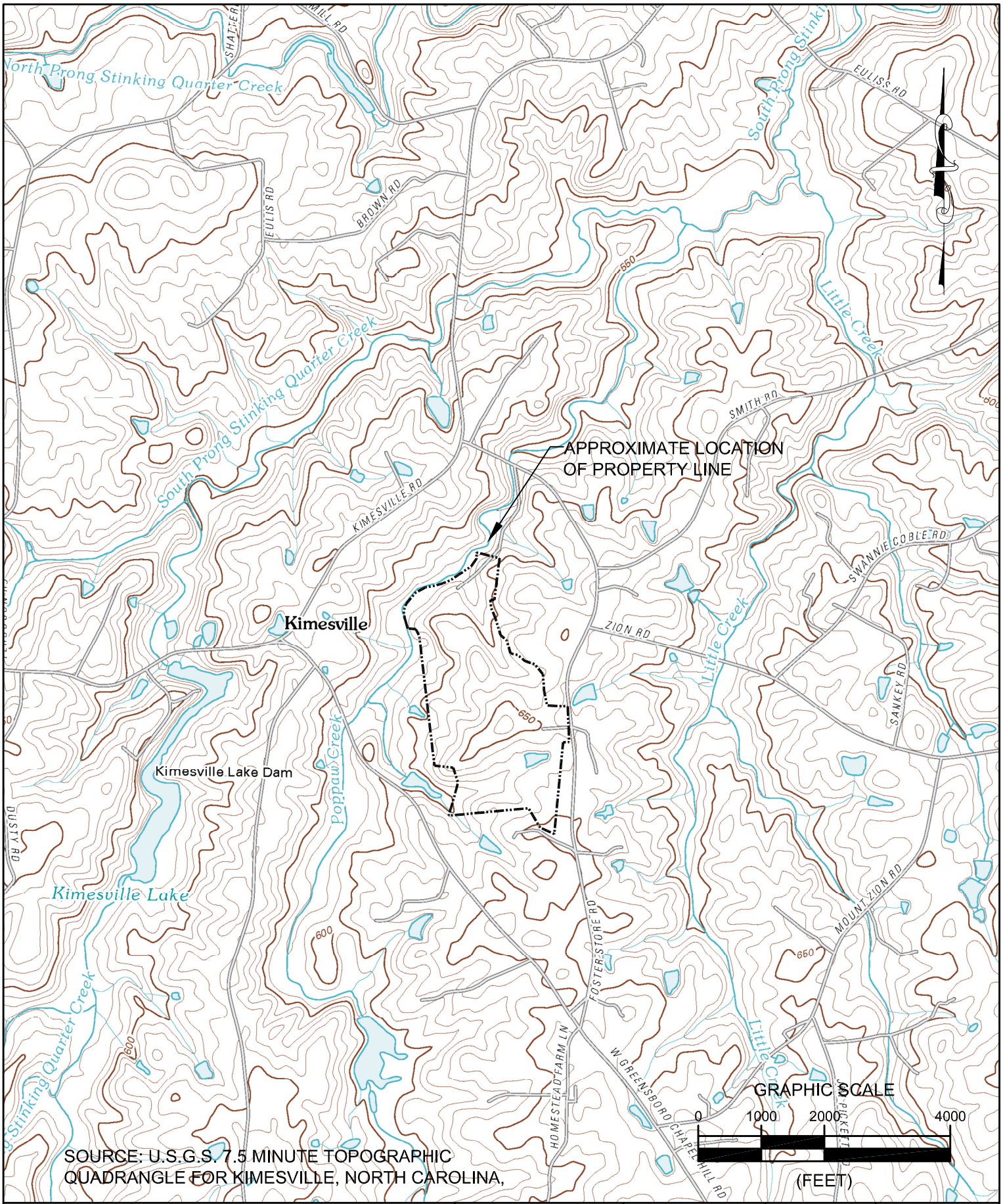
SUMMARY OF HISTORICAL SURFACE WATER CONSTITUENTS

Constituent	Date	Concentration (µg/L)							
		DL	RL	SW-1		SW-2		Blanks
Chloromethane	13-Oct-11	0.11	1.0	0.11	J	ND		ND
NC 2B = NE µg/L (05/01/07)	17-Apr-12	0.11	1.0	ND		ND		ND
	9-Oct-12	0.11	1.0	ND		ND		ND
	2-Apr-13	0.11	1.0	ND		ND		ND
Tetrahydrofuran	13-Oct-11	3.1	10.0	ND		5.3	J	ND
NC 2B = NE µg/L (05/01/07)	17-Apr-12	3.1	10.0	ND		ND		ND
	9-Oct-12	3.1	10.0	ND		ND		ND
	2-Apr-13	3.1	10.0	ND		ND		ND
Toluene	13-Oct-11	0.26	1.0	ND		0.3	J	ND
NC 2B = 11 µg/L (05/01/07)	17-Apr-12	0.26	1.0	ND		ND		ND
	9-Oct-12	0.26	1.0	ND		ND		ND
	2-Apr-13	0.26	1.0	ND		ND		ND
Trichlorofluoromethane	13-Oct-11	0.20	1.0	ND		4.0		ND
NC 2B = NE µg/L (05/01/07)	17-Apr-12	0.20	1.0	ND		ND		ND
	9-Oct-12	0.20	1.0	ND		ND		ND
	2-Apr-13	0.20	1.0	ND		ND		ND
Alkalinity	27-Apr-10	5000	5000	38900	B	61500	B	20500
NC 2B = NE µg/L (05/01/07)	12-Oct-10	5000	5000	ND		27800		ND
	14-Apr-11	5000	5000	27400		26900		ND
	13-Oct-11	5000	5000	63500		68800		ND
	17-Apr-12	5000	5000	43500		42500		ND
	9-Oct-12	1000	5000	52500		82100		ND
	2-Apr-13	1000	5000	36900		36000		ND
Total Dissolved Solids	27-Apr-10	100000	100000	88000	B	182000	B	60000
NC 2B = NE µg/L (05/01/07)	12-Oct-10	25000	25000	99000		98000		ND
	14-Apr-11	25000	25000	49000		59000		ND
	13-Oct-11	25000	25000	190000		228000		ND
	17-Apr-12	25000	25000	83000		79000		ND
	9-Oct-12	25000	25000	121000		185000		ND
	2-Apr-13	25000	25000	91000		89000		ND
Chloride	27-Apr-10	5000	5000	7200	B	8100	B	8000
NC 2B = 230000 µg/L (05/01/07)	12-Oct-10	5000	5000	8800		7100		ND
	14-Apr-11	5000	5000	5470		ND		ND
	13-Oct-11	5000	5000	19900		13700		ND
	17-Apr-12	5000	5000	7710		7540		ND
	9-Oct-12	1000	1000	7970		11900		ND
	2-Apr-13	1000	1000	7670		7190		ND
Sulfate	27-Apr-10	5000	250000	7800	B	23600	B	10600
NC 2B = NE µg/L (05/01/07)	12-Oct-10	5000	5000	21300		18200		ND
	14-Apr-11	5000	250000	7090	J	7060	J	ND
	13-Oct-11	5000	5000	33800		76700		ND
	17-Apr-12	5000	5000	6800		6340		ND
	9-Oct-12	2000	250000	6500	J	29500	J	ND
	2-Apr-13	2000	250000	8730	J	8920	J	ND

1. All concentrations are in micrograms per liter (mg/L).
2. SW = Surface water monitoring point.
3. RL = Laboratory reporting limit (NC SWSL {or lower} beginning in April 2007 to present).
4. DL = Laboratory detection limit.
5. ND = Not detected above laboratory reporting limit November 2000 to October 2006, not detected above laboratory detection limit April 2000 and April 2007 to present.
6. J = Estimated value between the DL and the RL April 2000 and the DL and NC SWSL (or lower) from April 2007 to present.
7. B = Blank qualified data.
8. NC 2B Standard = North Carolina's surface water standards (specific concentration established by date).
9. Shaded values are above the NC 2B Surface Water Standards
10. - = No data available/not reported.
11. NC SWSL = North Carolina Solid Waste Section limits.
12. The classification of the surface waters for Coble's Sandrock is Freshwater Aqudic Life.
13. NR = Not reported. Detections limits not required prior to April 2007 sampling event.
14. Dry = Surface water monitoring point was dry. No sample collected.
15. NE = Concentration not established.

Figure

Figure No. 1 Site Location Map



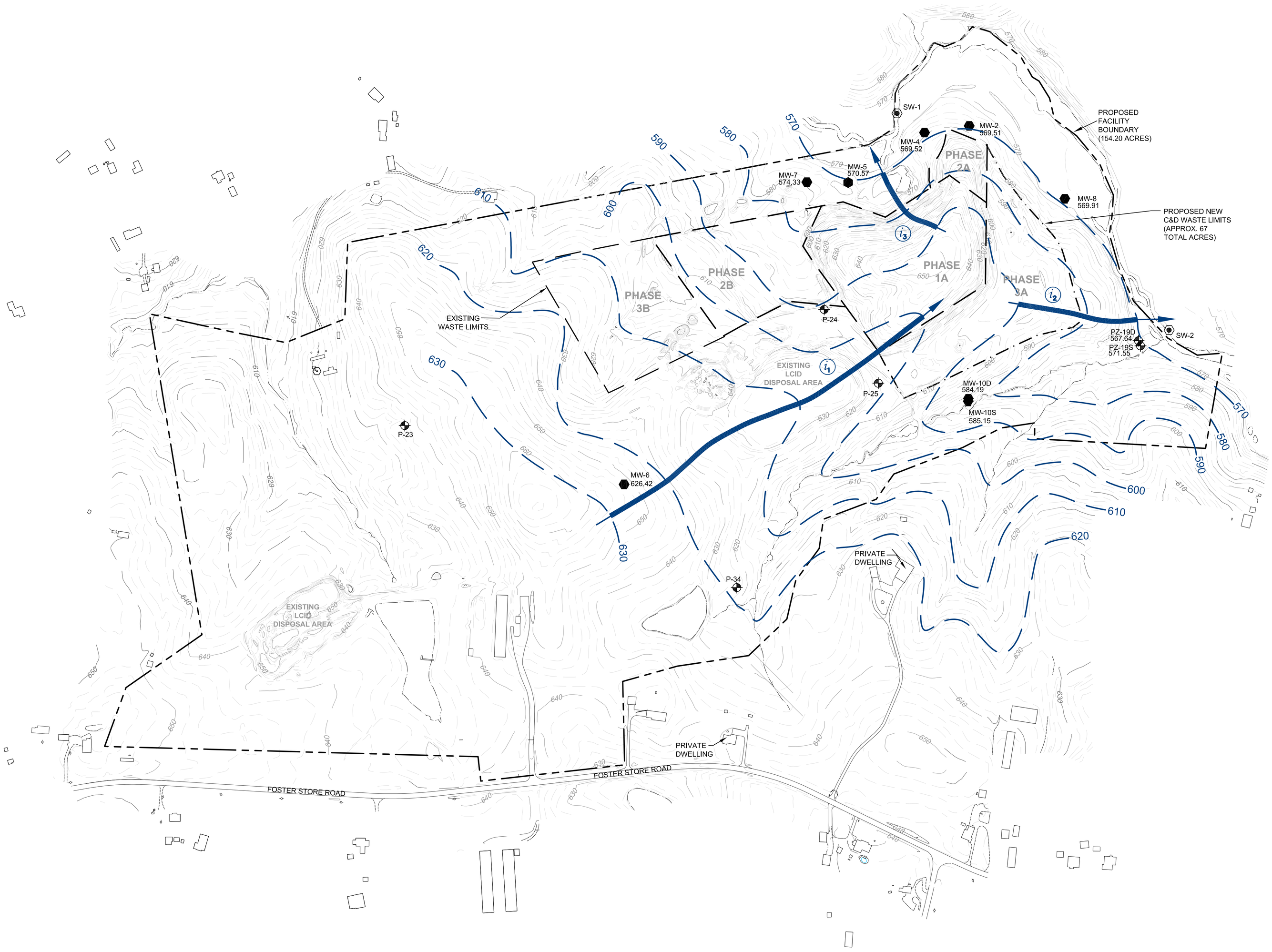
SOURCE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE FOR KIMESVILLE, NORTH CAROLINA,

COBLE'S SANDROCK C&D DEBRIS LANDFILL KIMESVILLE, NC	JOYCE ENGINEERING 2211 W. MEADOWVIEW ROAD GREENSBORO, NC 27407 PHONE: (336) 323-0092	DESIGNED ACE DRAWN HRW CHECKED ACE APPROVED GVB DATE 04/18/13	SCALE AS SHOWN	PROJECT NO. 419.1301.12
SITE LOCATION MAP		© 2013 Joyce Engineering All rights reserved.	NC CORP LIC: C-0782	FIGURE NO. 1

L:\Coble Sandrock\dwg\ANNUAL REPORTS\, SITE LOCATION MAP.dwg

Drawing

Drawing No. 1 Groundwater Surface Contour Map, April 1, 2013



LEGEND

- FACILITY BOUNDARY
- EXISTING 2' CONTOURS
- EXISTING 10' CONTOURS
- GROUNDWATER CONTOURS
- EXISTING WASTE LIMITS
- PROPOSED C&D WASTE LIMITS
- GROUNDWATER FLOW DIRECTION WITH GRADIENT CALCULATION SEGMENT
- SEGMENT USED FOR GRADIENT CALCULATIONS
- PIEZOMETER LOCATION — P-32
- GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION — MW-6 626.42

NOTES:

1. TOPOGRAPHIC CONTOUR INTERVAL= 2 FEET.
2. GROUNDWATER SURFACE CONTOUR = 10 FEET.

DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP

DESIGNED ACE
DRAWN HRW
CHECKED ACE
APPROVED GVB
DATE 04/18/13

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JOYCE ENGINEERING
2211 W. MEADOWVIEW ROAD
GREENSBORO, NC 27407
PHONE: (336) 323-0092
NC CORP LIC: C-0782

COBLE'S SANDROCK, INC.
KIMESVILLE, NORTH CAROLINA

GROUNDWATER SURFACE CONTOUR MAP
APRIL 1, 2013

PROJECT NO.
419.1301.12

SCALE
AS NOTED

DRAWING NO.
1

L:\Coble Sandrock\dwg\GW Event Maps\2013_ 04 Coble's Sandrock GW Map.dwg LayoutLayout1

Appendices

Appendix 1 Laboratory Analytical Report and Field Data Logs
Appendix 2 Statistical Analyses Worksheets

Appendix 1 Laboratory Analytical Report and Field Data Logs

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

April 18, 2013

Mr. Alex Everhart
Joyce Engineering-NC
2211 W. Meadowview Road
Suite 101
Greensboro, NC 27407

RE: Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Dear Mr. Everhart:
Enclosed are the analytical results for sample(s) received by the laboratory on April 03, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

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

Sincerely,

Kevin Godwin

kevin.godwin@pacelabs.com
Project Manager

Enclosures

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Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Charlotte Certification IDs

9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

Asheville Certification IDs

2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

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Asheville, NC 28804
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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92153371001	**0105-MW2**	Water	04/02/13 11:00	04/03/13 16:45
92153371002	**0105-MW4**	Water	04/02/13 11:09	04/03/13 16:45
92153371003	**0105-MW6**	Water	04/02/13 10:03	04/03/13 16:45
92153371004	**0105-MW7**	Water	04/02/13 11:26	04/03/13 16:45
92153371005	**0105-MW8**	Water	04/02/13 11:45	04/03/13 16:45
92153371006	**0105-MW10S**	Water	04/02/13 12:00	04/03/13 16:45
92153371007	**0105-P19S**	Water	04/02/13 10:25	04/03/13 16:45
92153371008	**0105-SW1**	Water	04/02/13 11:15	04/03/13 16:45
92153371009	**0105-SW2**	Water	04/02/13 10:35	04/03/13 16:45
92153371010	**0105-Field Blank**	Water	04/02/13 12:15	04/03/13 16:45
92153371011	**0105-Trip Blank**	Water	04/01/13 10:00	04/03/13 16:45

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92153371001	**0105-MW2**	EPA 6010	JMW	17	PASI-A
		EPA 7470	SH1	1	PASI-A
		EPA 8260	MCK	52	PASI-C
		SM 2320B	KCS	1	PASI-A
		SM 2540C	JTM	1	PASI-A
		EPA 300.0	AES	1	PASI-A
		SM 4500-Cl-E	LMD	1	PASI-A
92153371002	**0105-MW4**	EPA 6010	JMW	17	PASI-A
		EPA 7470	SH1	1	PASI-A
		EPA 8260	MCK	52	PASI-C
		SM 2320B	KCS	1	PASI-A
		SM 2540C	JTM	1	PASI-A
		EPA 300.0	AES	1	PASI-A
		SM 4500-Cl-E	LMD	1	PASI-A
92153371003	**0105-MW6**	EPA 6010	JMW	17	PASI-A
		EPA 7470	SH1	1	PASI-A
		EPA 8260	MCK	52	PASI-C
		SM 2320B	KCS	1	PASI-A
		SM 2540C	JTM	1	PASI-A
		EPA 300.0	AES	1	PASI-A
		SM 4500-Cl-E	LMD	1	PASI-A
92153371004	**0105-MW7**	EPA 6010	JMW	17	PASI-A
		EPA 7470	DMB	1	PASI-A
		EPA 8260	MCK	52	PASI-C
		SM 2320B	KCS	1	PASI-A
		SM 2540C	JTM	1	PASI-A
		EPA 300.0	AES	1	PASI-A
		SM 4500-Cl-E	LMD	1	PASI-A
92153371005	**0105-MW8**	EPA 6010	JMW	17	PASI-A
		EPA 7470	DMB	1	PASI-A
		EPA 8260	MCK	52	PASI-C
		SM 2320B	KCS	1	PASI-A
		SM 2540C	JTM	1	PASI-A
		EPA 300.0	AES	1	PASI-A
		SM 4500-Cl-E	LMD	1	PASI-A
92153371006	**0105-MW10S**	EPA 6010	JMW	17	PASI-A
		EPA 7470	DMB	1	PASI-A

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205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

SAMPLE ANALYTE COUNT

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		EPA 8260	MCK	52	PASI-C
		SM 2320B	KCS	1	PASI-A
		SM 2540C	JTM	1	PASI-A
		EPA 300.0	AES	1	PASI-A
		SM 4500-Cl-E	LMD	1	PASI-A
92153371007	**0105-P19S**	EPA 6010	JMW	17	PASI-A
		EPA 7470	DMB	1	PASI-A
		EPA 8260	MCK	52	PASI-C
		SM 2320B	KCS	1	PASI-A
		SM 2540C	JTM	1	PASI-A
		EPA 300.0	AES	1	PASI-A
		SM 4500-Cl-E	LMD	1	PASI-A
92153371008	**0105-SW1**	EPA 6010	JMW	17	PASI-A
		EPA 7470	DMB	1	PASI-A
		EPA 8260	MCK	52	PASI-C
		SM 2320B	KCS	1	PASI-A
		SM 2540C	JTM	1	PASI-A
		EPA 300.0	AES	1	PASI-A
		SM 4500-Cl-E	LMD	1	PASI-A
92153371009	**0105-SW2**	EPA 6010	JMW	17	PASI-A
		EPA 7470	DMB	1	PASI-A
		EPA 8260	MCK	52	PASI-C
		SM 2320B	KCS	1	PASI-A
		SM 2540C	JTM	1	PASI-A
		EPA 300.0	AES	1	PASI-A
		SM 4500-Cl-E	LMD	1	PASI-A
92153371010	**0105-Field Blank**	EPA 6010	JMW	17	PASI-A
		EPA 7470	DMB	1	PASI-A
		EPA 8260	MCK	52	PASI-C
92153371011	**0105-Trip Blank**	EPA 8260	MCK	52	PASI-C

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Huntersville, NC 28078
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HITS ONLY

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92153371001	**0105-MW2**					
EPA 6010	Barium	22.0J	ug/L	100	04/11/13 00:03	
EPA 6010	Iron	698	ug/L	300	04/11/13 00:03	
EPA 6010	Manganese	53.4	ug/L	50.0	04/11/13 00:03	
EPA 8260	Tetrahydrofuran	3.1J	ug/L	10.0	04/05/13 02:16	
SM 2320B	Alkalinity, Total as CaCO3	24100	ug/L	5000	04/04/13 17:50	
SM 2540C	Total Dissolved Solids	116000	ug/L	25000	04/04/13 10:46	
EPA 300.0	Sulfate	8520J	ug/L	250000	04/04/13 19:47	
92153371002	**0105-MW4**					
EPA 6010	Barium	28.1J	ug/L	100	04/11/13 00:16	
EPA 6010	Iron	778	ug/L	300	04/11/13 00:16	
EPA 6010	Manganese	44.0J	ug/L	50.0	04/11/13 00:16	
SM 2320B	Alkalinity, Total as CaCO3	27600	ug/L	5000	04/04/13 18:00	
SM 2540C	Total Dissolved Solids	165000	ug/L	25000	04/04/13 10:46	
EPA 300.0	Sulfate	36700J	ug/L	250000	04/04/13 20:01	
SM 4500-Cl-E	Chloride	7060	ug/L	1000	04/14/13 17:51	
92153371003	**0105-MW6**					
EPA 6010	Barium	42.5J	ug/L	100	04/11/13 00:19	
EPA 6010	Iron	101J	ug/L	300	04/11/13 00:19	
EPA 6010	Manganese	6.4J	ug/L	50.0	04/11/13 00:19	
EPA 8260	Tetrahydrofuran	4.8J	ug/L	10.0	04/05/13 02:47	
SM 2320B	Alkalinity, Total as CaCO3	9940	ug/L	5000	04/04/13 18:10	
SM 2540C	Total Dissolved Solids	147000	ug/L	25000	04/04/13 10:46	
EPA 300.0	Sulfate	2110J	ug/L	250000	04/04/13 20:14	
SM 4500-Cl-E	Chloride	8650	ug/L	1000	04/14/13 17:52	
92153371004	**0105-MW7**					
EPA 6010	Arsenic	7.2J	ug/L	10.0	04/11/13 00:22	
EPA 6010	Barium	231	ug/L	100	04/11/13 00:22	
EPA 6010	Cobalt	36.4	ug/L	10.0	04/11/13 00:22	
EPA 6010	Iron	15400	ug/L	300	04/11/13 00:22	
EPA 6010	Manganese	17800	ug/L	250	04/11/13 00:26	
EPA 7470	Mercury	0.15J	ug/L	0.20	04/11/13 13:26	
SM 2320B	Alkalinity, Total as CaCO3	909000	ug/L	5000	04/04/13 18:20	
SM 2540C	Total Dissolved Solids	1430000	ug/L	25000	04/04/13 10:47	
EPA 300.0	Sulfate	212000J	ug/L	5000000	04/05/13 09:40	
SM 4500-Cl-E	Chloride	128000	ug/L	5000	04/14/13 18:16	
92153371005	**0105-MW8**					
EPA 6010	Barium	11.9J	ug/L	100	04/11/13 01:50	
EPA 6010	Iron	242J	ug/L	300	04/11/13 01:50	
SM 2320B	Alkalinity, Total as CaCO3	61400	ug/L	5000	04/04/13 18:50	
SM 2540C	Total Dissolved Solids	106000	ug/L	25000	04/04/13 10:47	
92153371006	**0105-MW10S**					
EPA 6010	Barium	47.4J	ug/L	100	04/11/13 01:57	
EPA 6010	Copper	5.3J	ug/L	10.0	04/11/13 01:57	
EPA 6010	Iron	1650	ug/L	300	04/11/13 01:57	

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Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

HITS ONLY

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Lab Sample ID / Method	Client Sample ID / Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
92153371006	**0105-MW10S**					
EPA 6010	Manganese	102	ug/L	50.0	04/11/13 01:57	
EPA 6010	Vanadium	6.2J	ug/L	25.0	04/11/13 01:57	
SM 2320B	Alkalinity, Total as CaCO3	36200	ug/L	5000	04/04/13 19:18	
SM 2540C	Total Dissolved Solids	180000	ug/L	25000	04/04/13 10:48	
EPA 300.0	Sulfate	18800J	ug/L	250000	04/04/13 21:22	
SM 4500-Cl-E	Chloride	11000	ug/L	1000	04/14/13 17:54	
92153371007	**0105-P19S**					
EPA 6010	Barium	214	ug/L	100	04/11/13 02:03	
EPA 6010	Cobalt	61.9	ug/L	10.0	04/11/13 02:03	
EPA 6010	Iron	38700	ug/L	300	04/11/13 02:03	
EPA 6010	Manganese	5020	ug/L	50.0	04/11/13 02:03	
EPA 6010	Vanadium	14.4J	ug/L	25.0	04/11/13 02:03	
SM 2320B	Alkalinity, Total as CaCO3	101000	ug/L	5000	04/04/13 19:49	
SM 2540C	Total Dissolved Solids	207000	ug/L	25000	04/04/13 10:48	
EPA 300.0	Sulfate	18500J	ug/L	250000	04/04/13 21:36	
SM 4500-Cl-E	Chloride	11200	ug/L	1000	04/14/13 17:55	
92153371008	**0105-SW1**					
EPA 6010	Barium	22.3J	ug/L	100	04/11/13 02:07	
EPA 6010	Iron	1650	ug/L	300	04/11/13 02:07	
EPA 6010	Manganese	391	ug/L	50.0	04/11/13 02:07	
SM 2320B	Alkalinity, Total as CaCO3	36900	ug/L	5000	04/04/13 20:02	
SM 2540C	Total Dissolved Solids	91000	ug/L	25000	04/04/13 10:48	
EPA 300.0	Sulfate	8730J	ug/L	250000	04/04/13 21:49	
SM 4500-Cl-E	Chloride	7670	ug/L	1000	04/14/13 17:57	
92153371009	**0105-SW2**					
EPA 6010	Barium	25.3J	ug/L	100	04/11/13 02:10	
EPA 6010	Iron	1580	ug/L	300	04/11/13 02:10	
EPA 6010	Manganese	448	ug/L	50.0	04/11/13 02:10	
EPA 8260	Acetone	38.0J	ug/L	100	04/05/13 04:23	
SM 2320B	Alkalinity, Total as CaCO3	36000	ug/L	5000	04/04/13 20:11	
SM 2540C	Total Dissolved Solids	89000	ug/L	25000	04/04/13 10:49	
EPA 300.0	Sulfate	8920J	ug/L	250000	04/05/13 07:37	
SM 4500-Cl-E	Chloride	7190	ug/L	1000	04/14/13 17:58	

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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW2 **Lab ID: 92153371001** Collected: 04/02/13 11:00 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 ICP Groundwater	Analytical Method: EPA 6010		Preparation Method: EPA 3010						
Antimony	ND	ug/L	6.0	5.0	1	04/04/13 17:50	04/11/13 00:03	7440-36-0	
Arsenic	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:03	7440-38-2	
Barium	**22.0J**	ug/L	100	5.0	1	04/04/13 17:50	04/11/13 00:03	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	04/04/13 17:50	04/11/13 00:03	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	04/04/13 17:50	04/11/13 00:03	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:03	7440-47-3	
Cobalt	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:03	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:03	7440-50-8	
Iron	**698**	ug/L	300	50.0	1	04/04/13 17:50	04/11/13 00:03	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:03	7439-92-1	
Manganese	**53.4**	ug/L	50.0	5.0	1	04/04/13 17:50	04/11/13 00:03	7439-96-5	
Nickel	ND	ug/L	50.0	5.0	1	04/04/13 17:50	04/11/13 00:03	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	04/04/13 17:50	04/11/13 00:03	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:03	7440-22-4	
Thallium	ND	ug/L	5.5	5.4	1	04/04/13 17:50	04/11/13 00:03	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	04/04/13 17:50	04/11/13 00:03	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	04/04/13 17:50	04/11/13 00:03	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470		Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	0.10	1	04/04/13 15:30	04/05/13 14:32	7439-97-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		04/05/13 02:16	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		04/05/13 02:16	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		04/05/13 02:16	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		04/05/13 02:16	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		04/05/13 02:16	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		04/05/13 02:16	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		04/05/13 02:16	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		04/05/13 02:16	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		04/05/13 02:16	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		04/05/13 02:16	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		04/05/13 02:16	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		04/05/13 02:16	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		04/05/13 02:16	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		04/05/13 02:16	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		04/05/13 02:16	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		04/05/13 02:16	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		04/05/13 02:16	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		04/05/13 02:16	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		04/05/13 02:16	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		04/05/13 02:16	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		04/05/13 02:16	110-57-6	
1,1-Dichloroethane	ND	ug/L	5.0	0.32	1		04/05/13 02:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		04/05/13 02:16	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		04/05/13 02:16	75-35-4	

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ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW2 **Lab ID: 92153371001** Collected: 04/02/13 11:00 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.19	1		04/05/13 02:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		04/05/13 02:16	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		04/05/13 02:16	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		04/05/13 02:16	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		04/05/13 02:16	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		04/05/13 02:16	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		04/05/13 02:16	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		04/05/13 02:16	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		04/05/13 02:16	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		04/05/13 02:16	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		04/05/13 02:16	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		04/05/13 02:16	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		04/05/13 02:16	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		04/05/13 02:16	127-18-4	
Tetrahydrofuran	**3.1J**	ug/L	10.0	3.1	1		04/05/13 02:16	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		04/05/13 02:16	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		04/05/13 02:16	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		04/05/13 02:16	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		04/05/13 02:16	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		04/05/13 02:16	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		04/05/13 02:16	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		04/05/13 02:16	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		04/05/13 02:16	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		04/05/13 02:16	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130		1		04/05/13 02:16	460-00-4	
Dibromofluoromethane (S)	103	%	70-130		1		04/05/13 02:16	1868-53-7	
1,2-Dichloroethane-d4 (S)	105	%	70-130		1		04/05/13 02:16	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		04/05/13 02:16	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**24100**	ug/L	5000	1000	1		04/04/13 17:50		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**116000**	ug/L	25000	25000	1		04/04/13 10:46		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**8520J**	ug/L	250000	2000	1		04/04/13 19:47	14808-79-8	
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	ND	ug/L	1000	1000	1		04/14/13 17:51	16887-00-6	

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Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW4 **Lab ID: 92153371002** Collected: 04/02/13 11:09 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 ICP Groundwater	Analytical Method: EPA 6010		Preparation Method: EPA 3010						
Antimony	ND	ug/L	6.0	5.0	1	04/04/13 17:50	04/11/13 00:16	7440-36-0	
Arsenic	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:16	7440-38-2	
Barium	**28.1J**	ug/L	100	5.0	1	04/04/13 17:50	04/11/13 00:16	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	04/04/13 17:50	04/11/13 00:16	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	04/04/13 17:50	04/11/13 00:16	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:16	7440-47-3	
Cobalt	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:16	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:16	7440-50-8	
Iron	**778**	ug/L	300	50.0	1	04/04/13 17:50	04/11/13 00:16	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:16	7439-92-1	
Manganese	**44.0J**	ug/L	50.0	5.0	1	04/04/13 17:50	04/11/13 00:16	7439-96-5	
Nickel	ND	ug/L	50.0	5.0	1	04/04/13 17:50	04/11/13 00:16	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	04/04/13 17:50	04/11/13 00:16	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:16	7440-22-4	
Thallium	ND	ug/L	5.5	5.4	1	04/04/13 17:50	04/11/13 00:16	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	04/04/13 17:50	04/11/13 00:16	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	04/04/13 17:50	04/11/13 00:16	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470		Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	0.10	1	04/04/13 15:30	04/05/13 14:40	7439-97-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		04/05/13 02:32	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		04/05/13 02:32	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		04/05/13 02:32	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		04/05/13 02:32	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		04/05/13 02:32	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		04/05/13 02:32	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		04/05/13 02:32	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		04/05/13 02:32	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		04/05/13 02:32	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		04/05/13 02:32	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		04/05/13 02:32	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		04/05/13 02:32	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		04/05/13 02:32	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		04/05/13 02:32	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		04/05/13 02:32	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		04/05/13 02:32	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		04/05/13 02:32	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		04/05/13 02:32	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		04/05/13 02:32	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		04/05/13 02:32	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		04/05/13 02:32	110-57-6	
1,1-Dichloroethane	ND	ug/L	5.0	0.32	1		04/05/13 02:32	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		04/05/13 02:32	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		04/05/13 02:32	75-35-4	

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Eden, NC 27288
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Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW4 **Lab ID: 92153371002** Collected: 04/02/13 11:09 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.19	1		04/05/13 02:32	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		04/05/13 02:32	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		04/05/13 02:32	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		04/05/13 02:32	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		04/05/13 02:32	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		04/05/13 02:32	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		04/05/13 02:32	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		04/05/13 02:32	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		04/05/13 02:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		04/05/13 02:32	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		04/05/13 02:32	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		04/05/13 02:32	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		04/05/13 02:32	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		04/05/13 02:32	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		04/05/13 02:32	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		04/05/13 02:32	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		04/05/13 02:32	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		04/05/13 02:32	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		04/05/13 02:32	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		04/05/13 02:32	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		04/05/13 02:32	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		04/05/13 02:32	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		04/05/13 02:32	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		04/05/13 02:32	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		04/05/13 02:32	460-00-4	
Dibromofluoromethane (S)	103	%	70-130		1		04/05/13 02:32	1868-53-7	
1,2-Dichloroethane-d4 (S)	104	%	70-130		1		04/05/13 02:32	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		04/05/13 02:32	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**27600**	ug/L	5000	1000	1		04/04/13 18:00		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**165000**	ug/L	25000	25000	1		04/04/13 10:46		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**36700J**	ug/L	250000	2000	1		04/04/13 20:01	14808-79-8	
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**7060**	ug/L	1000	1000	1		04/14/13 17:51	16887-00-6	

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2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW6 **Lab ID: 92153371003** Collected: 04/02/13 10:03 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 ICP Groundwater	Analytical Method: EPA 6010		Preparation Method: EPA 3010						
Antimony	ND	ug/L	6.0	5.0	1	04/04/13 17:50	04/11/13 00:19	7440-36-0	
Arsenic	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:19	7440-38-2	
Barium	**42.5J**	ug/L	100	5.0	1	04/04/13 17:50	04/11/13 00:19	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	04/04/13 17:50	04/11/13 00:19	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	04/04/13 17:50	04/11/13 00:19	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:19	7440-47-3	
Cobalt	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:19	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:19	7440-50-8	
Iron	**101J**	ug/L	300	50.0	1	04/04/13 17:50	04/11/13 00:19	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:19	7439-92-1	
Manganese	**6.4J**	ug/L	50.0	5.0	1	04/04/13 17:50	04/11/13 00:19	7439-96-5	
Nickel	ND	ug/L	50.0	5.0	1	04/04/13 17:50	04/11/13 00:19	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	04/04/13 17:50	04/11/13 00:19	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:19	7440-22-4	
Thallium	ND	ug/L	5.5	5.4	1	04/04/13 17:50	04/11/13 00:19	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	04/04/13 17:50	04/11/13 00:19	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	04/04/13 17:50	04/11/13 00:19	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470		Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	0.10	1	04/04/13 15:30	04/05/13 14:43	7439-97-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		04/05/13 02:47	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		04/05/13 02:47	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		04/05/13 02:47	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		04/05/13 02:47	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		04/05/13 02:47	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		04/05/13 02:47	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		04/05/13 02:47	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		04/05/13 02:47	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		04/05/13 02:47	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		04/05/13 02:47	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		04/05/13 02:47	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		04/05/13 02:47	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		04/05/13 02:47	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		04/05/13 02:47	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		04/05/13 02:47	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		04/05/13 02:47	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		04/05/13 02:47	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		04/05/13 02:47	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		04/05/13 02:47	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		04/05/13 02:47	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		04/05/13 02:47	110-57-6	
1,1-Dichloroethane	ND	ug/L	5.0	0.32	1		04/05/13 02:47	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		04/05/13 02:47	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		04/05/13 02:47	75-35-4	

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2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW6 **Lab ID: 92153371003** Collected: 04/02/13 10:03 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.19	1		04/05/13 02:47	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		04/05/13 02:47	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		04/05/13 02:47	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		04/05/13 02:47	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		04/05/13 02:47	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		04/05/13 02:47	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		04/05/13 02:47	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		04/05/13 02:47	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		04/05/13 02:47	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		04/05/13 02:47	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		04/05/13 02:47	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		04/05/13 02:47	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		04/05/13 02:47	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		04/05/13 02:47	127-18-4	
Tetrahydrofuran	**4.8J**	ug/L	10.0	3.1	1		04/05/13 02:47	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		04/05/13 02:47	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		04/05/13 02:47	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		04/05/13 02:47	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		04/05/13 02:47	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		04/05/13 02:47	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		04/05/13 02:47	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		04/05/13 02:47	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		04/05/13 02:47	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		04/05/13 02:47	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	94	%	70-130		1		04/05/13 02:47	460-00-4	
Dibromofluoromethane (S)	100	%	70-130		1		04/05/13 02:47	1868-53-7	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		04/05/13 02:47	17060-07-0	
Toluene-d8 (S)	97	%	70-130		1		04/05/13 02:47	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**9940**	ug/L	5000	1000	1		04/04/13 18:10		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**147000**	ug/L	25000	25000	1		04/04/13 10:46		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**2110J**	ug/L	250000	2000	1		04/04/13 20:14	14808-79-8	
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**8650**	ug/L	1000	1000	1		04/14/13 17:52	16887-00-6	

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Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW7 **Lab ID: 92153371004** Collected: 04/02/13 11:26 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 ICP Groundwater	Analytical Method: EPA 6010		Preparation Method: EPA 3010						
Antimony	ND	ug/L	6.0	5.0	1	04/04/13 17:50	04/11/13 00:22	7440-36-0	
Arsenic	**7.2J**	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:22	7440-38-2	
Barium	**231**	ug/L	100	5.0	1	04/04/13 17:50	04/11/13 00:22	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	04/04/13 17:50	04/11/13 00:22	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	04/04/13 17:50	04/11/13 00:22	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:22	7440-47-3	
Cobalt	**36.4**	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:22	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:22	7440-50-8	
Iron	**15400**	ug/L	300	50.0	1	04/04/13 17:50	04/11/13 00:22	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:22	7439-92-1	
Manganese	**17800**	ug/L	250	25.0	5	04/04/13 17:50	04/11/13 00:26	7439-96-5	
Nickel	ND	ug/L	50.0	5.0	1	04/04/13 17:50	04/11/13 00:22	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	04/04/13 17:50	04/11/13 00:22	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	04/04/13 17:50	04/11/13 00:22	7440-22-4	
Thallium	ND	ug/L	5.5	5.4	1	04/04/13 17:50	04/11/13 00:22	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	04/04/13 17:50	04/11/13 00:22	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	04/04/13 17:50	04/11/13 00:22	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470		Preparation Method: EPA 7470						
Mercury	**0.15J**	ug/L	0.20	0.10	1	04/04/13 15:30	04/11/13 13:26	7439-97-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		04/05/13 03:03	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		04/05/13 03:03	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		04/05/13 03:03	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		04/05/13 03:03	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		04/05/13 03:03	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		04/05/13 03:03	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		04/05/13 03:03	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		04/05/13 03:03	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		04/05/13 03:03	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		04/05/13 03:03	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		04/05/13 03:03	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		04/05/13 03:03	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		04/05/13 03:03	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		04/05/13 03:03	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		04/05/13 03:03	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		04/05/13 03:03	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		04/05/13 03:03	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		04/05/13 03:03	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		04/05/13 03:03	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		04/05/13 03:03	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		04/05/13 03:03	110-57-6	
1,1-Dichloroethane	ND	ug/L	5.0	0.32	1		04/05/13 03:03	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		04/05/13 03:03	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		04/05/13 03:03	75-35-4	

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Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW7 **Lab ID: 92153371004** Collected: 04/02/13 11:26 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.19	1		04/05/13 03:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		04/05/13 03:03	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		04/05/13 03:03	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		04/05/13 03:03	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		04/05/13 03:03	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		04/05/13 03:03	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		04/05/13 03:03	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		04/05/13 03:03	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		04/05/13 03:03	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		04/05/13 03:03	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		04/05/13 03:03	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		04/05/13 03:03	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		04/05/13 03:03	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		04/05/13 03:03	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		04/05/13 03:03	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		04/05/13 03:03	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		04/05/13 03:03	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		04/05/13 03:03	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		04/05/13 03:03	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		04/05/13 03:03	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		04/05/13 03:03	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		04/05/13 03:03	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		04/05/13 03:03	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		04/05/13 03:03	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		04/05/13 03:03	460-00-4	
Dibromofluoromethane (S)	103	%	70-130		1		04/05/13 03:03	1868-53-7	
1,2-Dichloroethane-d4 (S)	105	%	70-130		1		04/05/13 03:03	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		04/05/13 03:03	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**909000**	ug/L	5000	1000	1		04/04/13 18:20		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**1430000**	ug/L	25000	25000	1		04/04/13 10:47		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**212000J**	ug/L	5000000	40000	20		04/05/13 09:40	14808-79-8	
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**128000**	ug/L	5000	5000	5		04/14/13 18:16	16887-00-6	

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Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW8 **Lab ID: 92153371005** Collected: 04/02/13 11:45 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 ICP Groundwater	Analytical Method: EPA 6010		Preparation Method: EPA 3010						
Antimony	ND	ug/L	6.0	5.0	1	04/05/13 12:25	04/11/13 01:50	7440-36-0	
Arsenic	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:50	7440-38-2	
Barium	**11.9J**	ug/L	100	5.0	1	04/05/13 12:25	04/11/13 01:50	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 01:50	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 01:50	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:50	7440-47-3	
Cobalt	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:50	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:50	7440-50-8	
Iron	**242J**	ug/L	300	50.0	1	04/05/13 12:25	04/11/13 01:50	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:50	7439-92-1	
Manganese	ND	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 01:50	7439-96-5	
Nickel	ND	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 01:50	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 01:50	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:50	7440-22-4	
Thallium	ND	ug/L	5.5	5.4	1	04/05/13 12:25	04/11/13 01:50	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	04/05/13 12:25	04/11/13 01:50	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 01:50	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470		Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	0.10	1	04/04/13 15:30	04/11/13 13:29	7439-97-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		04/05/13 03:19	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		04/05/13 03:19	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		04/05/13 03:19	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		04/05/13 03:19	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		04/05/13 03:19	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		04/05/13 03:19	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		04/05/13 03:19	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		04/05/13 03:19	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		04/05/13 03:19	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		04/05/13 03:19	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		04/05/13 03:19	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		04/05/13 03:19	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		04/05/13 03:19	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		04/05/13 03:19	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		04/05/13 03:19	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		04/05/13 03:19	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		04/05/13 03:19	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		04/05/13 03:19	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		04/05/13 03:19	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		04/05/13 03:19	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		04/05/13 03:19	110-57-6	
1,1-Dichloroethane	ND	ug/L	5.0	0.32	1		04/05/13 03:19	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		04/05/13 03:19	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		04/05/13 03:19	75-35-4	

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Eden, NC 27288
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Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW8 **Lab ID: 92153371005** Collected: 04/02/13 11:45 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.19	1		04/05/13 03:19	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		04/05/13 03:19	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		04/05/13 03:19	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		04/05/13 03:19	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		04/05/13 03:19	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		04/05/13 03:19	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		04/05/13 03:19	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		04/05/13 03:19	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		04/05/13 03:19	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		04/05/13 03:19	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		04/05/13 03:19	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		04/05/13 03:19	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		04/05/13 03:19	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		04/05/13 03:19	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		04/05/13 03:19	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		04/05/13 03:19	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		04/05/13 03:19	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		04/05/13 03:19	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		04/05/13 03:19	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		04/05/13 03:19	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		04/05/13 03:19	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		04/05/13 03:19	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		04/05/13 03:19	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		04/05/13 03:19	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		04/05/13 03:19	460-00-4	
Dibromofluoromethane (S)	104	%	70-130		1		04/05/13 03:19	1868-53-7	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		04/05/13 03:19	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		04/05/13 03:19	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**61400**	ug/L	5000	1000	1		04/04/13 18:50		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**106000**	ug/L	25000	25000	1		04/04/13 10:47		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	ND	ug/L	250000	2000	1		04/05/13 09:54	14808-79-8	
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	ND	ug/L	1000	1000	1		04/14/13 17:53	16887-00-6	

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2225 Riverside Dr.
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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW10S **Lab ID: 92153371006** Collected: 04/02/13 12:00 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 ICP Groundwater	Analytical Method: EPA 6010		Preparation Method: EPA 3010						
Antimony	ND	ug/L	6.0	5.0	1	04/05/13 12:25	04/11/13 01:57	7440-36-0	
Arsenic	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:57	7440-38-2	
Barium	**47.4J**	ug/L	100	5.0	1	04/05/13 12:25	04/11/13 01:57	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 01:57	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 01:57	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:57	7440-47-3	
Cobalt	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:57	7440-48-4	
Copper	**5.3J**	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:57	7440-50-8	
Iron	**1650**	ug/L	300	50.0	1	04/05/13 12:25	04/11/13 01:57	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:57	7439-92-1	
Manganese	**102**	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 01:57	7439-96-5	
Nickel	ND	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 01:57	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 01:57	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 01:57	7440-22-4	
Thallium	ND	ug/L	5.5	5.4	1	04/05/13 12:25	04/11/13 01:57	7440-28-0	
Vanadium	**6.2J**	ug/L	25.0	5.0	1	04/05/13 12:25	04/11/13 01:57	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 01:57	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470		Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	0.10	1	04/04/13 15:30	04/11/13 13:32	7439-97-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		04/05/13 03:35	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		04/05/13 03:35	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		04/05/13 03:35	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		04/05/13 03:35	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		04/05/13 03:35	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		04/05/13 03:35	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		04/05/13 03:35	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		04/05/13 03:35	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		04/05/13 03:35	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		04/05/13 03:35	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		04/05/13 03:35	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		04/05/13 03:35	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		04/05/13 03:35	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		04/05/13 03:35	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		04/05/13 03:35	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		04/05/13 03:35	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		04/05/13 03:35	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		04/05/13 03:35	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		04/05/13 03:35	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		04/05/13 03:35	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		04/05/13 03:35	110-57-6	
1,1-Dichloroethane	ND	ug/L	5.0	0.32	1		04/05/13 03:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		04/05/13 03:35	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		04/05/13 03:35	75-35-4	

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205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-MW10S **Lab ID: 92153371006** Collected: 04/02/13 12:00 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.19	1		04/05/13 03:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		04/05/13 03:35	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		04/05/13 03:35	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		04/05/13 03:35	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		04/05/13 03:35	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		04/05/13 03:35	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		04/05/13 03:35	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		04/05/13 03:35	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		04/05/13 03:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		04/05/13 03:35	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		04/05/13 03:35	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		04/05/13 03:35	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		04/05/13 03:35	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		04/05/13 03:35	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		04/05/13 03:35	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		04/05/13 03:35	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		04/05/13 03:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		04/05/13 03:35	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		04/05/13 03:35	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		04/05/13 03:35	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		04/05/13 03:35	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		04/05/13 03:35	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		04/05/13 03:35	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		04/05/13 03:35	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		04/05/13 03:35	460-00-4	
Dibromofluoromethane (S)	124	%	70-130		1		04/05/13 03:35	1868-53-7	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		04/05/13 03:35	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		04/05/13 03:35	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**36200**	ug/L	5000	1000	1		04/04/13 19:18		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**180000**	ug/L	25000	25000	1		04/04/13 10:48		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**18800J**	ug/L	250000	2000	1		04/04/13 21:22	14808-79-8	
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**11000**	ug/L	1000	1000	1		04/14/13 17:54	16887-00-6	

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Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-P19S **Lab ID: 92153371007** Collected: 04/02/13 10:25 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 ICP Groundwater	Analytical Method: EPA 6010		Preparation Method: EPA 3010						
Antimony	ND	ug/L	6.0	5.0	1	04/05/13 12:25	04/11/13 02:03	7440-36-0	
Arsenic	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:03	7440-38-2	
Barium	**214**	ug/L	100	5.0	1	04/05/13 12:25	04/11/13 02:03	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 02:03	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 02:03	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:03	7440-47-3	
Cobalt	**61.9**	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:03	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:03	7440-50-8	
Iron	**38700**	ug/L	300	50.0	1	04/05/13 12:25	04/11/13 02:03	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:03	7439-92-1	
Manganese	**5020**	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 02:03	7439-96-5	
Nickel	ND	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 02:03	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 02:03	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:03	7440-22-4	
Thallium	ND	ug/L	5.5	5.4	1	04/05/13 12:25	04/11/13 02:03	7440-28-0	
Vanadium	**14.4J**	ug/L	25.0	5.0	1	04/05/13 12:25	04/11/13 02:03	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 02:03	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470		Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	0.10	1	04/04/13 15:30	04/11/13 13:34	7439-97-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		04/05/13 03:51	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		04/05/13 03:51	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		04/05/13 03:51	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		04/05/13 03:51	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		04/05/13 03:51	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		04/05/13 03:51	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		04/05/13 03:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		04/05/13 03:51	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		04/05/13 03:51	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		04/05/13 03:51	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		04/05/13 03:51	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		04/05/13 03:51	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		04/05/13 03:51	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		04/05/13 03:51	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		04/05/13 03:51	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		04/05/13 03:51	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		04/05/13 03:51	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		04/05/13 03:51	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		04/05/13 03:51	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		04/05/13 03:51	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		04/05/13 03:51	110-57-6	
1,1-Dichloroethane	ND	ug/L	5.0	0.32	1		04/05/13 03:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		04/05/13 03:51	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		04/05/13 03:51	75-35-4	

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Eden, NC 27288
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Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-P19S **Lab ID: 92153371007** Collected: 04/02/13 10:25 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.19	1		04/05/13 03:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		04/05/13 03:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		04/05/13 03:51	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		04/05/13 03:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		04/05/13 03:51	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		04/05/13 03:51	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		04/05/13 03:51	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		04/05/13 03:51	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		04/05/13 03:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		04/05/13 03:51	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		04/05/13 03:51	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		04/05/13 03:51	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		04/05/13 03:51	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		04/05/13 03:51	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		04/05/13 03:51	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		04/05/13 03:51	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		04/05/13 03:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		04/05/13 03:51	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		04/05/13 03:51	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		04/05/13 03:51	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		04/05/13 03:51	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		04/05/13 03:51	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		04/05/13 03:51	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		04/05/13 03:51	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	100	%	70-130		1		04/05/13 03:51	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		1		04/05/13 03:51	1868-53-7	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		04/05/13 03:51	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		04/05/13 03:51	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**101000**	ug/L	5000	1000	1		04/04/13 19:49		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**207000**	ug/L	25000	25000	1		04/04/13 10:48		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**18500J**	ug/L	250000	2000	1		04/04/13 21:36	14808-79-8	
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**11200**	ug/L	1000	1000	1		04/14/13 17:55	16887-00-6	

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-SW1 **Lab ID: 92153371008** Collected: 04/02/13 11:15 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 ICP Groundwater	Analytical Method: EPA 6010		Preparation Method: EPA 3010						
Antimony	ND	ug/L	6.0	5.0	1	04/05/13 12:25	04/11/13 02:07	7440-36-0	
Arsenic	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:07	7440-38-2	
Barium	**22.3J**	ug/L	100	5.0	1	04/05/13 12:25	04/11/13 02:07	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 02:07	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 02:07	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:07	7440-47-3	
Cobalt	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:07	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:07	7440-50-8	
Iron	**1650**	ug/L	300	50.0	1	04/05/13 12:25	04/11/13 02:07	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:07	7439-92-1	
Manganese	**391**	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 02:07	7439-96-5	
Nickel	ND	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 02:07	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 02:07	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:07	7440-22-4	
Thallium	ND	ug/L	5.5	5.4	1	04/05/13 12:25	04/11/13 02:07	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	04/05/13 12:25	04/11/13 02:07	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 02:07	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470		Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	0.10	1	04/04/13 15:30	04/11/13 13:37	7439-97-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		04/05/13 04:07	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		04/05/13 04:07	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		04/05/13 04:07	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		04/05/13 04:07	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		04/05/13 04:07	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		04/05/13 04:07	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		04/05/13 04:07	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		04/05/13 04:07	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		04/05/13 04:07	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		04/05/13 04:07	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		04/05/13 04:07	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		04/05/13 04:07	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		04/05/13 04:07	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		04/05/13 04:07	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		04/05/13 04:07	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		04/05/13 04:07	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		04/05/13 04:07	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		04/05/13 04:07	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		04/05/13 04:07	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		04/05/13 04:07	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		04/05/13 04:07	110-57-6	
1,1-Dichloroethane	ND	ug/L	5.0	0.32	1		04/05/13 04:07	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		04/05/13 04:07	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		04/05/13 04:07	75-35-4	

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Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-SW1 **Lab ID: 92153371008** Collected: 04/02/13 11:15 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.19	1		04/05/13 04:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		04/05/13 04:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		04/05/13 04:07	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		04/05/13 04:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		04/05/13 04:07	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		04/05/13 04:07	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		04/05/13 04:07	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		04/05/13 04:07	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		04/05/13 04:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		04/05/13 04:07	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		04/05/13 04:07	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		04/05/13 04:07	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		04/05/13 04:07	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		04/05/13 04:07	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		04/05/13 04:07	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		04/05/13 04:07	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		04/05/13 04:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		04/05/13 04:07	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		04/05/13 04:07	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		04/05/13 04:07	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		04/05/13 04:07	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		04/05/13 04:07	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		04/05/13 04:07	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		04/05/13 04:07	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	98	%	70-130		1		04/05/13 04:07	460-00-4	
Dibromofluoromethane (S)	101	%	70-130		1		04/05/13 04:07	1868-53-7	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		04/05/13 04:07	17060-07-0	
Toluene-d8 (S)	101	%	70-130		1		04/05/13 04:07	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**36900**	ug/L	5000	1000	1		04/04/13 20:02		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**91000**	ug/L	25000	25000	1		04/04/13 10:48		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**8730J**	ug/L	250000	2000	1		04/04/13 21:49	14808-79-8	
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**7670**	ug/L	1000	1000	1		04/14/13 17:57	16887-00-6	

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Eden, NC 27288
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Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-SW2 **Lab ID: 92153371009** Collected: 04/02/13 10:35 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 ICP Groundwater	Analytical Method: EPA 6010		Preparation Method: EPA 3010						
Antimony	ND	ug/L	6.0	5.0	1	04/05/13 12:25	04/11/13 02:10	7440-36-0	
Arsenic	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:10	7440-38-2	
Barium	**25.3J**	ug/L	100	5.0	1	04/05/13 12:25	04/11/13 02:10	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 02:10	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 02:10	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:10	7440-47-3	
Cobalt	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:10	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:10	7440-50-8	
Iron	**1580**	ug/L	300	50.0	1	04/05/13 12:25	04/11/13 02:10	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:10	7439-92-1	
Manganese	**448**	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 02:10	7439-96-5	
Nickel	ND	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 02:10	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 02:10	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:10	7440-22-4	
Thallium	ND	ug/L	5.5	5.4	1	04/05/13 12:25	04/11/13 02:10	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	04/05/13 12:25	04/11/13 02:10	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 02:10	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470		Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	0.10	1	04/04/13 15:30	04/11/13 13:40	7439-97-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	**38.0J**	ug/L	100	10.0	1		04/05/13 04:23	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		04/05/13 04:23	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		04/05/13 04:23	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		04/05/13 04:23	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		04/05/13 04:23	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		04/05/13 04:23	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		04/05/13 04:23	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		04/05/13 04:23	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		04/05/13 04:23	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		04/05/13 04:23	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		04/05/13 04:23	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		04/05/13 04:23	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		04/05/13 04:23	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		04/05/13 04:23	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		04/05/13 04:23	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		04/05/13 04:23	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		04/05/13 04:23	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		04/05/13 04:23	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		04/05/13 04:23	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		04/05/13 04:23	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		04/05/13 04:23	110-57-6	
1,1-Dichloroethane	ND	ug/L	5.0	0.32	1		04/05/13 04:23	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		04/05/13 04:23	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		04/05/13 04:23	75-35-4	

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Eden, NC 27288
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Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-SW2 **Lab ID: 92153371009** Collected: 04/02/13 10:35 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.19	1		04/05/13 04:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		04/05/13 04:23	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		04/05/13 04:23	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		04/05/13 04:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		04/05/13 04:23	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		04/05/13 04:23	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		04/05/13 04:23	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		04/05/13 04:23	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		04/05/13 04:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		04/05/13 04:23	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		04/05/13 04:23	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		04/05/13 04:23	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		04/05/13 04:23	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		04/05/13 04:23	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		04/05/13 04:23	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		04/05/13 04:23	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		04/05/13 04:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		04/05/13 04:23	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		04/05/13 04:23	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		04/05/13 04:23	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		04/05/13 04:23	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		04/05/13 04:23	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		04/05/13 04:23	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		04/05/13 04:23	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130		1		04/05/13 04:23	460-00-4	
Dibromofluoromethane (S)	104	%	70-130		1		04/05/13 04:23	1868-53-7	
1,2-Dichloroethane-d4 (S)	106	%	70-130		1		04/05/13 04:23	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		04/05/13 04:23	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**36000**	ug/L	5000	1000	1		04/04/13 20:11		
2540C Total Dissolved Solids	Analytical Method: SM 2540C								
Total Dissolved Solids	**89000**	ug/L	25000	25000	1		04/04/13 10:49		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**8920J**	ug/L	250000	2000	1		04/05/13 07:37	14808-79-8	
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**7190**	ug/L	1000	1000	1		04/14/13 17:58	16887-00-6	

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Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-Field Blank **Lab ID: 92153371010** Collected: 04/02/13 12:15 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 ICP Groundwater	Analytical Method: EPA 6010		Preparation Method: EPA 3010						
Antimony	ND	ug/L	6.0	5.0	1	04/05/13 12:25	04/11/13 02:23	7440-36-0	
Arsenic	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:23	7440-38-2	
Barium	ND	ug/L	100	5.0	1	04/05/13 12:25	04/11/13 02:23	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 02:23	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	04/05/13 12:25	04/11/13 02:23	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:23	7440-47-3	
Cobalt	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:23	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:23	7440-50-8	
Iron	ND	ug/L	300	50.0	1	04/05/13 12:25	04/11/13 02:23	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:23	7439-92-1	
Manganese	ND	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 02:23	7439-96-5	
Nickel	ND	ug/L	50.0	5.0	1	04/05/13 12:25	04/11/13 02:23	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 02:23	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	04/05/13 12:25	04/11/13 02:23	7440-22-4	
Thallium	ND	ug/L	5.5	5.4	1	04/05/13 12:25	04/11/13 02:23	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	04/05/13 12:25	04/11/13 02:23	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	04/05/13 12:25	04/11/13 02:23	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470		Preparation Method: EPA 7470						
Mercury	ND	ug/L	0.20	0.10	1	04/04/13 15:30	04/11/13 13:50	7439-97-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		04/05/13 04:39	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		04/05/13 04:39	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		04/05/13 04:39	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		04/05/13 04:39	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		04/05/13 04:39	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		04/05/13 04:39	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		04/05/13 04:39	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		04/05/13 04:39	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		04/05/13 04:39	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		04/05/13 04:39	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		04/05/13 04:39	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		04/05/13 04:39	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		04/05/13 04:39	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		04/05/13 04:39	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		04/05/13 04:39	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		04/05/13 04:39	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		04/05/13 04:39	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		04/05/13 04:39	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		04/05/13 04:39	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		04/05/13 04:39	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		04/05/13 04:39	110-57-6	
1,1-Dichloroethane	ND	ug/L	5.0	0.32	1		04/05/13 04:39	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		04/05/13 04:39	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		04/05/13 04:39	75-35-4	

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Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-Field Blank **Lab ID: 92153371010** Collected: 04/02/13 12:15 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.19	1		04/05/13 04:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		04/05/13 04:39	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		04/05/13 04:39	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		04/05/13 04:39	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		04/05/13 04:39	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		04/05/13 04:39	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		04/05/13 04:39	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		04/05/13 04:39	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		04/05/13 04:39	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		04/05/13 04:39	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		04/05/13 04:39	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		04/05/13 04:39	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		04/05/13 04:39	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		04/05/13 04:39	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		04/05/13 04:39	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		04/05/13 04:39	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		04/05/13 04:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		04/05/13 04:39	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		04/05/13 04:39	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		04/05/13 04:39	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		04/05/13 04:39	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		04/05/13 04:39	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		04/05/13 04:39	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		04/05/13 04:39	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		04/05/13 04:39	460-00-4	
Dibromofluoromethane (S)	103	%	70-130		1		04/05/13 04:39	1868-53-7	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		04/05/13 04:39	17060-07-0	
Toluene-d8 (S)	102	%	70-130		1		04/05/13 04:39	2037-26-5	

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Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-Trip Blank **Lab ID: 92153371011** Collected: 04/01/13 10:00 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		04/05/13 02:00	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		04/05/13 02:00	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		04/05/13 02:00	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		04/05/13 02:00	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		04/05/13 02:00	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		04/05/13 02:00	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		04/05/13 02:00	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		04/05/13 02:00	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		04/05/13 02:00	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		04/05/13 02:00	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		04/05/13 02:00	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		04/05/13 02:00	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		04/05/13 02:00	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		04/05/13 02:00	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		04/05/13 02:00	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		04/05/13 02:00	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		04/05/13 02:00	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		04/05/13 02:00	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		04/05/13 02:00	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		04/05/13 02:00	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		04/05/13 02:00	110-57-6	
1,1-Dichloroethane	ND	ug/L	5.0	0.32	1		04/05/13 02:00	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		04/05/13 02:00	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		04/05/13 02:00	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.19	1		04/05/13 02:00	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		04/05/13 02:00	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		04/05/13 02:00	78-87-5	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		04/05/13 02:00	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		04/05/13 02:00	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		04/05/13 02:00	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		04/05/13 02:00	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		04/05/13 02:00	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		04/05/13 02:00	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		04/05/13 02:00	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		04/05/13 02:00	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		04/05/13 02:00	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		04/05/13 02:00	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		04/05/13 02:00	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	3.1	1		04/05/13 02:00	109-99-9	
Toluene	ND	ug/L	1.0	0.26	1		04/05/13 02:00	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		04/05/13 02:00	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		04/05/13 02:00	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		04/05/13 02:00	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		04/05/13 02:00	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		04/05/13 02:00	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		04/05/13 02:00	108-05-4	

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Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

ANALYTICAL RESULTS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Sample: 0105-Trip Blank **Lab ID: 92153371011** Collected: 04/01/13 10:00 Received: 04/03/13 16:45 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Vinyl chloride	ND	ug/L	1.0	0.62	1		04/05/13 02:00	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		04/05/13 02:00	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		04/05/13 02:00	460-00-4	
Dibromofluoromethane (S)	102	%	70-130		1		04/05/13 02:00	1868-53-7	
1,2-Dichloroethane-d4 (S)	105	%	70-130		1		04/05/13 02:00	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		04/05/13 02:00	2037-26-5	

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QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

QC Batch: MERP/5065 — Analysis Method: EPA 7470
QC Batch Method: EPA 7470 — Analysis Description: 7470 Mercury
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008, 92153371009, 92153371010

METHOD BLANK: 950424 — Matrix: Water
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008, 92153371009, 92153371010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	04/05/13 14:27	

LABORATORY CONTROL SAMPLE: 950425

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	2.5	2.5	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 950426 950427

Parameter	Units	92153371001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	ug/L	ND	2.5	2.5	2.6	2.6	103	103	75-125	0	25	

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(704)875-9092

QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

QC Batch: MPRP/12988 | Analysis Method: EPA 6010
QC Batch Method: EPA 3010 | Analysis Description: 6010 MET NC Groundwater
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004

METHOD BLANK: 950958 | Matrix: Water
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	ND	6.0	04/10/13 22:36	
Arsenic	ug/L	ND	10.0	04/10/13 22:36	
Barium	ug/L	ND	100	04/10/13 22:36	
Beryllium	ug/L	ND	1.0	04/10/13 22:36	
Cadmium	ug/L	ND	1.0	04/10/13 22:36	
Chromium	ug/L	ND	10.0	04/10/13 22:36	
Cobalt	ug/L	ND	10.0	04/10/13 22:36	
Copper	ug/L	ND	10.0	04/10/13 22:36	
Iron	ug/L	ND	300	04/10/13 22:36	
Lead	ug/L	ND	10.0	04/10/13 22:36	
Manganese	ug/L	ND	50.0	04/10/13 22:36	
Nickel	ug/L	ND	50.0	04/10/13 22:36	
Selenium	ug/L	ND	10.0	04/10/13 22:36	
Silver	ug/L	ND	10.0	04/10/13 22:36	
Thallium	ug/L	ND	5.5	04/10/13 22:36	
Vanadium	ug/L	ND	25.0	04/10/13 22:36	
Zinc	ug/L	ND	10.0	04/10/13 22:36	

LABORATORY CONTROL SAMPLE: 950959

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	479	96	80-120	
Arsenic	ug/L	500	469	94	80-120	
Barium	ug/L	500	479	96	80-120	
Beryllium	ug/L	500	501	100	80-120	
Cadmium	ug/L	500	497	99	80-120	
Chromium	ug/L	500	511	102	80-120	
Cobalt	ug/L	500	496	99	80-120	
Copper	ug/L	500	468	94	80-120	
Iron	ug/L	5000	4970	99	80-120	
Lead	ug/L	500	491	98	80-120	
Manganese	ug/L	500	501	100	80-120	
Nickel	ug/L	500	502	100	80-120	
Selenium	ug/L	500	467	93	80-120	
Silver	ug/L	250	256	102	80-120	
Thallium	ug/L	500	470	94	80-120	
Vanadium	ug/L	500	504	101	80-120	
Zinc	ug/L	500	507	101	80-120	

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2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 950960 950961

Parameter	Units	92153055002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	ND	500	500	496	516	99	103	75-125	4	25	
Arsenic	ug/L	11.1	500	500	498	514	97	101	75-125	3	25	
Barium	ug/L	145	500	500	617	635	94	98	75-125	3	25	
Beryllium	ug/L	ND	500	500	508	519	101	104	75-125	2	25	
Cadmium	ug/L	2.2	500	500	496	507	99	101	75-125	2	25	
Chromium	ug/L	ND	500	500	510	518	101	103	75-125	2	25	
Cobalt	ug/L	74.7	500	500	568	579	99	101	75-125	2	25	
Copper	ug/L	ND	500	500	484	504	97	101	75-125	4	25	
Iron	ug/L	15700	5000	5000	20300	20300	92	92	75-125	0	25	
Lead	ug/L	ND	500	500	478	492	95	98	75-125	3	25	
Manganese	ug/L	6040	500	500	6530	6470	96	85	75-125	1	25	
Nickel	ug/L	154	500	500	648	661	99	101	75-125	2	25	
Selenium	ug/L	ND	500	500	482	497	96	99	75-125	3	25	
Silver	ug/L	ND	250	250	264	269	106	108	75-125	2	25	
Thallium	ug/L	ND	500	500	451	471	90	94	75-125	4	25	
Vanadium	ug/L	ND	500	500	507	519	101	104	75-125	2	25	
Zinc	ug/L	1620	500	500	2170	2160	109	107	75-125	1	25	

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Huntersville, NC 28078
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QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

QC Batch: MPRP/12994 | Analysis Method: EPA 6010
QC Batch Method: EPA 3010 | Analysis Description: 6010 MET NC Groundwater
Associated Lab Samples: 92153371005, 92153371006, 92153371007, 92153371008, 92153371009, 92153371010

METHOD BLANK: 951321 | Matrix: Water
Associated Lab Samples: 92153371005, 92153371006, 92153371007, 92153371008, 92153371009, 92153371010

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	ND	6.0	04/11/13 01:44	
Arsenic	ug/L	ND	10.0	04/11/13 01:44	
Barium	ug/L	ND	100	04/11/13 01:44	
Beryllium	ug/L	ND	1.0	04/11/13 01:44	
Cadmium	ug/L	ND	1.0	04/11/13 01:44	
Chromium	ug/L	ND	10.0	04/11/13 01:44	
Cobalt	ug/L	ND	10.0	04/11/13 01:44	
Copper	ug/L	ND	10.0	04/11/13 01:44	
Iron	ug/L	ND	300	04/11/13 01:44	
Lead	ug/L	ND	10.0	04/11/13 01:44	
Manganese	ug/L	ND	50.0	04/11/13 01:44	
Nickel	ug/L	ND	50.0	04/11/13 01:44	
Selenium	ug/L	ND	10.0	04/11/13 01:44	
Silver	ug/L	ND	10.0	04/11/13 01:44	
Thallium	ug/L	ND	5.5	04/11/13 01:44	
Vanadium	ug/L	ND	25.0	04/11/13 01:44	
Zinc	ug/L	ND	10.0	04/11/13 01:44	

LABORATORY CONTROL SAMPLE: 951322

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	477	95	80-120	
Arsenic	ug/L	500	467	93	80-120	
Barium	ug/L	500	473	95	80-120	
Beryllium	ug/L	500	487	97	80-120	
Cadmium	ug/L	500	486	97	80-120	
Chromium	ug/L	500	489	98	80-120	
Cobalt	ug/L	500	481	96	80-120	
Copper	ug/L	500	467	93	80-120	
Iron	ug/L	5000	4830	97	80-120	
Lead	ug/L	500	483	97	80-120	
Manganese	ug/L	500	486	97	80-120	
Nickel	ug/L	500	490	98	80-120	
Selenium	ug/L	500	465	93	80-120	
Silver	ug/L	250	253	101	80-120	
Thallium	ug/L	500	473	95	80-120	
Vanadium	ug/L	500	492	98	80-120	
Zinc	ug/L	500	492	98	80-120	

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Eden, NC 27288
(336)623-8921

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2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

MATRIX SPIKE SAMPLE: 951323

Parameter	Units	92153371005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	ND	500	479	96	75-125	
Arsenic	ug/L	ND	500	469	94	75-125	
Barium	ug/L	11.9J	500	479	93	75-125	
Beryllium	ug/L	ND	500	493	99	75-125	
Cadmium	ug/L	ND	500	485	97	75-125	
Chromium	ug/L	ND	500	494	99	75-125	
Cobalt	ug/L	ND	500	483	96	75-125	
Copper	ug/L	ND	500	471	94	75-125	
Iron	ug/L	242J	5000	5060	96	75-125	
Lead	ug/L	ND	500	464	93	75-125	
Manganese	ug/L	ND	500	489	97	75-125	
Nickel	ug/L	ND	500	487	97	75-125	
Selenium	ug/L	ND	500	468	93	75-125	
Silver	ug/L	ND	250	255	102	75-125	
Thallium	ug/L	ND	500	461	92	75-125	
Vanadium	ug/L	ND	500	496	99	75-125	
Zinc	ug/L	ND	500	502	100	75-125	

SAMPLE DUPLICATE: 951324

Parameter	Units	92153371006 Result	Dup Result	RPD	Max RPD	Qualifiers
Antimony	ug/L	ND	ND		25	
Arsenic	ug/L	ND	ND		25	
Barium	ug/L	47.4J	47.2J	0	25	
Beryllium	ug/L	ND	ND		25	
Cadmium	ug/L	ND	ND		25	
Chromium	ug/L	ND	5.2J		25	
Cobalt	ug/L	ND	ND		25	
Copper	ug/L	5.3J	5.4J	1	25	
Iron	ug/L	1650	1720	4	25	
Lead	ug/L	ND	ND		25	
Manganese	ug/L	102	103	1	25	
Nickel	ug/L	ND	ND		25	
Selenium	ug/L	ND	ND		25	
Silver	ug/L	ND	ND		25	
Thallium	ug/L	ND	ND		25	
Vanadium	ug/L	6.2J	6.4J	4	25	
Zinc	ug/L	ND	ND		25	

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2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

QC Batch: MSV/22554 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level Landfill
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008, 92153371009, 92153371010, 92153371011

METHOD BLANK: 950964 Matrix: Water
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008, 92153371009, 92153371010, 92153371011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	5.0	04/04/13 23:21	
1,1,1-Trichloroethane	ug/L	ND	1.0	04/04/13 23:21	
1,1,2,2-Tetrachloroethane	ug/L	ND	3.0	04/04/13 23:21	
1,1,2-Trichloroethane	ug/L	ND	1.0	04/04/13 23:21	
1,1-Dichloroethane	ug/L	ND	5.0	04/04/13 23:21	
1,1-Dichloroethene	ug/L	ND	5.0	04/04/13 23:21	
1,2,3-Trichloropropane	ug/L	ND	1.0	04/04/13 23:21	
1,2-Dibromo-3-chloropropane	ug/L	ND	13.0	04/04/13 23:21	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	04/04/13 23:21	
1,2-Dichlorobenzene	ug/L	ND	5.0	04/04/13 23:21	
1,2-Dichloroethane	ug/L	ND	1.0	04/04/13 23:21	
1,2-Dichloropropane	ug/L	ND	1.0	04/04/13 23:21	
1,4-Dichlorobenzene	ug/L	ND	1.0	04/04/13 23:21	
2-Butanone (MEK)	ug/L	ND	100	04/04/13 23:21	
2-Hexanone	ug/L	ND	50.0	04/04/13 23:21	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	04/04/13 23:21	
Acetone	ug/L	ND	100	04/04/13 23:21	
Acrylonitrile	ug/L	ND	200	04/04/13 23:21	
Benzene	ug/L	ND	1.0	04/04/13 23:21	
Bromochloromethane	ug/L	ND	3.0	04/04/13 23:21	
Bromodichloromethane	ug/L	ND	1.0	04/04/13 23:21	
Bromoform	ug/L	ND	3.0	04/04/13 23:21	
Bromomethane	ug/L	ND	10.0	04/04/13 23:21	
Carbon disulfide	ug/L	ND	100	04/04/13 23:21	
Carbon tetrachloride	ug/L	ND	1.0	04/04/13 23:21	
Chlorobenzene	ug/L	ND	3.0	04/04/13 23:21	
Chloroethane	ug/L	ND	10.0	04/04/13 23:21	
Chloroform	ug/L	ND	5.0	04/04/13 23:21	
Chloromethane	ug/L	ND	1.0	04/04/13 23:21	
cis-1,2-Dichloroethene	ug/L	ND	5.0	04/04/13 23:21	
cis-1,3-Dichloropropene	ug/L	ND	1.0	04/04/13 23:21	
Dibromochloromethane	ug/L	ND	3.0	04/04/13 23:21	
Dibromomethane	ug/L	ND	10.0	04/04/13 23:21	
Ethylbenzene	ug/L	ND	1.0	04/04/13 23:21	
Iodomethane	ug/L	ND	10.0	04/04/13 23:21	
Methylene Chloride	ug/L	ND	1.0	04/04/13 23:21	
Styrene	ug/L	ND	1.0	04/04/13 23:21	
Tetrachloroethene	ug/L	ND	1.0	04/04/13 23:21	
Tetrahydrofuran	ug/L	ND	10.0	04/04/13 23:21	
Toluene	ug/L	ND	1.0	04/04/13 23:21	
trans-1,2-Dichloroethene	ug/L	ND	5.0	04/04/13 23:21	

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Eden, NC 27288
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2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

METHOD BLANK: 950964 Matrix: Water

Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008, 92153371009, 92153371010, 92153371011

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,3-Dichloropropene	ug/L	ND	1.0	04/04/13 23:21	
trans-1,4-Dichloro-2-butene	ug/L	ND	100	04/04/13 23:21	
Trichloroethene	ug/L	ND	1.0	04/04/13 23:21	
Trichlorofluoromethane	ug/L	ND	1.0	04/04/13 23:21	
Vinyl acetate	ug/L	ND	50.0	04/04/13 23:21	
Vinyl chloride	ug/L	ND	1.0	04/04/13 23:21	
Xylene (Total)	ug/L	ND	5.0	04/04/13 23:21	
1,2-Dichloroethane-d4 (S)	%	103	70-130	04/04/13 23:21	
4-Bromofluorobenzene (S)	%	96	70-130	04/04/13 23:21	
Dibromofluoromethane (S)	%	102	70-130	04/04/13 23:21	
Toluene-d8 (S)	%	101	70-130	04/04/13 23:21	

LABORATORY CONTROL SAMPLE: 950965

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	52.3	105	70-130	
1,1,1-Trichloroethane	ug/L	50	52.2	104	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	49.8	100	70-130	
1,1,2-Trichloroethane	ug/L	50	53.1	106	70-130	
1,1-Dichloroethane	ug/L	50	50.4	101	70-130	
1,1-Dichloroethene	ug/L	50	51.5	103	70-132	
1,2,3-Trichloropropane	ug/L	50	53.3	107	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	48.1	96	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	53.1	106	70-130	
1,2-Dichlorobenzene	ug/L	50	52.2	104	70-130	
1,2-Dichloroethane	ug/L	50	49.2	98	70-130	
1,2-Dichloropropane	ug/L	50	53.9	108	70-130	
1,4-Dichlorobenzene	ug/L	50	51.2	102	70-130	
2-Butanone (MEK)	ug/L	100	109	109	70-145	
2-Hexanone	ug/L	100	96.5	97	70-144	
4-Methyl-2-pentanone (MIBK)	ug/L	100	98.7J	99	70-140	
Acetone	ug/L	100	94.0J	94	50-175	
Acrylonitrile	ug/L	250	244	97	70-143	
Benzene	ug/L	50	51.1	102	70-130	
Bromochloromethane	ug/L	50	53.5	107	70-130	
Bromodichloromethane	ug/L	50	49.5	99	70-130	
Bromoform	ug/L	50	55.3	111	70-130	
Bromomethane	ug/L	50	45.5	91	54-130	
Carbon disulfide	ug/L	50	49.4J	99	70-131	
Carbon tetrachloride	ug/L	50	53.0	106	70-132	
Chlorobenzene	ug/L	50	52.6	105	70-130	
Chloroethane	ug/L	50	45.9	92	64-134	
Chloroform	ug/L	50	50.1	100	70-130	
Chloromethane	ug/L	50	40.6	81	64-130	

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Eden, NC 27288
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2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

LABORATORY CONTROL SAMPLE: 950965

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
cis-1,2-Dichloroethene	ug/L	50	50.3	101	70-131	
cis-1,3-Dichloropropene	ug/L	50	57.1	114	70-130	
Dibromochloromethane	ug/L	50	54.0	108	70-130	
Dibromomethane	ug/L	50	51.2	102	70-131	
Ethylbenzene	ug/L	50	53.0	106	70-130	
Iodomethane	ug/L	100	97.9	98	49-180	
Methylene Chloride	ug/L	50	48.0	96	63-130	
Styrene	ug/L	50	50.4	101	70-130	
Tetrachloroethene	ug/L	50	53.1	106	70-130	
Tetrahydrofuran	ug/L	500	535	107	70-130	
Toluene	ug/L	50	50.1	100	70-130	
trans-1,2-Dichloroethene	ug/L	50	49.4	99	70-130	
trans-1,3-Dichloropropene	ug/L	50	59.0	118	70-132	
trans-1,4-Dichloro-2-butene	ug/L	50	49.5J	99	70-141	
Trichloroethene	ug/L	50	50.2	100	70-130	
Trichlorofluoromethane	ug/L	50	48.5	97	62-133	
Vinyl acetate	ug/L	100	105	105	66-157	
Vinyl chloride	ug/L	50	37.4	75	69-130	
Xylene (Total)	ug/L	150	160	107	70-130	
1,2-Dichloroethane-d4 (S)	%			99	70-130	
4-Bromofluorobenzene (S)	%			102	70-130	
Dibromofluoromethane (S)	%			99	70-130	
Toluene-d8 (S)	%			96	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 950966 950967

Parameter	Units	92153371009 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethene	ug/L	ND	50	50	54.3	55.0	109	110	70-166	1	30	
Benzene	ug/L	ND	50	50	55.4	59.0	111	118	70-148	6	30	
Chlorobenzene	ug/L	ND	50	50	56.3	55.1	113	110	70-146	2	30	
Toluene	ug/L	ND	50	50	53.3	55.1	107	110	70-155	3	30	
Trichloroethene	ug/L	ND	50	50	55.9	57.2	112	114	69-151	2	30	
1,2-Dichloroethane-d4 (S)	%						100	100	70-130			
4-Bromofluorobenzene (S)	%						95	96	70-130			
Dibromofluoromethane (S)	%						102	103	70-130			
Toluene-d8 (S)	%						95	100	70-130			

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(828)254-7176

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9800 Kincey Ave. Suite 100
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QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

QC Batch: WET/24837 — Analysis Method: SM 2320B
QC Batch Method: SM 2320B — Analysis Description: 2320B Alkalinity
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008, 92153371009

METHOD BLANK: 950702 — Matrix: Water
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008, 92153371009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	ug/L	ND	5000	04/04/13 16:20	

LABORATORY CONTROL SAMPLE: 950703

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	ug/L	50000	47200	94	90-110	

MATRIX SPIKE SAMPLE: 950705

Parameter	Units	92153202001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	ug/L	26.6 mg/L	50000	73500	94	75-125	

MATRIX SPIKE SAMPLE: 950707

Parameter	Units	92153371006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	ug/L	36200	50000	81900	92	75-125	

SAMPLE DUPLICATE: 950704

Parameter	Units	92153202001 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	ug/L	26.6 mg/L	26600	0	20	

SAMPLE DUPLICATE: 950706

Parameter	Units	92153371006 Result	Dup Result	RPD	Max RPD	Qualifiers
Alkalinity, Total as CaCO3	ug/L	36200	36600	1	20	

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QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

QC Batch: WET/24835 — Analysis Method: SM 2540C
QC Batch Method: SM 2540C — Analysis Description: 2540C Total Dissolved Solids
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008, 92153371009

METHOD BLANK: 950499 — Matrix: Water
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008, 92153371009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	ug/L	ND	25000	04/04/13 10:43	

LABORATORY CONTROL SAMPLE: 950500

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	ug/L	250000	260000	104	80-120	

SAMPLE DUPLICATE: 950501

Parameter	Units	92153135001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	ug/L	309 mg/L	308000	0	20	

SAMPLE DUPLICATE: 950502

Parameter	Units	92153371008 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	ug/L	91000	87000	4	20	

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(828)254-7176

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9800 Kincey Ave. Suite 100
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QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

QC Batch: WETA/14932
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 92153371009

METHOD BLANK: 950452
Matrix: Water
Associated Lab Samples: 92153371009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	ug/L	ND	250000	04/04/13 20:16	

LABORATORY CONTROL SAMPLE: 950453

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	ug/L	20000	19500J	98	90-110	

MATRIX SPIKE SAMPLE: 950454

Parameter	Units	92153112001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	ug/L	4.1 mg/L	20000	23700J	98	90-110	

MATRIX SPIKE SAMPLE: 950456

Parameter	Units	92153278002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	ug/L	23.8 mg/L	20000	37800J	70	90-110	M1

SAMPLE DUPLICATE: 950455

Parameter	Units	92153112001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	ug/L	4.1 mg/L	4130J	0	20	

SAMPLE DUPLICATE: 950457

Parameter	Units	92153278002 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	ug/L	23.8 mg/L	20800J	13	20	

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Asheville, NC 28804
(828)254-7176

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

QC Batch: WETA/14933 Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008

METHOD BLANK: 950460 Matrix: Water
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	ug/L	ND	250000	04/04/13 18:26	

LABORATORY CONTROL SAMPLE: 950461

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	ug/L	20000	19200J	96	90-110	

MATRIX SPIKE SAMPLE: 950462

Parameter	Units	92153135001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Sulfate	ug/L	89.7 mg/L	20000	104000J	70	90-110	M1

SAMPLE DUPLICATE: 950463

Parameter	Units	92153135001 Result	Dup Result	RPD	Max RPD	Qualifiers
Sulfate	ug/L	89.7 mg/L	74300J	19	20	

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9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

QC Batch: WETA/15009 — Analysis Method: SM 4500-Cl-E
QC Batch Method: SM 4500-Cl-E — Analysis Description: 4500 Chloride
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008, 92153371009

METHOD BLANK: 956207 — Matrix: Water
Associated Lab Samples: 92153371001, 92153371002, 92153371003, 92153371004, 92153371005, 92153371006, 92153371007, 92153371008, 92153371009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	ug/L	ND	1000	04/14/13 17:36	

LABORATORY CONTROL SAMPLE: 956208

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	20000	20100	101	90-110	

MATRIX SPIKE SAMPLE: 956209

Parameter	Units	92153270001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	148 mg/L	20000	167000	97	75-125	

SAMPLE DUPLICATE: 956210

Parameter	Units	92153278003 Result	Dup Result	RPD	Max RPD	Qualifiers
Chloride	ug/L	182 mg/L	177000	3	20	

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205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-C	Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92153371001	**0105-MW2**	EPA 3010	MPRP/12988	EPA 6010	ICP/11835
92153371002	**0105-MW4**	EPA 3010	MPRP/12988	EPA 6010	ICP/11835
92153371003	**0105-MW6**	EPA 3010	MPRP/12988	EPA 6010	ICP/11835
92153371004	**0105-MW7**	EPA 3010	MPRP/12988	EPA 6010	ICP/11835
92153371005	**0105-MW8**	EPA 3010	MPRP/12994	EPA 6010	ICP/11840
92153371006	**0105-MW10S**	EPA 3010	MPRP/12994	EPA 6010	ICP/11840
92153371007	**0105-P19S**	EPA 3010	MPRP/12994	EPA 6010	ICP/11840
92153371008	**0105-SW1**	EPA 3010	MPRP/12994	EPA 6010	ICP/11840
92153371009	**0105-SW2**	EPA 3010	MPRP/12994	EPA 6010	ICP/11840
92153371010	**0105-Field Blank**	EPA 3010	MPRP/12994	EPA 6010	ICP/11840
92153371001	**0105-MW2**	EPA 7470	MERP/5065	EPA 7470	MERC/4928
92153371002	**0105-MW4**	EPA 7470	MERP/5065	EPA 7470	MERC/4928
92153371003	**0105-MW6**	EPA 7470	MERP/5065	EPA 7470	MERC/4928
92153371004	**0105-MW7**	EPA 7470	MERP/5065	EPA 7470	MERC/4928
92153371005	**0105-MW8**	EPA 7470	MERP/5065	EPA 7470	MERC/4928
92153371006	**0105-MW10S**	EPA 7470	MERP/5065	EPA 7470	MERC/4928
92153371007	**0105-P19S**	EPA 7470	MERP/5065	EPA 7470	MERC/4928
92153371008	**0105-SW1**	EPA 7470	MERP/5065	EPA 7470	MERC/4928
92153371009	**0105-SW2**	EPA 7470	MERP/5065	EPA 7470	MERC/4928
92153371010	**0105-Field Blank**	EPA 7470	MERP/5065	EPA 7470	MERC/4928
92153371001	**0105-MW2**	EPA 8260	MSV/22554		
92153371002	**0105-MW4**	EPA 8260	MSV/22554		
92153371003	**0105-MW6**	EPA 8260	MSV/22554		
92153371004	**0105-MW7**	EPA 8260	MSV/22554		
92153371005	**0105-MW8**	EPA 8260	MSV/22554		
92153371006	**0105-MW10S**	EPA 8260	MSV/22554		
92153371007	**0105-P19S**	EPA 8260	MSV/22554		
92153371008	**0105-SW1**	EPA 8260	MSV/22554		
92153371009	**0105-SW2**	EPA 8260	MSV/22554		
92153371010	**0105-Field Blank**	EPA 8260	MSV/22554		
92153371011	**0105-Trip Blank**	EPA 8260	MSV/22554		
92153371001	**0105-MW2**	SM 2320B	WET/24837		
92153371002	**0105-MW4**	SM 2320B	WET/24837		
92153371003	**0105-MW6**	SM 2320B	WET/24837		
92153371004	**0105-MW7**	SM 2320B	WET/24837		
92153371005	**0105-MW8**	SM 2320B	WET/24837		
92153371006	**0105-MW10S**	SM 2320B	WET/24837		
92153371007	**0105-P19S**	SM 2320B	WET/24837		
92153371008	**0105-SW1**	SM 2320B	WET/24837		
92153371009	**0105-SW2**	SM 2320B	WET/24837		
92153371001	**0105-MW2**	SM 2540C	WET/24835		
92153371002	**0105-MW4**	SM 2540C	WET/24835		
92153371003	**0105-MW6**	SM 2540C	WET/24835		
92153371004	**0105-MW7**	SM 2540C	WET/24835		
92153371005	**0105-MW8**	SM 2540C	WET/24835		
92153371006	**0105-MW10S**	SM 2540C	WET/24835		

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Huntersville, NC 28078
(704)875-9092

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Coble's Sandrock 419.1303.12
Pace Project No.: 92153371

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92153371007	**0105-P19S**	SM 2540C	WET/24835		
92153371008	**0105-SW1**	SM 2540C	WET/24835		
92153371009	**0105-SW2**	SM 2540C	WET/24835		
92153371001	**0105-MW2**	EPA 300.0	WETA/14933		
92153371002	**0105-MW4**	EPA 300.0	WETA/14933		
92153371003	**0105-MW6**	EPA 300.0	WETA/14933		
92153371004	**0105-MW7**	EPA 300.0	WETA/14933		
92153371005	**0105-MW8**	EPA 300.0	WETA/14933		
92153371006	**0105-MW10S**	EPA 300.0	WETA/14933		
92153371007	**0105-P19S**	EPA 300.0	WETA/14933		
92153371008	**0105-SW1**	EPA 300.0	WETA/14933		
92153371009	**0105-SW2**	EPA 300.0	WETA/14932		
92153371001	**0105-MW2**	SM 4500-Cl-E	WETA/15009		
92153371002	**0105-MW4**	SM 4500-Cl-E	WETA/15009		
92153371003	**0105-MW6**	SM 4500-Cl-E	WETA/15009		
92153371004	**0105-MW7**	SM 4500-Cl-E	WETA/15009		
92153371005	**0105-MW8**	SM 4500-Cl-E	WETA/15009		
92153371006	**0105-MW10S**	SM 4500-Cl-E	WETA/15009		
92153371007	**0105-P19S**	SM 4500-Cl-E	WETA/15009		
92153371008	**0105-SW1**	SM 4500-Cl-E	WETA/15009		
92153371009	**0105-SW2**	SM 4500-Cl-E	WETA/15009		

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Pace Analytical	Sample Condition Upon Receipt (SCUR)	Page 1 of 2
	Document Number: F-CHR-CS-03-rev.10	Issuing Authority: Pace Huntersville Quality Office

Client Name: Doyle

Where Received: ☒ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☑ no Seals intact: ☐ yes ☐ no

Optional
Proj. Due Date:
Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun T1101 T1102 **Type of Ice:** Wet Blue None ☒ Samples on ice, cooling process has begun

Temp Correction Factor **T1101**: No Correction **T1102**: No Correction

Corrected Cooler Temp.: 2.9 C **Biological Tissue is Frozen:** Yes No N/A

Date and Initials of person examining contents: 04/03/13

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC:	☑Yes ☐No ☐N/A	12.
-Includes date/time/ID/Analysis Matrix: WT		
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☑Yes ☐No ☐N/A	16.
Trip Blank Custody Seals Present	☑Yes ☐No ☐N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review:	JG	**Date:**	4/3/13
SRF Review:	JG	**Date:**	4/4/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO# : 92153371

92153371

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page : 1 Of 1

Section A
Required Client Information:

Company:	Joyce Engineering-Greensboro
Address:	2211 W. Meadowview Rd
	Greensboro, NC 27407
Email To:	aeverhart@joyceengineering.com
Phone:	336-323-0023 Fax
Requested Due Date/TAT:	10 Day (Default)

Section B
Required Project Information:

Report To:	Alex Everhart
Copy To:	
Purchase Order No.	
Client Project ID:	Coble's Sandrock 419.1301.12
Container Order Number:	

Section C
Invoice Information:

Attention:	Lecia Jones
Company Name:	Joyce Engineering
Address:	1604 Ownby Lane, Richmond, VA 23220
Pace Quote Reference:	
Pace Project Manager:	Godwin, Kevin
Pace Profile #:	2186-18

Regulatory Agency

State / Location
North Carolina

Requested Analysis Filtered (Y/N)

MATRIX CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ITEM#	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test (Y/N): NC App I Metals	NC App I 8260	Mercury	Chloride	Manganese	Sulfate	Iron	Alkalinity	TDS	THF			Residual Chlorine (Y/N)	92153371
1	0105-MW2 ~~(MS/MSD)~~	WT	G			4/2/13	1100											X	X	X	X	X	X	X	X	X	X				No MS/MSD W1
2	0105-MW4	WT	G				1109											X	X	X	X	X	X	X	X	X	X				W2
3	0105-MW6	WT	G				1003											X	X	X	X	X	X	X	X	X	X				W3
4	0105-MW7	WT	G				1126											X	X	X	X	X	X	X	X	X	X				W4
5	0105-MW8	WT	G				1145											X	X	X	X	X	X	X	X	X	X				W5
6	0105-MW10S	WT	G				1200											X	X	X	X	X	X	X	X	X	X				W6
7	0105-P19S	WT	G				1025											X	X	X	X	X	X	X	X	X	X				W7
8	0105-SW1	WT	G				1115											X	X	X	X	X	X	X	X	X	X				W8
9	0105-SW2	WT	G				1035											X	X	X	X	X	X	X	X	X	X				W9
10	0105-Field Blank	WT	G			↓	1215											X	X	X		X		X			X				W10
11	0105-Trip Blank	WT	G			4/1/13	1000												X								X				W11
12																															

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	[illegible] / JOYCE	4/3/13	1200	[illegible] PACE	4/3/13	1200				
	[illegible] / PACE	4/3/13	1645	[illegible] PACE	4/3/13	1645	2.0	Y	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: ADAM COX, AMANDA FREEMAN

SIGNATURE of SAMPLER: Adam Cox, [illegible] DATE Signed: 4/2/13

TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)

DATE: 4/1-2/2013

JOYCE ENGINEERING

GROUND WATER SAMPLING LOG

Project Name: COBLE'S SANDROCK & LF **Project No. /Task No.:** 419.1301.12.01

Well ID: 0105-MW2 **Sampler(s):** A. Cox / A. Freeman

Well Location: near top of hill; west side of LF

Well Diameter: 2 inches

Initial Depth to Water (DTW): 12.80 feet

Depth to Bottom (DTB): 22.98 feet

Water Column Thickness (WCT): 10.18 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 1.7 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 5.1 gallons

Actual Amount Purged/Bailed: 5.1 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling: 13.02 feet

Gallons	Time	Temp(°C)	pH	Cond. (µS)	Turb.(ntu)	Initials
0	1132	15.9	5.30	96.4	40.8	AC
1.7	1135	15.2	5.78	101.0	60	AC
3.4	1139	15.4	5.76	91.5	64	AC
5.1	1142	15.4	5.77	88.6	61	AC
	4/2/13					
Before Sampling	1100	14.9	6.03	88.8	67.3	AF

Comments (weather conditions, odor, color, silt, etc.):

4/1/13- Sunny, 70's

4/2/13- Sunny, 60's

Signature: Adam Cox **Date:** 4/2/13

QA/QC Sign Off: Amanda Freeman **Date:** 4/5/13

DATE: 4/1-2/2013

JOYCE ENGINEERING

GROUND WATER SAMPLING LOG

Project Name: COBLE'S SANDROCK & LF **Project No. /Task No.:** 419.1301.12.01

Well ID: 0105-MW4 **Sampler(s):** A. Cox / A. Freeman

Well Location: between MW-5 and MW-2

Well Diameter: 2 inches

Initial Depth to Water (DTW): 13.12 feet

Depth to Bottom (DTB): 24.22 feet

Water Column Thickness (WCT): 11.10 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 1.8 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 5.4 gallons

Actual Amount Purged/Bailed: 5.4 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling: 13.29 feet

Gallons	Time	Temp(°C)	pH	Cond. (µS)	Turb.(ntu)	Initials
0	1358	17.1	6.63	82.2	36	AF
1.8	1402	15.6	6.38	72.7	54	AF
3.6	1406	16.2	6.06	71.9	719	AF
5.4	1410	16.7	6.00	155.0	>1000	AF
	4/2/13					
Before Sampling	1109	14.8	5.87	153.4	51.7	AF

Comments (weather conditions, odor, color, silt, etc.):

4/1/13- Sunny 70's

4/2/13- Sunny 60's

Signature: Adam Cox **Date:** 4/2/13

QA/QC Sign Off: Amanda Freeman **Date:** 4/5/13

DATE: 4/1-2/2013

JOYCE ENGINEERING

GROUND WATER SAMPLING LOG

Project Name: COBLE'S SANDROCK & LF **Project No. /Task No.:** 419.1301.12.01

Well ID: 0105-MW6 **Sampler(s):** A. Cox / A. Freeman

Well Location: flush mount in field that is fenced before the fill area (former P-3)

Well Diameter: 2 inches

Initial Depth to Water (DTW): 26.14 feet

Depth to Bottom (DTB): 41.00 feet

Water Column Thickness (WCT): 14.86 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 2.4 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 7.2 gallons

Actual Amount Purged/Bailed: 7.2 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling: - feet

Gallons	Time	Temp(°C)	pH	Cond. (µS)	Turb.(ntu)	Initials
0	1055	17.3	5.96	192.4	4.85	AF
2.4	1102	16.8	5.91	176.4	19.8	AF
4.8	1109	16.8	5.92	178.0	37	AF
7.2	1115	16.8	5.86	188.5	54	AF
	4/2/2013					
Before Sampling	1003	16.3	5.99	162.9	15.0	AF

Comments (weather conditions, odor, color, silt, etc.):

4/1/2013- Sunny 70's

4/2/2013- Sunny 60's

Signature: Adam Cox **Date:** 4/2/13

QA/QC Sign Off: Amanda Freeman **Date:** 4/5/13

DATE: 4/1-2/2013

JOYCE ENGINEERING

GROUND WATER SAMPLING LOG

Project Name: COBLE'S SANDROCK & LF **Project No. /Task No.:** 419.1301.12.01

Well ID: 0105-MW7 **Sampler(s):** A. Cox / A. Freeman

Well Location: Westside of the landfill near MW5

Well Diameter: 2 inches

Initial Depth to Water (DTW): 9.0 feet

Depth to Bottom (DTB): 16.00 feet

Water Column Thickness (WCT): 7.0 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 1.1 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 3.3 gallons

Actual Amount Purged/Bailed: 3.3 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling: 9.15 feet

Gallons	Time	Temp(°C)	pH	Cond. (µS)	Turb.(ntu)	Initials
0	1337	17.0	6.48	179.3	17.2	AF
1.1	1339	15.9	6.57	1834	57	AF
2.2	1341	15.9	6.60	1767	671	AF
3.3	1343	15.8	6.62	1715	>1000	AF
	4/2/2103					
Before Sampling	1126	15.9	6.54	1803	27.1	AF

Comments (weather conditions, odor, color, silt, etc.):

4/1/2013- Sunny 70's

4/2/2013- Sunny 60's

Signature: Adam Cox **Date:** 4/2/13

QA/QC Sign Off: Amanda Freeman **Date:** 4/5/13

DATE: 4/1-2/2013

JOYCE ENGINEERING

GROUND WATER SAMPLING LOG

Project Name: COBLE'S SANDROCK & LF **Project No. /Task No.:** 419.1301.12.01

Well ID: 0105-MW8 **Sampler(s):** A. Cox / A. Freeman

Well Location: backside of the landfill along perimeter road

Well Diameter: 2 inches

Initial Depth to Water (DTW): 4.35 feet

Depth to Bottom (DTB): 22.76 feet

Water Column Thickness (WCT): 18.41 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 3.0 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 9.0 gallons

Actual Amount Purged/Bailed: 9.0 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling: 5.51 feet

Gallons	Time	Temp(°C)	pH	Cond. (µS)	Turb.(ntu)	Initials
0	1258	14.2	6.26	139.1	74	AF
3.0	1303	14.3	6.39	142.2	>1000	AF
6.0	1306	14.2	6.36	141.1	>1000	AF
9.0	1309	13.9	6.34	140.6	>1000	AF
	4/2/13					
Before Sampling	1145	14.6	7.41	140.8	19.5	AF

Comments (weather conditions, odor, color, silt, etc.):

4/1/2013- Sunny 70's

4/2/2013- Sunny 60's

Signature: Adam Cox **Date:** 4/2/13

QA/QC Sign Off: Amanda Freeman **Date:** 4/5/13

DATE: 4/1-2/2013

JOYCE ENGINEERING

GROUND WATER SAMPLING LOG

Project Name: COBLE'S SANDROCK & LF **Project No. /Task No.:** 419.1301.12.01

Well ID: 0105-MW10S **Sampler(s):** A. Cox / A. Freeman

Well Location: side of the landfill along perimeter road

Well Diameter: 2 inches

Initial Depth to Water (DTW): 7.31 feet

Depth to Bottom (DTB): 24.34 feet

Water Column Thickness (WCT): 17.03 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 2.8 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 8.4 gallons

Actual Amount Purged/Bailed: 8.4 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling: - feet

Gallons	Time	Temp(°C)	pH	Cond. (µS)	Turb.(ntu)	Initials
0	1505	12.9	6.06	199.9	6.87	AF
2.8	1508	12.1	6.23	213	46.5	AF
5.6	1511	12.6	6.13	199.9	63.1	AF
8.4	1514	12.9	6.06	178.8	684	AF
	4/2/2013					
Before Sampling	1200	11.4	6.55	176.7	57.9	AF

Comments (weather conditions, odor, color, silt, etc.):

4/1/2013- Sunny 70's

4/2/2013- Sunny 60's

Field Blank @ 1215

Signature: Adam Cox **Date:** 4/2/13

QA/QC Sign Off: Amanda Freeman **Date:** 4/5/13

DATE: 4/1-2/2013

JOYCE ENGINEERING

GROUND WATER SAMPLING LOG

Project Name: COBLE'S SANDROCK & LF **Project No. /Task No.:** 419.1301.12.01

Well ID: 0105-P19S **Sampler(s):** A. Cox / A. Freeman

Well Location: backside of the landfill towards bridge in the woods

Well Diameter: 2 inches

Initial Depth to Water (DTW): 4.63 feet

Depth to Bottom (DTB): 13.00 feet

Water Column Thickness (WCT): 8.37 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 1.4 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 4.2 gallons

Actual Amount Purged/Bailed: 4.2 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling: 4.87 feet

Gallons	Time	Temp(°C)	pH	Cond. (µS)	Turb.(ntu)	Initials
0	1150	12.4	6.08	346	>1000	AF
1.4	1154	11.1	6.13	319	>1000	AF
2.8	1158	10.8	6.25	309	>1000	AF
4.2	1202	10.7	6.25	308	>1000	AF
	4/2/2013					
Before Sampling	1025	10.5	6.33	311	48.2	AF

Comments (weather conditions, odor, color, silt, etc.):

4/1/2013- Sunny 70's

4/2/2013- Sunny 60's

Signature: Adam Cox **Date:** 4/2/13

QA/QC Sign Off: Amanda Freeman **Date:** 4/5/13

DATE: 4/2/2013

JOYCE ENGINEERING

SURFACE WATER MONITORING LOG

Project Name: COBLE'S SANDROCK LF **Project/Task No.:** 419.1301.12.01

Surface Point ID: 0105-SW1 **Sampler(s):** A. Cox / A. Freeman

Location: Stream near MW4

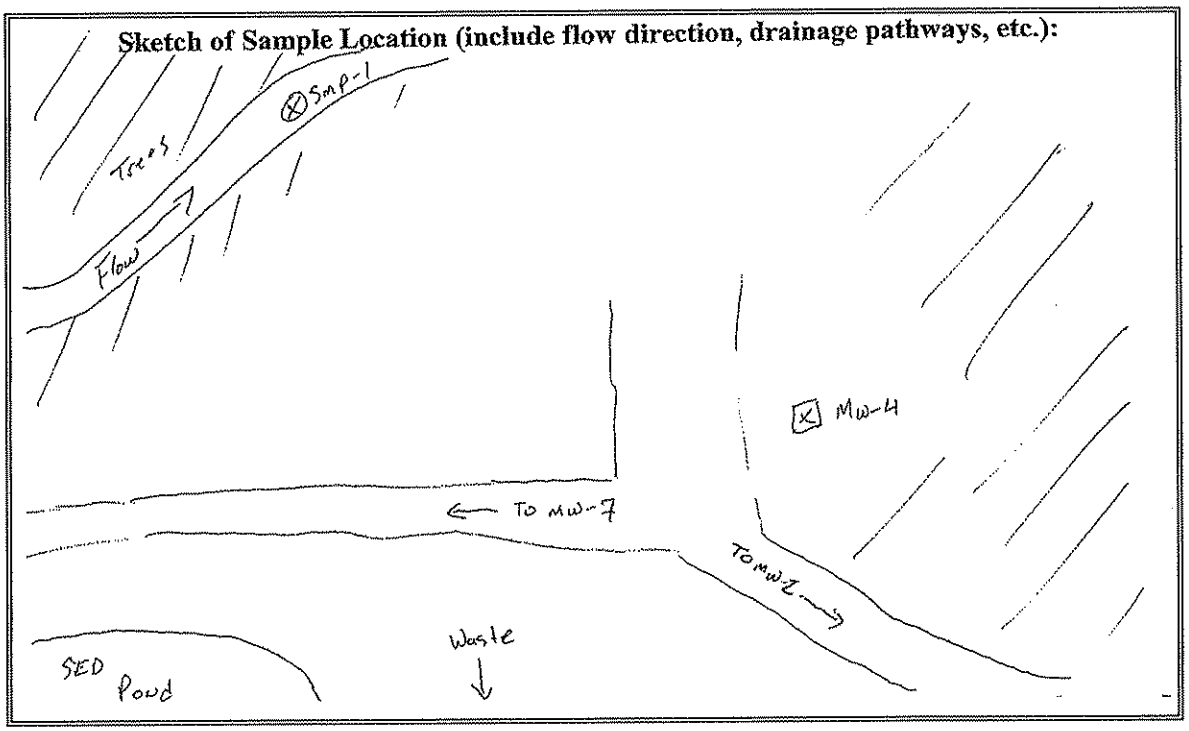
Field Parameters:

Time of Sampling:	1115	
pH:	6.53	
Temperature:	14.4	(°C)
Conductivity:	133.2	(µS)
Turbidity:	14.7	(ntu)

Comments/Sample Description (weather conditions, odor, color, silt, etc.):

Sunny 60's

Sketch of Sample Location (include flow direction, drainage pathways, etc.):



Signature: Adam Cox **Date:** 4/2/13

QA/QC Sign Off: Amanda Freeman **Date:** 4/5/13

DATE: 4/2/2013

JOYCE ENGINEERING

SURFACE WATER MONITORING LOG

Project Name: COBLE'S SANDROCK LF **Project/Task No.:** 419.1301.12.01

Surface Point ID: 0105-SW2 **Sampler(s):** A. Cox / A. Freeman

Location: off bridge in woods

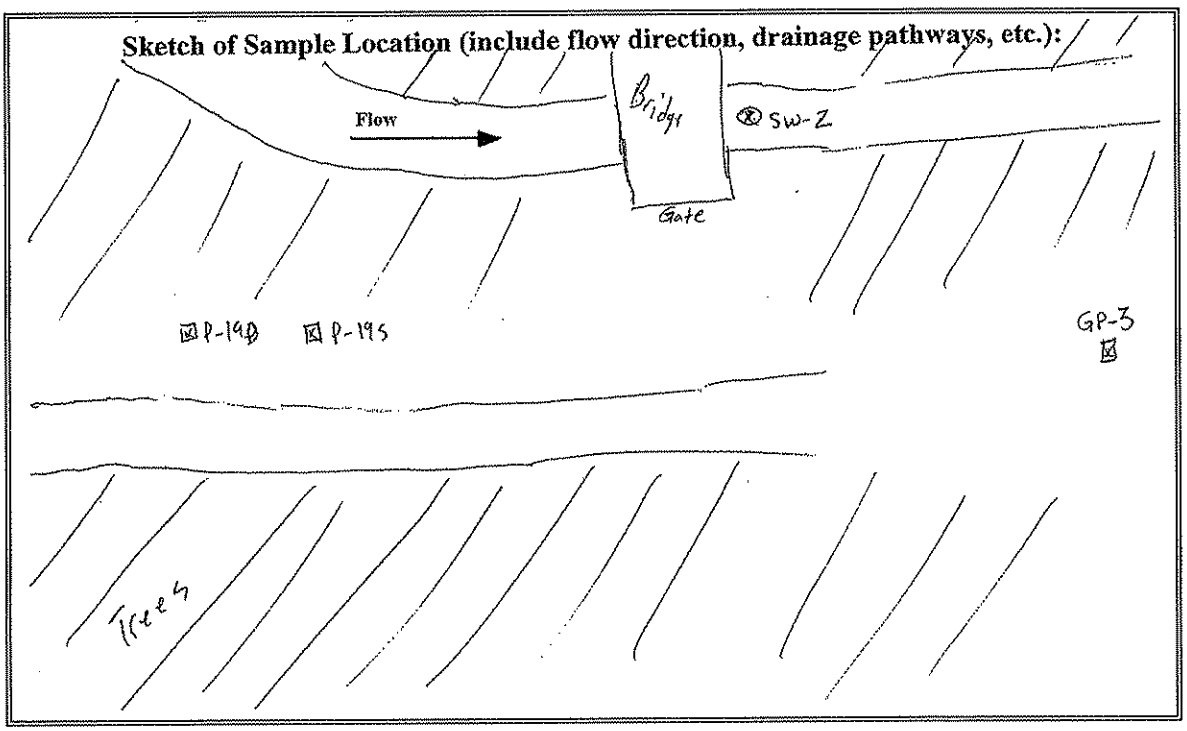
Field Parameters:

Time of Sampling:	1035	
pH:	6.75	
Temperature:	12.23	(°C)
Conductivity:	118.7	(µS)
Turbidity:	11.6	(ntu)

Comments/Sample Description (weather conditions, odor, color, silt, etc.):

Sunny 60's

Sketch of Sample Location (include flow direction, drainage pathways, etc.):



Signature: Adam Cox **Date:** 4/2/13

QA/QC Sign Off: Amanda Freeman **Date:** 4/5/13

Appendix 2 Statistical Analyses Worksheets

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Analyte: **Alkalinity**

Sample No.	Sample Date	Location	Concentration	Quantitation Limit	Sorted Concentration	
1	19-Mar-09	MW-8	61,000 B	5,000	9,940	17,700
2	22-Apr-09	MW-8	57,300 B	5,000	10,100	14,100
3	14-May-09	MW-8	55,700 B	5,000	12,400	14,000
4	08-Oct-09	MW-8	58,000 B	5,000	14,000	12,400
5	19-Mar-09	MW-10S	52,800 B	5,000	14,100	10,100
6	22-Apr-09	MW-10S	52,400 B	5,000	17,700	9,940
7	14-May-09	MW-10S	59,400 B	5,000		
8	08-Oct-09	MW-10S	74,000 B	5,000		
9	19-Mar-09	P-19S	30,500 B	5,000		
10	22-Apr-09	P-19S	32,500 B	5,000		
11	14-May-09	P-19S	30,700 B	5,000		
12	08-Oct-09	P-19S	70,000 B	5,000		
13	27-Apr-10	MW-6	8,200 B	5,000		
14	12-Oct-10	MW-6	12,400	5,000		
15	14-Apr-11	MW-6	14,000	5,000		
16	13-Oct-11	MW-6	17,700	5,000		
17	17-Apr-12	MW-6	10,100	5,000		
18	9-Oct-12	MW-6	14,100	5,000		
19	2-Apr-13	MW-6	9,940	5,000		

Number of Data:	6
Number of Truncated Data:	0
Percentage of Truncated Data:	0%

Parametric Tolerance Interval (UTL): 23,838

- All concentrations in micrograms per liter (µg/L).
- B = Blank qualified data not used in statistical calculations.
- Background data included from MW-8, MW-10S, and P-19S.
- Background well MW-6.

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Probability Plots to determine the distribution of **Alkalinity**

Complete the following table where

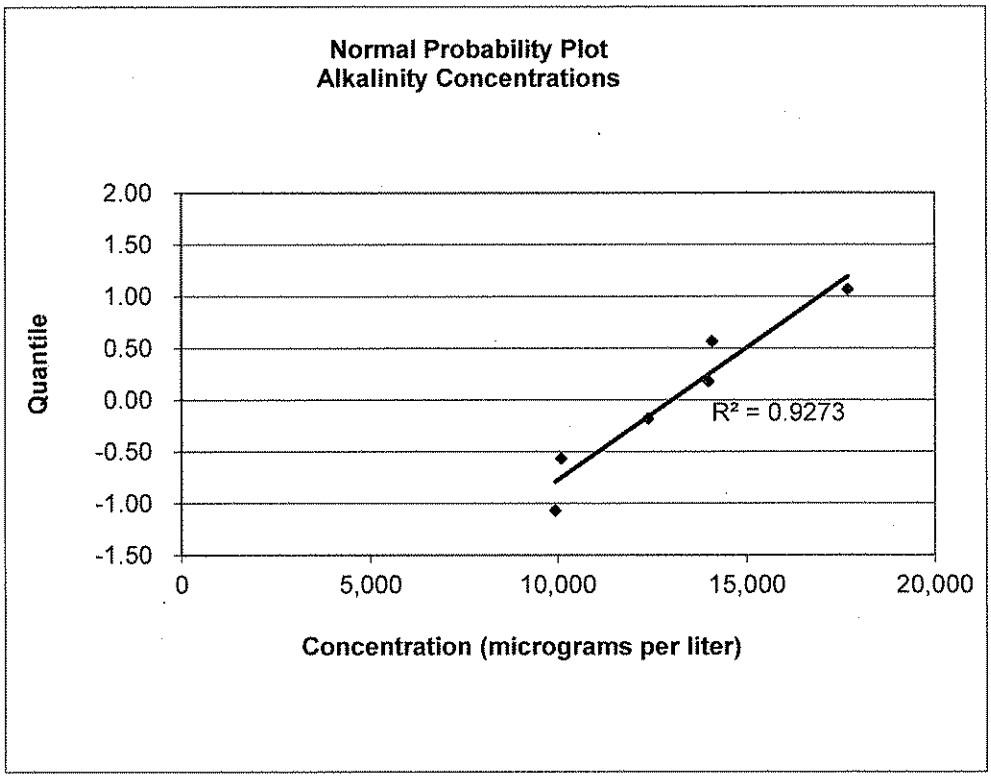
i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
LN[X(i)] = Natural Log Value of sample concentrations arranged from smallest to largest
[i/(n+1)] = Cumulative probability
n = number of samples = 6

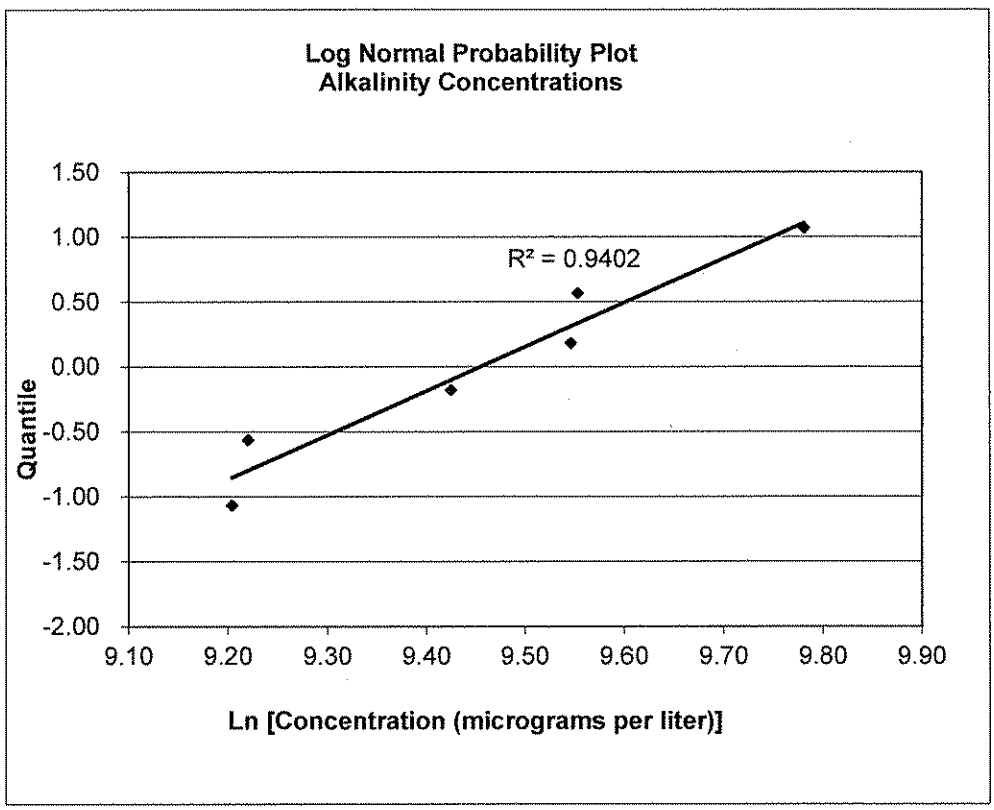
X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
9,940	9.20	1	1	0.143	-1.07
10,100	9.22	2	2	0.286	-0.57
12,400	9.43	3	3	0.429	-0.18
14,000	9.55	4	4	0.571	0.18
14,100	9.55	5	5	0.714	0.57
17,700	9.78	6	6	0.857	1.07

Plot analysis indicates that the data more closely follow a normal distribution in the log-transformed format.

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Probability Plots to determine the distribution of **Alkalinity**





JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Determination of reported background value as an outlier

Analyte: **Alkalinity**

Background Data

Sample No.	Sample Date	Location	ln(Concentration) (ug/l)	Quantitation Limit (ug/l)
1	19-Mar-09	MW-8	61,000 B	5,000
2	22-Apr-09	MW-8	57,300 B	5,000
3	14-May-09	MW-8	55,700 B	5,000
4	08-Oct-09	MW-8	58,000 B	5,000
5	19-Mar-09	MW-10S	52,800 B	5,000
6	22-Apr-09	MW-10S	52,400 B	5,000
7	14-May-09	MW-10S	59,400 B	5,000
8	08-Oct-09	MW-10S	74,000 B	5,000
9	19-Mar-09	P-19S	30,500 B	5,000
10	22-Apr-09	P-19S	32,500 B	5,000
11	14-May-09	P-19S	30,700 B	5,000
12	08-Oct-09	P-19S	70,000 B	5,000
13	27-Apr-10	MW-6	8,200 B	5,000
14	12-Oct-10	MW-6	9.425	5,000
15	14-Apr-11	MW-6	9.547	5,000
16	13-Oct-11	MW-6	9.781	5,000
17	17-Apr-12	MW-6	9.220	5,000
18	09-Oct-12	MW-6	9.554	5,000
19	02-Apr-13	MW-6	9.204	5,000
		mean =	9.455	
		STD =	0.221	

Note: All concentrations are micrograms per liter

Using the data listed above, form the statisitc Tn:

Tn = (Xn - mean) / STD

where:
Xn = largest observed sample value
mean = mean of the background values
STD = standard deviation of the background values

For
Xn = 9.781
mean = 9.455
STD = 0.221

Tn = 1.477

From Table 8 included in the Staistical Analysis of Groundwater Monitoring Data at RCRA Facilities - Interim Final Guidance, the critical value for the given sample group i

Number of samples = 6
Tc = 1.822

Since Tc>Tn, the sample result is not considered to be an outlier

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Shapiro Wilk Test Statistic (W) for log normality of total **Alkalinity**

Complete the following table where

i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
X(n-i+1) = sample values arranged from largest to smallest
A(n-i+1) = coefficient from table A-1, Statistical Analysis of Ground-Water Data at RCRA Facilities
B(i) = summation of (X(n-i+1)-X(i))A(n-i+1)

i	X(i)	X(n-i+1)	X(n-i+1) - X(i)	A(n-i+1)	B(i)
1	9.20	9.78	0.58	0.6431	0.37
2	9.22	9.55	0.33	0.2806	0.09
3	9.43	9.55	0.12	0.0875	0.01
4	9.55	9.43	-0.12		
5	9.55	9.22	-0.33		
6	9.78	9.20	-0.58		

The test statistic W can be found using:

W = SQR[B/(SD x SQRT(n-1))]

where:

B =	summation of (X(n-i+1)-X(i))A(n-i+1)	=	0.48
SD =	standard deviation of the data group	=	0.22
n =	number of samples	=	6

W = 0.928

Compare this value to the critical value in Table A-2 of Statistical Analysisof Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance (Draft) July, 1992, to determine if the data is normally distributed.

From Table A-2 with (n) samples and a 95% confidence level, the critical value is

W(crit) = 0.788
and the calculated W = 0.928

Therefore the data set is Log-Normal

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Parametric Tolerance Interval for normally distributed data

Analyte: **Alkalinity**

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	19-Mar-09	MW-8	61,000 B	5,000
2	22-Apr-09	MW-8	57,300 B	5,000
3	14-May-09	MW-8	55,700 B	5,000
4	08-Oct-09	MW-8	58,000 B	5,000
5	19-Mar-09	MW-10S	52,800 B	5,000
6	22-Apr-09	MW-10S	52,400 B	5,000
7	14-May-09	MW-10S	59,400 B	5,000
8	08-Oct-09	MW-10S	74,000 B	5,000
9	19-Mar-09	P-19S	30,500 B	5,000
10	22-Apr-09	P-19S	32,500 B	5,000
11	14-May-09	P-19S	30,700 B	5,000
12	08-Oct-09	P-19S	70,000 B	5,000
13	27-Apr-10	MW-6	8,200 B	5,000
14	12-Oct-10	MW-6	12,400	5,000
15	14-Apr-11	MW-6	14,000	5,000
16	13-Oct-11	MW-6	17,700	5,000
17	17-Apr-12	MW-6	10,100	5,000
18	09-Oct-12	MW-6	14,100	5,000
19	02-Apr-13	MW-6	9,940	5,000

Note: All sample concentrations are micrograms per liter

Using the background data, the upper Tolerance Limit can be determined using:

Upper Tolerance Limit = (Mean Concentration) + K x (Standard Deviation Samples)

where: Mean Conc = mean concentration background samples
K = factor for constructing one sided normal tolerance limit taken from table 4-2, page 87, Statistical Methods for Groundwater Monitoring, Gibbons, 1994
n = number of background samples
STDS = Standard Deviation Samples

For:

n =	6
K =	3.707
Mean Conc =	13,040
STDS =	2,913

UTL = 23,838 µg/L

JOYCE Project: **Cobie's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Analyte: **Barium**

Sample No.	Sample Date	Location	Concentration		Quantitation Limit	Sorted Concentration	
1	Apr-00	MW-3	340		8	32.3	357
2	Nov-00	MW-3	ND		500	37.8	340
3	Apr-01	MW-3	ND		500	37.9	120
4	Dec-01	MW-3	ND		500	41.3	113
5	Apr-02	MW-3	ND		500	42.5	101
6	Nov-02	MW-3	ND		500	42.8	95.0
7	Apr-03	MW-3	ND		500	48.8	85.5
8	19-Mar-09	MW-8	357		100	58.8	74.1
9	22-Apr-09	MW-8	95.0	J	100	59.0	62.4
10	14-May-09	MW-8	101		100	62.4	59.0
11	08-Oct-09	MW-8	120		100	74.1	58.8
12	19-Mar-09	MW-10S	59.0	J	100	85.5	48.8
13	22-Apr-09	MW-10S	56.5 B		100	95.0	42.8
14	14-May-09	MW-10S	49.1 B		100	101	42.5
15	08-Oct-09	MW-10S	85.5	J	100	113	41.3
16	19-Mar-09	P-19S	62.4	J	100	120	37.9
17	22-Apr-09	P-19S	63.2 B		100	340	37.8
18	14-May-09	P-19S	74.1		100	357	32.3
19	08-Oct-09	P-19S	113		100		
20	Nov-03	MW-6	ND		500		
21	Apr-04	MW-6	ND		500		
22	Oct-04	MW-6	ND		500		
23	Apr-05	MW-6	ND		500		
24	Oct-05	MW-6	ND		500		
25	28-Apr-06	MW-6	ND		500		
26	11-Oct-06	MW-6	ND		500		
27	19-Apr-07	MW-6	58.8	J	100		
28	11-Oct-07	MW-6	38.2 B		100		
29	15-Apr-08	MW-6	37.8	J	100		
30	15-Oct-08	MW-6	41.3	J	100		
31	22-Apr-09	MW-6	46.4 B		100		
32	08-Oct-09	MW-6	39.7 B		100		
33	27-Apr-10	MW-6	42.1 B		100		
34	12-Oct-10	MW-6	48.8	J	100		
35	14-Apr-11	MW-6	46.5 B		100		
36	13-Oct-11	MW-6	37.9	J	100		
37	17-Apr-12	MW-6	42.8	J	100		
38	09-Oct-12	MW-6	32.3	J	100		
39	02-Apr-13	MW-6	42.5	J	100		

Number of Data: 31
Number of Truncated Data: 13
Percentage of Truncated Data: 42%

Non-Parametric Prediction Interval 357 µg/L

- All concentrations in micrograms per liter (µg/L).
- J = Estimated value below quantitation linit..
- B = Blank qualified data not used in statistical calculations.
- Background data included from MW-3, MW-8, MW-10S, and P-19S.
- Background well MW-6.

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Probability Plots to determine the distribution of **Barium**

Complete the following table where

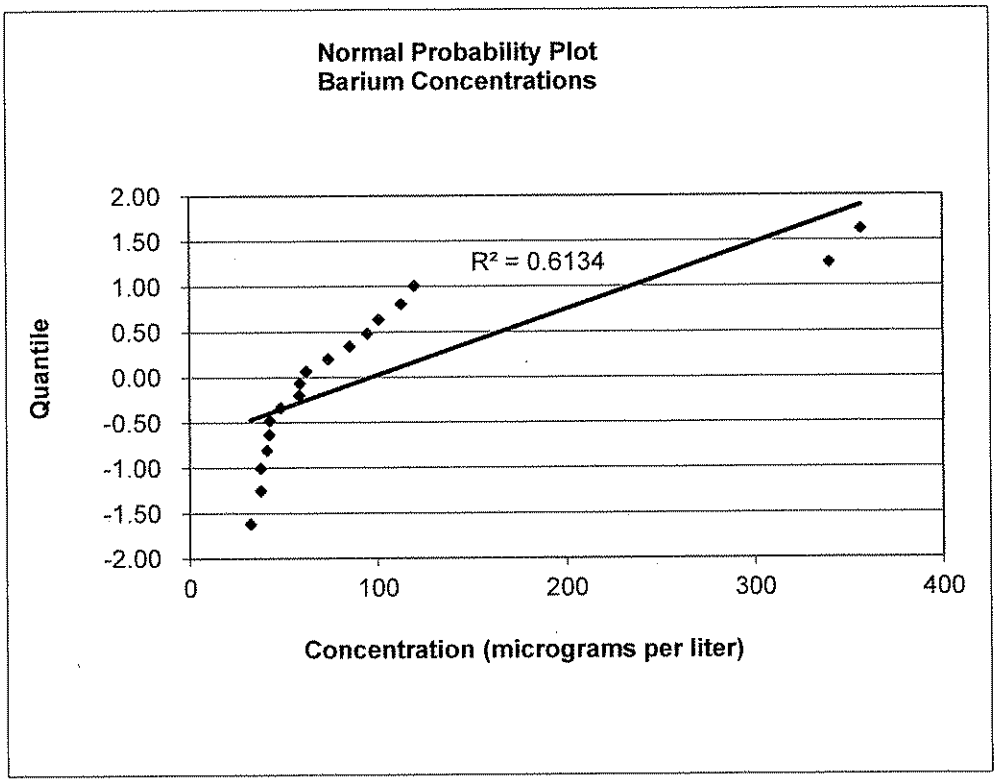
i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
LN[X(i)] = Natural Log Value of sample concentrations arranged from smallest to largest
[i/(n+1)] = Cumulative probability
n = number of samples = 18

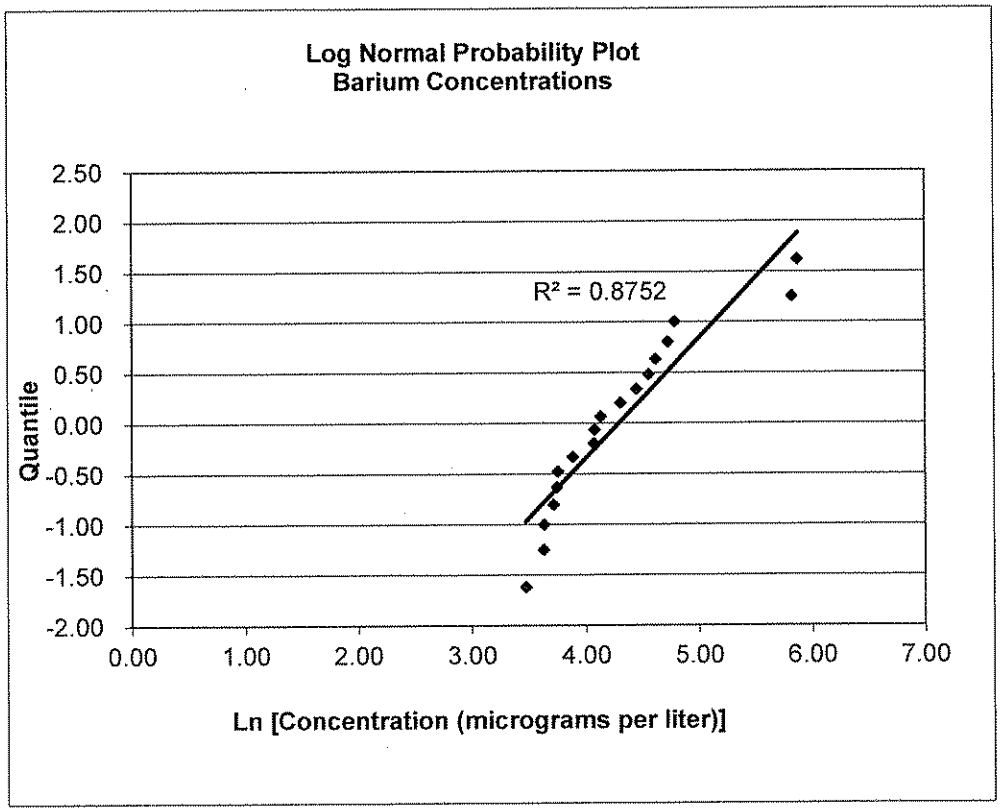
X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
32.3	3.48	1	1	0.053	-1.62
37.8	3.63	2	2	0.105	-1.25
37.9	3.63	3	3	0.158	-1.00
41.3	3.72	4	4	0.211	-0.80
42.5	3.75	5	5	0.263	-0.63
42.8	3.76	6	6	0.316	-0.48
48.8	3.89	7	7	0.368	-0.34
58.8	4.07	8	8	0.421	-0.20
59	4.08	9	9	0.474	-0.07
62.4	4.13	10	10	0.526	0.07
74.1	4.31	11	11	0.579	0.20
85.5	4.45	12	12	0.632	0.34
95	4.55	13	13	0.684	0.48
101	4.62	14	14	0.737	0.63
113	4.73	15	15	0.789	0.80
120	4.79	16	16	0.842	1.00
340	5.83	17	17	0.895	1.25
357	5.88	18	18	0.947	1.62

Plot analysis indicates that the data more closely follow a normal distribution in the log-transformed format.

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Probability Plots to determine the distribution of **Barium**





JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Determination of reported background value as an outlier

Analyte: **Barium**

Background Data

Sample No.	Sample Date	Location	ln(Concentration) (ug/l)		Quantitation Limit (ug/l)
1	Apr-00	MW-3	5.829		8
2	Nov-00	MW-3	ND		500
3	Apr-01	MW-3	ND		500
4	Dec-01	MW-3	ND		500
5	Apr-02	MW-3	ND		500
6	Nov-02	MW-3	ND		500
7	Apr-03	MW-3	ND		500
8	Mar-09	MW-8	5.878		100
9	Apr-09	MW-8	4.554	J	100
10	May-09	MW-8	4.615		100
11	Oct-09	MW-8	4.787		100
12	Mar-09	MW-10S	4.078	J	100
13	Apr-09	MW-10S	56.5 B		100
14	May-09	MW-10S	49.1 B		100
15	Oct-09	MW-10S	4.449	J	100
16	Mar-09	P-19S	4.134	J	100
17	Apr-09	P-19S	63.2 B		100
18	May-09	P-19S	4.305		100
19	Oct-09	P-19S	4.727		100
20	Nov-03	MW-6	ND		500
21	Apr-04	MW-6	ND		500
22	Oct-04	MW-6	ND		500
23	Apr-05	MW-6	ND		500
24	Oct-05	MW-6	ND		500
25	Apr-06	MW-6	ND		500
26	Oct-06	MW-6	ND		500
27	Apr-07	MW-6	4.074	J	100
28	Oct-07	MW-6	38.2 B		100
29	Apr-08	MW-6	3.632	J	100
30	Oct-08	MW-6	3.721	J	100
31	Apr-09	MW-6	46.4 B		100
32	Oct-09	MW-6	39.7 B		100
33	Apr-10	MW-6	42.1 B		100
34	Oct-10	MW-6	3.888	J	100
35	Apr-11	MW-6	46.5 B		100
36	Oct-11	MW-6	3.635	J	100
37	Apr-12	MW-6	3.757	J	100
38	Oct-12	MW-6	3.475	J	100
39	Apr-13	MW-6	3.750	J	100
		mean =	4.294		
		STD =	0.696		

Note: All concentrations are micrograms per liter

Using the data listed above, form the statisitc Tn:

Tn = (Xn - mean) / STD

where: Xn = largest observed sample value
mean = mean of the background values
STD = standard deviation of the background values

For Xn = 5.878
mean = 4.294
STD = 0.696

Tn = 2.276

From Table 8 included in the Staistical Analysis of Groundwater Monitoring Data at RCRA Facilities - Interim Final Guidance, the critical value for the given sample group is

Number of samples = 18
Tc = 2.504

Since Tc>Tn, the sample result is not considered to be an outlier

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Shapiro Wilk Test Statistic (W) for log normality of total **Barium**

Complete the following table where

i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
X(n-i+1) = sample values arranged from largest to smallest
A(n-i+1) = coefficient from table A-1, Statistical Analysis of Ground-Water Data at RCRA Facilities
B(i) = summation of (X(n-i+1)-X(i))A(n-i+1)

i	X(i)	X(n-i+1)	X(n-i+1) - X(i)	A(n-i+1)	B(i)
1	3.48	5.88	2.4027	0.4886	1.17
2	3.63	5.83	2.1966	0.3253	0.71
3	3.63	4.79	1.1525	0.2553	0.29
4	3.72	4.73	1.0065	0.2027	0.20
5	3.75	4.62	0.8656	0.1587	0.14
6	3.76	4.55	0.7973	0.1197	0.10
7	3.89	4.45	0.5608	0.0837	0.05
8	4.07	4.31	0.2313	0.0496	0.01
9	4.08	4.13	0.0560	0.0163	0.00
10	4.13	4.08	-0.0560		
11	4.31	4.07	-0.2313		
12	4.45	3.89	-0.5608		
13	4.55	3.76	-0.7973		
14	4.62	3.75	-0.8656		
15	4.73	3.72	-1.0065		
16	4.79	3.63	-1.1525		
17	5.83	3.63	-2.1966		
18	5.88	3.48	-2.4027		

The test statistic W can be found using:

W = SQR[B/(SD x SQRT(n-1))]

where:

B =	summation of (X(n-i+1)-X(i))A(n-i+1)	=	2.68
SD =	standard deviation of the data group	=	0.70
n =	number of samples	=	18

W = 0.872

Compare this value to the critical value in Table A-2 of Statistical Analysisof Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance (Draft) July, 1992, to determine if the data is normally distributed.

From Table A-2 with (n) samples and a 95% confidence level, the critical value is

W(crit) = 0.897
and the calculated W = 0.872

Therefore the data is Non-Log-Normal

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Shapiro Wilk Test Statistic (W) for normality of total **Barium**

Complete the following table where

i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
X(n-i+1) = sample values arranged from largest to smallest
A(n-i+1) = coefficient from table A-1, Statistical Analysis of Ground-Water Data at RCRA Facilities
B(i) = summation of (X(n-i+1)-X(i))A(n-i+1)

i	X(i)	X(n-i+1)	X(n-i+1) - X(i)	A(n-i+1)	B(i)
1	32.3	357.0	324.70	0.4886	158.65
2	37.8	340.0	302.20	0.3253	98.31
3	37.9	120.0	82.10	0.2553	20.96
4	41.3	113.0	71.70	0.2027	14.53
5	42.5	101.0	58.50	0.1587	9.28
6	42.8	95.0	52.20	0.1197	6.25
7	48.8	85.5	36.70	0.0837	3.07
8	58.8	74.1	15.30	0.0496	0.76
9	59.0	62.4	3.40	0.0163	0.06
10	62.4	59.0	-3.40		
11	74.1	58.8	-15.30		
12	85.5	48.8	-36.70		
13	95.0	42.8	-52.20		
14	101.0	42.5	-58.50		
15	113.0	41.3	-71.70		
16	120.0	37.9	-82.10		
17	340.0	37.8	-302.20		
18	357.0	32.3	-324.70		

The test statistic W can be found using:

W = SQR[B/(SD x SQRT(n-1))]

where:

B = summation of (X(n-i+1)-X(i))A(n-i+1) = 311.87
SD = standard deviation of the data group = 95.40
n = number of samples = 18

W = 0.629

Compare this value to the critical value in Table A-2 of Statistical Analysisof Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance (Draft) July, 1992, to determine if the data is normally distributed.

From Table A-2 with (n) samples and a 95% confidence level, the critical value is

W(crit) = 0.897
and the calculated W = 0.629

Therefore the data is Non-Normal

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Analyte: **Chloride**

Sample No.	Sample Date	Location	Concentration	Quantitation Limit	Sorted Concentration	
1	19-Mar-09	MW-8	6,700 B	5,000	8,650	9,900
2	22-Apr-09	MW-8	6,900 B	5,000	8,910	9,840
3	14-May-09	MW-8	7,800 B	5,000	9,050	9,410
4	08-Oct-09	MW-8	5,500 B	5,000	9,410	9,050
5	19-Mar-09	MW-10S	13,100 B	5,000	9,840	8,910
6	22-Apr-09	MW-10S	13,700 B	5,000	9,900	8,650
7	14-May-09	MW-10S	16,400 B	5,000		
8	08-Oct-09	MW-10S	17,200 B	5,000		
9	19-Mar-09	P-19S	10,900 B	5,000		
10	22-Apr-09	P-19S	9,500 B	5,000		
11	14-May-09	P-19S	11,200 B	5,000		
12	08-Oct-09	P-19S	13,100 B	5,000		
13	27-Apr-10	MW-6	7,900 B	5,000		
14	12-Oct-10	MW-6	9,900	5,000		
15	14-Apr-11	MW-6	9,410	5,000		
16	13-Oct-11	MW-6	9,050	5,000		
17	17-Apr-12	MW-6	9,840	5,000		
18	9-Oct-12	MW-6	8,910	5,000		
19	2-Apr-13	MW-6	8,650	5,000		

Number of Data: 6
Number of Truncated Data: 0
Percentage of Truncated Data: 0%

Upper Tolerance Interval (UTL): 11,184

- All concentrations in micrograms per liter (µg/L).
- B = Blank qualified data not used in statistical calculations.
- Background data included from MW-8, MW-10S, and P-19S.
- Background well MW-6.

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Probability Plots to determine the distribution of **Chloride**

Complete the following table where

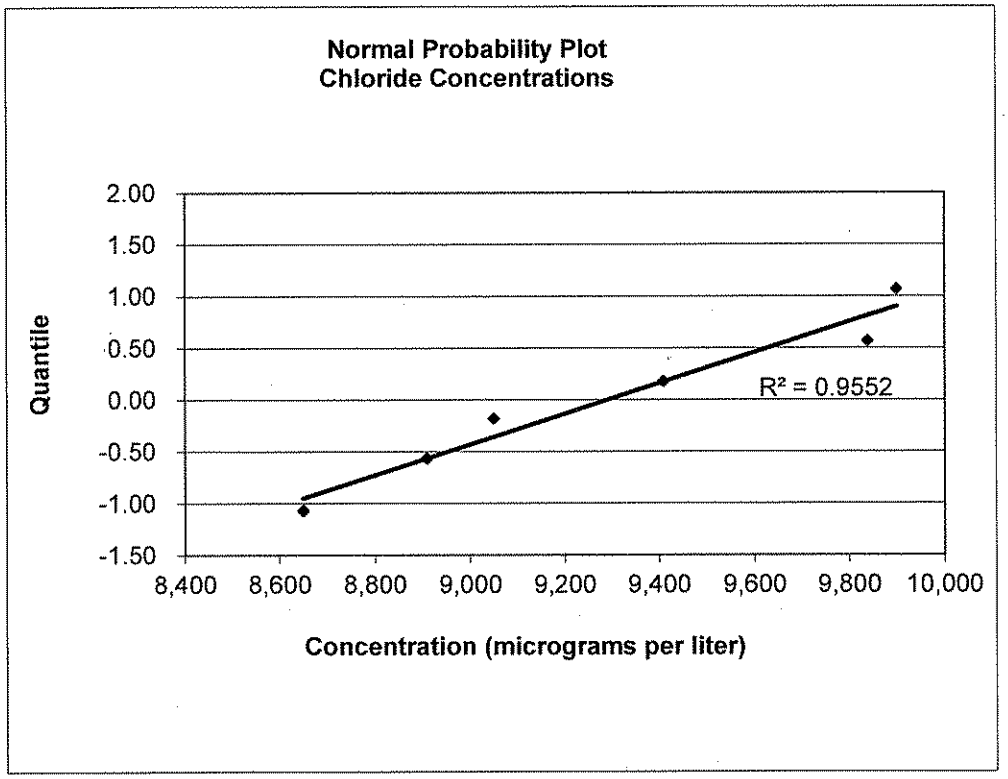
i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
LN[X(i)] = Natural Log Value of sample concentrations arranged from smallest to largest
[i/(n+1)] = Cumulative probability
n = number of samples = 6

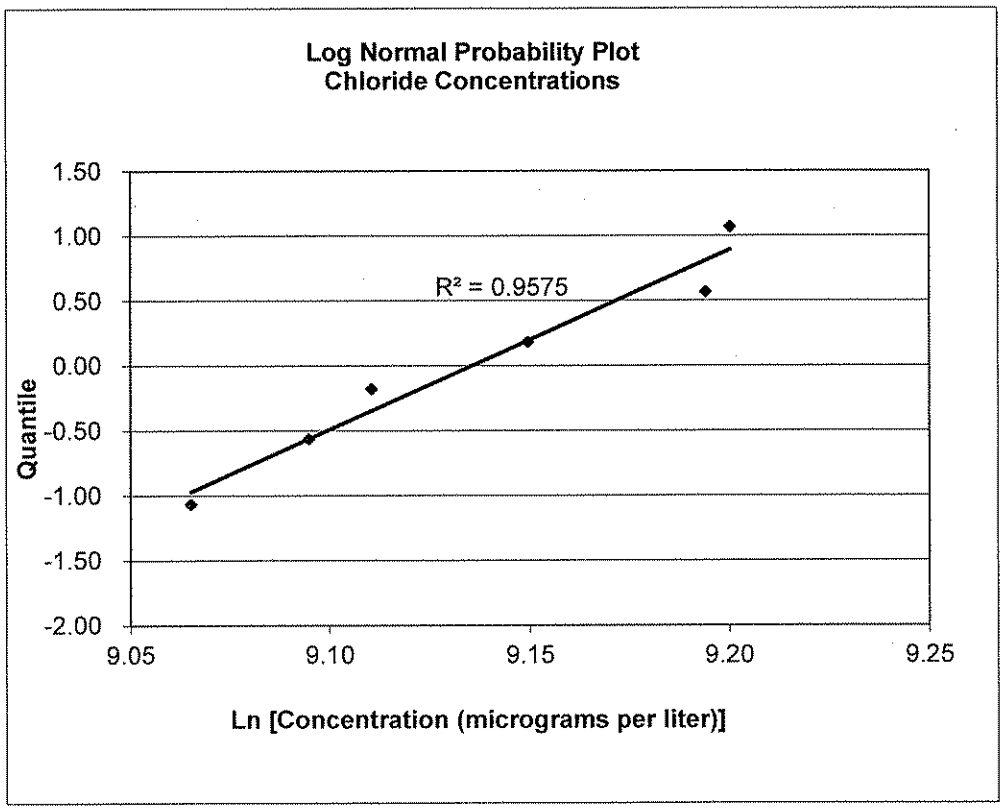
X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
8,650	9.07	1	1	0.143	-1.07
8,910	9.09	2	2	0.286	-0.57
9,050	9.11	3	3	0.429	-0.18
9,410	9.15	4	4	0.571	0.18
9,840	9.19	5	5	0.714	0.57
9,900	9.20	6	6	0.857	1.07

Plot analysis indicates that the data more closely follow a normal distribution in the log-transformed format.

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Probability Plots to determine the distribution of **Chloride**





JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Determination of reported background value as an outlier

Analyte: **Chloride**

Background Data

Sample No.	Sample Date	Location	ln(Concentration) (ug/l)	Quantitation Limit (ug/l)
1	19-Mar-09	MW-8	6,700 B	5,000
2	22-Apr-09	MW-8	6,900 B	5,000
3	14-May-09	MW-8	7,800 B	5,000
4	08-Oct-09	MW-8	5,500 B	5,000
5	19-Mar-09	MW-10S	13,100 B	5,000
6	22-Apr-09	MW-10S	13,700 B	5,000
7	14-May-09	MW-10S	16,400 B	5,000
8	08-Oct-09	MW-10S	17,200 B	5,000
9	19-Mar-09	P-19S	10,900 B	5,000
10	22-Apr-09	P-19S	9,500 B	5,000
11	14-May-09	P-19S	11,200 B	5,000
12	08-Oct-09	P-19S	13,100 B	5,000
13	27-Apr-10	MW-6	7,900 B	5,000
14	12-Oct-10	MW-6	9.200	5,000
15	14-Apr-11	MW-6	9.150	5,000
16	13-Oct-11	MW-6	9.111	5,000
17	17-Apr-12	MW-6	9.194	5,000
18	09-Oct-12	MW-6	9.095	5,000
19	02-Apr-13	MW-6	9.065	5,000
		mean =	9.136	
		STD =	0.055	

Note: All concentrations are micrograms per liter

Using the data listed above, form the statisitc Tn:

Tn = (Xn - mean) / STD

where:
Xn = largest observed sample value
mean = mean of the background values
STD = standard deviation of the background values

For
Xn = 9.200
mean = 9.136
STD = 0.055

Tn = 1.176

From Table 8 included in the Staistical Analysis of Groundwater Monitoring Data at RCRA Facilities - Interim Final Guidance, the critical value for the given sample group is

Number of samples = 6
Tc = 1.822

Since Tc>Tn, the sample result is not considered to be an outlier

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Shapiro Wilk Test Statistic (W) for log normality of total **Chloride**

Complete the following table where

i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
X(n-i+1) = sample values arranged from largest to smallest
A(n-i+1) = coefficient from table A-1, Statistical Analysis of Ground-Water Data at RCRA Facilities
B(i) = summation of (X(n-i+1)-X(i))A(n-i+1)

i	X(i)	X(n-i+1)	X(n-i+1) - X(i)	A(n-i+1)	B(i)
1	9.07	9.20	0.13	0.6431	0.09
2	9.09	9.19	0.10	0.2806	0.03
3	9.11	9.15	0.04	0.0875	0.00
4	9.15	9.11	-0.04		
5	9.19	9.09	-0.10		
6	9.20	9.07	-0.13		

The test statistic W can be found using:

W = SQR[B/(SD x SQRT(n-1))]

where:

B =	summation of (X(n-i+1)-X(i))A(n-i+1)	=	0.12
SD =	standard deviation of the data group	=	0.05
n =	number of samples	=	6

W = 0.927

Compare this value to the critical value in Table A-2 of Statistical Analysisof Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance (Draft) July, 1992, to determine if the data is normally distributed.

From Table A-2 with (n) samples and a 95% confidence level, the critical value is

W(crit) = 0.788
and the calculated W = 0.927

Therefore the data set is Log-Normal

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Parametric Tolerance Interval for normally distributed data

Analyte: **Chloride**

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	19-Mar-09	MW-8	6,700 B	5,000
2	22-Apr-09	MW-8	6,900 B	5,000
3	14-May-09	MW-8	7,800 B	5,000
4	08-Oct-09	MW-8	5,500 B	5,000
5	19-Mar-09	MW-10S	13,100 B	5,000
6	22-Apr-09	MW-10S	13,700 B	5,000
7	14-May-09	MW-10S	16,400 B	5,000
8	08-Oct-09	MW-10S	17,200 B	5,000
9	19-Mar-09	P-19S	10,900 B	5,000
10	22-Apr-09	P-19S	9,500 B	5,000
11	14-May-09	P-19S	11,200 B	5,000
12	08-Oct-09	P-19S	13,100 B	5,000
13	27-Apr-10	MW-6	7,900 B	5,000
14	12-Oct-10	MW-6	9,900	5,000
15	14-Apr-11	MW-6	9,410	5,000
16	13-Oct-11	MW-6	9,050	5,000
17	17-Apr-12	MW-6	9,840	5,000
18	09-Oct-12	MW-6	8,910	5,000
19	02-Apr-13	MW-6	8,650	5,000

Note: All sample concentrations are micrograms per liter

Using the background data, the upper Tolerance Limit can be determined using:

Upper Tolerance Limit = (Mean Concentration) + K x (Standard Deviation Samples)

where: Mean Conc = mean concentration background samples
K = factor for constructing one sided normal tolerance limit taken from table 4-2, page 87, Statistical Methods for Groundwater Monitoring, Gibbons, 1994
n = number of background samples
STDS = Standard Deviation Samples

For:

n =	6
K =	3.707
Mean Conc =	9,293
STDS =	510

UTL = 11,184 µg/L

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Analyte: **Cobalt**

Sample No.	Sample Date	Location	Concentration	Notes	Quantitation Limit
1	19-Mar-09	MW-8	32.8		10.0
2	22-Apr-09	MW-8	9.7 B		10.0
3	14-May-09	MW-8	11.1 B		10.0
4	08-Oct-09	MW-8	6.1	J	10.0
5	19-Mar-09	MW-10S	4.5 B		10.0
6	22-Apr-09	MW-10S	1.8 B		10.0
7	14-May-09	MW-10S	4.8 B		10.0
8	08-Oct-09	MW-10S	6.8	J	10.0
9	19-Mar-09	P-19S	9.9 B		10.0
10	22-Apr-09	P-19S	10.4 B		10.0
11	14-May-09	P-19S	10.3 B		10.0
12	08-Oct-09	P-19S	5.9	J	10.0
13	27-Apr-10	MW-6	ND		10.0
14	12-Oct-10	MW-6	ND		10.0
15	14-Apr-11	MW-6	2.7 B		10.0
16	13-Oct-11	MW-6	ND		10.0
17	17-Apr-12	MW-6	ND		10.0
18	09-Oct-12	MW-6	ND		10.0
19	02-Apr-13	MW-6	ND		10.0

Number of Data:	10
Number of Truncated Data:	6
Percentage of Truncated Data:	60%

Non Parametric Prediction Limit: 32.8 µg/L

- All concentrations in micrograms per liter (µg/L).
- J = Estimated value below quantitation linit..
- B = Blank qualified data not used in statistical calculations.
- Background data included from MW-8, MW-10S, and P-19S.
- Background well MW-6.

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Analyte: **Iron**

Sample No.	Sample Date	Location	Concentration	Notes	Quantitation Limit	Sorted Concentration	
1	19-Mar-09	MW-8	54,500		300	78.6	54,500
2	22-Apr-09	MW-8	14,600		300	101	19,400
3	14-May-09	MW-8	15,600		300	142	15,600
4	08-Oct-09	MW-8	19,400		300	150	14,600
5	19-Mar-09	MW-10S	4,810		300	206	9,670
6	22-Apr-09	MW-10S	3,470		300	242	8,060
7	14-May-09	MW-10S	2,680		300	918	4,810
8	08-Oct-09	MW-10S	9,670		300	2,020	4,130
9	19-Mar-09	P-19S	3,150		300	2,680	3,470
10	22-Apr-09	P-19S	4,130		300	3,150	3,150
11	14-May-09	P-19S	2,020		300	3,470	2,680
12	08-Oct-09	P-19S	8,060		300	4,130	2,020
13	27-Apr-10	MW-6	242	J	300	4,810	918
14	12-Oct-10	MW-6	206	J	300	8,060	242
15	14-Apr-11	MW-6	918		300	9,670	206
16	13-Oct-11	MW-6	78.6	J	300	14,600	150
17	17-Apr-12	MW-6	142	J	300	15,600	142
18	9-Oct-12	MW-6	150	1/2 QL	300	19,400	101
19	2-Apr-13	MW-6	101	J	300	54,500	78.6

Number of Data: 19
Number of Truncated Data: 1
Percentage of Truncated Data: 5%

Upper Tolerence Limit: 255,073 µg/L

- All concentrations in micrograms per liter (µg/L).
- J = Estimated value below quantitation limit.
- Background data included from MW-8, MW-10S, and P-19S.
- Background well MW-6.
- Truncated (non-detect) data replaced by 1/2 the quantitation limit (QL).

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Probability Plots to determine the distribution of **Iron**

Complete the following table where

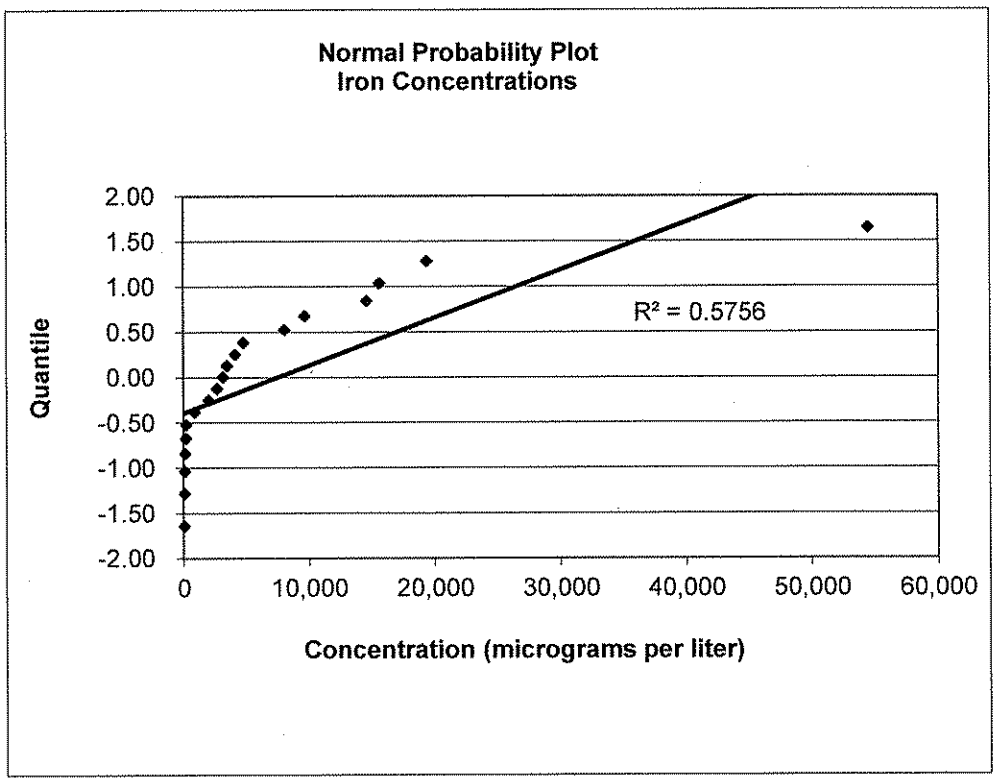
i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
LN[X(i)] = Natural Log Value of sample concentrations arranged from smallest to largest
[i/(n+1)] = Cumulative probability
n = number of samples = 19

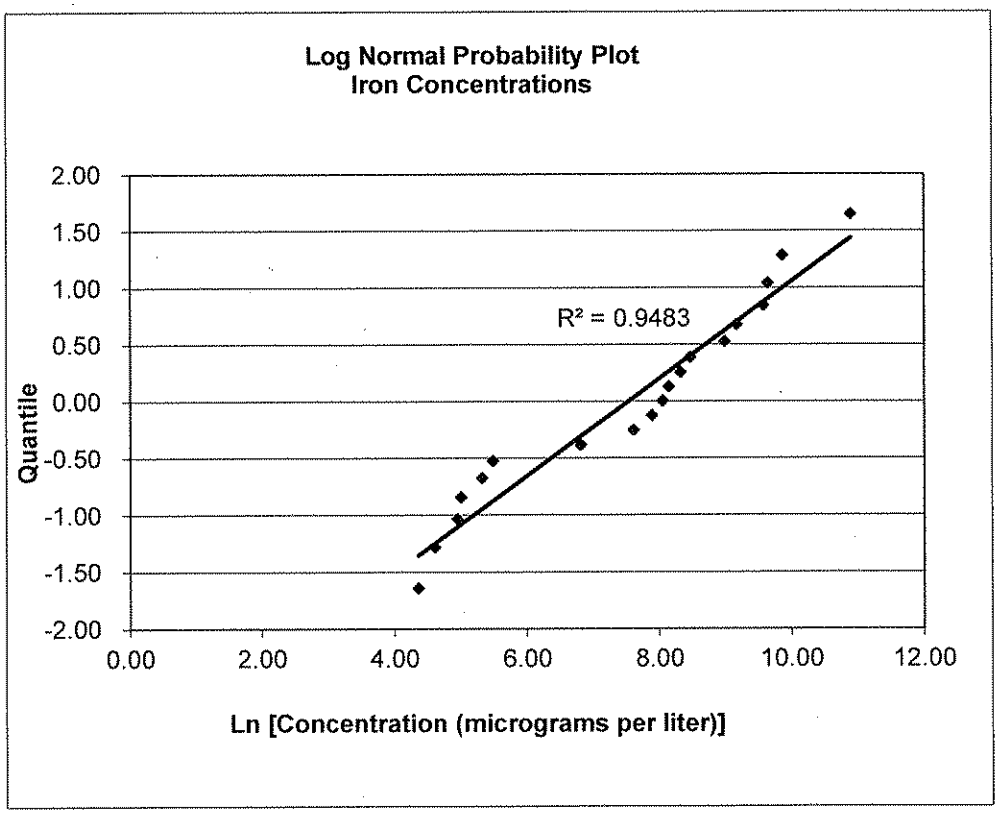
X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
79	4.36	1	1	0.050	-1.64
101	4.62	2	2	0.100	-1.28
142	4.96	3	3	0.150	-1.04
150	5.01	4	4	0.200	-0.84
206	5.33	5	5	0.250	-0.67
242	5.49	6	6	0.300	-0.52
918	6.82	7	7	0.350	-0.39
2,020	7.61	8	8	0.400	-0.25
2,680	7.89	9	9	0.450	-0.13
3,150	8.06	10	10	0.500	0.00
3,470	8.15	11	11	0.550	0.13
4,130	8.33	12	12	0.600	0.25
4,810	8.48	13	13	0.650	0.39
8,060	8.99	14	14	0.700	0.52
9,670	9.18	15	15	0.750	0.67
14,600	9.59	16	16	0.800	0.84
15,600	9.66	17	17	0.850	1.04
19,400	9.87	18	18	0.900	1.28
54,500	10.91	19	19	0.950	1.64

Plot analysis indicates that the data more closely follow a normal distribution in the log-transformed format.

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Probability Plots to determine the distribution of **Iron**





JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Determination of reported background value as an outlier

Analyte: **Iron**

Background Data

Sample No.	Sample Date	Location	ln(Concentration) (ug/l)		Quantitation Limit (ug/l)
1	19-Mar-09	MW-8	10.906		300
2	22-Apr-09	MW-8	9.589		300
3	14-May-09	MW-8	9.655		300
4	08-Oct-09	MW-8	9.873		300
5	19-Mar-09	MW-10S	8.478		300
6	22-Apr-09	MW-10S	8.152		300
7	14-May-09	MW-10S	7.894		300
8	08-Oct-09	MW-10S	9.177		300
9	19-Mar-09	P-19S	8.055		300
10	22-Apr-09	P-19S	8.326		300
11	14-May-09	P-19S	7.611		300
12	08-Oct-09	P-19S	8.995		300
13	27-Apr-10	MW-6	5.489	J	300
14	12-Oct-10	MW-6	5.328	J	300
15	14-Apr-11	MW-6	6.822		300
16	13-Oct-11	MW-6	4.364	J	300
17	17-Apr-12	MW-6	4.956	J	300
18	09-Oct-12	MW-6	5.011	1/2 QL	300
19	02-Apr-13	MW-6	4.615	J	300
		mean =	7.542		
		STD =	2.025		

Note: All concentrations are micrograms per liter

Using the data listed above, form the statisitc Tn:

Tn = (Xn - mean) / STD

where:
Xn = largest observed sample value
mean = mean of the background values
STD = standard deviation of the background values

For
Xn = 10.906
mean = 7.542
STD = 2.025

Tn = 1.661

From Table 8 included in the Staistical Analysis of Groundwater Monitoring Data at RCRA Facilities - Interim Final Guidance, the critical value for the given sample group is

Number of samples = 19
Tc = 2.532

Since Tc>Tn, the sample result is not considered to be an outlier

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Shapiro Wilk Test Statistic (W) for log normality of total **Iron**

Complete the following table where

i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
X(n-i+1) = sample values arranged from largest to smallest
A(n-i+1) = coefficient from table A-1, Statistical Analysis of Ground-Water Data at RCRA Facilities
B(i) = summation of (X(n-i+1)-X(i))A(n-i+1)

i	X(i)	X(n-i+1)	X(n-i+1) - X(i)	A(n-i+1)	B(i)
1	4.36	10.91	6.54	0.4808	3.15
2	4.62	9.87	5.26	0.3232	1.70
3	4.96	9.66	4.70	0.2561	1.20
4	5.01	9.59	4.58	0.2059	0.94
5	5.33	9.18	3.85	0.1641	0.63
6	5.49	8.99	3.51	0.1271	0.45
7	6.82	8.48	1.66	0.0932	0.15
8	7.61	8.33	0.72	0.0612	0.04
9	7.89	8.15	0.26	0.0303	0.01
10	8.06	8.06	0.00		
11	8.15	7.89	-0.26		
12	8.33	7.61	-0.72		
13	8.48	6.82	-1.66		
14	8.99	5.49	-3.51		
15	9.18	5.33	-3.85		
16	9.59	5.01	-4.58		
17	9.66	4.96	-4.70		
18	9.87	4.62	-5.26		
19	10.91	4.36	-6.54		

The test statistic W can be found using:

W = SQR[B/(SD x SQRT(n-1))]

where:

B = summation of (X(n-i+1)-X(i))A(n-i+1) = 8.27
SD = standard deviation of the data group = 2.03
n = number of samples = 19

W = 0.927

Compare this value to the critical value in Table A-2 of Statistical Analysisof Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance (Draft) July, 1992, to determine if the data is normally distributed.

From Table A-2 with (n) samples and a 95% confidence level, the critical value is

W(crit) = 0.901
and the calculated W = 0.927

Therefore the data set is Log-Normal

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Parametric Tolerance Interval for log normally distributed data

Analyte: **Iron**

Background Data: Note use of log(concentration)

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Notes	Quantitation Limit (ug/l)	Natural Log Concentration
1	19-Mar-09	MW-8	54,500		300	10.906
2	22-Apr-09	MW-8	14,600		300	9.589
3	14-May-09	MW-8	15,600		300	9.655
4	08-Oct-09	MW-8	19,400		300	9.873
5	19-Mar-09	MW-10S	4,810		300	8.478
6	22-Apr-09	MW-10S	3,470		300	8.152
7	14-May-09	MW-10S	2,680		300	7.894
8	08-Oct-09	MW-10S	9,670		300	9.177
9	19-Mar-09	P-19S	3,150		300	8.055
10	22-Apr-09	P-19S	4,130		300	8.326
11	14-May-09	P-19S	2,020		300	7.611
12	08-Oct-09	P-19S	8,060		300	8.995
13	27-Apr-10	MW-6	242	J	300	5.489
14	12-Oct-10	MW-6	206	J	300	5.328
15	14-Apr-11	MW-6	918		300	6.822
16	13-Oct-11	MW-6	79	J	300	4.364
17	17-Apr-12	MW-6	142	J	300	4.956
18	09-Oct-12	MW-6	150	1/2 QL	300	5.011
19	02-Apr-13	MW-6	101	J	300	4.615

Note: All sample concentrations are micrograms per liter

Using the background data, the upper Tolerance Limit can be determined using:

Upper Tolerance Limit = antilog((Mean Concentration)+K x (Standard Deviation Samples))

where: Mean Conc = mean concentration background samples
K = factor for constructing one sided normal tolerance limit taken from table 4-2, page 87, Statistical Methods for Groundwat Monitoring, Gibbons, 1994
STDS = Standard Deviation Samples
n = number of background samples

For:
n = 19
K = 2.423
Mean Conc = 7.542
STDS = 2.025

UTL = 255,073 µg/L

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Analyte: **Manganese**

Sample No.	Sample Date	Location	Concentration		Quantitation Limit	Sorted Concentration	
1	19-Mar-09	MW-8	830		50.0	6.0	1,890
2	22-Apr-09	MW-8	188		50.0	6.4	1,280
3	14-May-09	MW-8	196		50.0	9.2	1,050
4	08-Oct-09	MW-8	236		50.0	25.0	850
5	19-Mar-09	MW-10S	359		50.0	25.0	830
6	22-Apr-09	MW-10S	553		50.0	25.6	819
7	14-May-09	MW-10S	640		50.0	188	640
8	08-Oct-09	MW-10S	1,050		50.0	196	553
9	19-Mar-09	P-19S	1,280		50.0	236	359
10	22-Apr-09	P-19S	850		50.0	359	236
11	14-May-09	P-19S	819		50.0	553	196
12	08-Oct-09	P-19S	1,890		50.0	640	188
13	27-Apr-10	MW-6	9.4 B		50.0	819	25.6
14	12-Oct-10	MW-6	9.2	J	50.0	830	25.0
15	14-Apr-11	MW-6	25.6	J	50.0	850	25.0
16	13-Oct-11	MW-6	25.0	1/2 QL	50.0	1,050	9.2
17	17-Apr-12	MW-6	6.0	J	50.0	1,280	6.4
18	9-Oct-12	MW-6	25.0	1/2 QL	50.0	1,890	6.0
19	2-Apr-13	MW-6	6.4	J	50.0		

Number of Data: 18
Number of Truncated Data: 2
Percentage of Truncated Data: 11%

Non-Parametric Prediction Interval: 1,890 µg/L

- All concentrations in micrograms per liter (µg/L).
- B = Blank qualified data not used in statistical calculations.
- J = Estimated value below quantitation linit..
- Background data included from MW-8, MW-10S, and P-19S.
- Background well MW-6.
- Truncated (non-detect) data replaced by 1/2 the quantitation limit (QL).

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Shapiro Wilk Test Statistic (W) for log normality of total **Manganese**

Complete the following table where

i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
X(n-i+1) = sample values arranged from largest to smallest
A(n-i+1) = coefficient from table A-1, Statistical Analysis of Ground-Water Data at RCRA Facilities
B(i) = summation of (X(n-i+1)-X(i))A(n-i+1)

i	X(i)	X(n-i+1)	X(n-i+1) - X(i)	A(n-i+1)	B(i)
1	6.0	1890	1884.00	0.4886	920.52
2	6.4	1280	1273.60	0.3253	414.30
3	9.2	1050	1040.80	0.2553	265.72
4	25.0	850	825.00	0.2027	167.23
5	25.0	830	805.00	0.1587	127.75
6	25.6	819	793.40	0.1197	94.97
7	188	640	452.00	0.0837	37.83
8	196	553	357.00	0.0496	17.71
9	236	359	123.00	0.0163	2.00
10	359	236	-123.00		
11	553	196	-357.00		
12	640	188	-452.00		
13	819	25.6	-793.40		
14	830	25.0	-805.00		
15	850	25.0	-825.00		
16	1050	9.2	-1040.80		
17	1280	6.4	-1273.60		
18	1890	6.0	-1884.00		

The test statistic W can be found using:

W = SQR[B/(SD x SQRT(n-1))]

where:

B = summation of (X(n-i+1)-X(i))A(n-i+1) = 2048.04
SD = standard deviation of the data group = 535.93
n = number of samples = 18

W = 0.859

Compare this value to the critical value in Table A-2 of Statistical Analysisof Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance (Draft) July, 1992, to determine if the data is normally distributed.

From Table A-2 with (n) samples and a 95% confidence level, the critical value is

W(crit) = 0.897
and the calculated W = 0.859

Therefore the data is Non-Log-Normal

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Shapiro Wilk Test Statistic (W) for normality of total **Manganese**

Complete the following table where

i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
X(n-i+1) = sample values arranged from largest to smallest
A(n-i+1) = coefficient from table A-1, Statistical Analysis of Ground-Water Data at RCRA Facilities
B(i) = summation of (X(n-i+1)-X(i))A(n-i+1)

i	X(i)	X(n-i+1)	X(n-i+1) - X(i)	A(n-i+1)	B(i)
1	6.0	1,890	1,884	0.4886	920.52
2	6.4	1,280	1,274	0.3253	414.30
3	9.2	1,050	1,041	0.2553	265.72
4	25.0	850	825	0.2027	167.23
5	25.0	830	805	0.1587	127.75
6	25.6	819	793	0.1197	94.97
7	188	640	452	0.0837	37.83
8	196	553	357	0.0496	17.71
9	236	359	123	0.0163	2.00
10	359	236	-123		
11	553	196	-357		
12	640	188	-452		
13	819	25.6	-793		
14	830	25.0	-805		
15	850	25.0	-825		
16	1,050	9.2	-1,041		
17	1,280	6.4	-1,274		
18	1,890	6.0	-1,884		

The test statistic W can be found using:

W = SQR[B/(SD x SQRT(n-1))]

where:

B =	summation of (X(n-i+1)-X(i))A(n-i+1)	=	2048.04
SD =	standard deviation of the data group	=	535.93
n =	number of samples	=	18

W = 0.859

Compare this value to the critical value in Table A-2 of Statistical Analysisof Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance (Draft) July, 1992, to determine if the data is normally distributed.

From Table A-2 with (n) samples and a 95% confidence level, the critical value is

W(crit) = 0.897
and the calculated W = 0.859

Therefore the data is Non-Normal

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Analyte: **TDS**

Sample No.	Sample Date	Location	Concentration	Notes	Quantitation Limit	Sorted Concentration	
1	19-Mar-09	MW-8	104,000		40,000	94,000	170,000
2	22-Apr-09	MW-8	104,000 B		20,000	100,000	147,000
3	14-May-09	MW-8	94,000		20,000	104,000	135,000
4	08-Oct-09	MW-8	164,000 B		20,000	127,000	132,000
5	19-Mar-09	MW-10S	270,000	outlier	40,000	132,000	127,000
6	22-Apr-09	MW-10S	204,000 B		20,000	135,000	104,000
7	14-May-09	MW-10S	210,000 B		20,000	141,000	100,000
8	08-Oct-09	MW-10S	288,000 B		20,000	147,000	100,000
9	19-Mar-09	P-19S	100,000		40,000	170,000	94,000
10	22-Apr-09	P-19S	84,000 B		20,000		
11	14-May-09	P-19S	110,000 B		20,000		
12	08-Oct-09	P-19S	152,000 B		20,000		
13	27-Apr-10	MW-6	114,000 B		100,000		
14	12-Oct-10	MW-6	141,000		25,000		
15	14-Apr-11	MW-6	132,000		25,000		
16	13-Oct-11	MW-6	170,000		25,000		
17	17-Apr-12	MW-6	127,000		25,000		
18	9-Oct-12	MW-6	135,000		25,000		
19	02-Apr-13	MW-6	147,000		25,000		

Number of Data:	10
Number of Truncated Data:	0
Percentage of Truncated Data:	0%
Upper Tolerance Limit:	**202,629**

- All concentrations in micrograms per liter (µg/L).
- B = Blank qualified data not used in statistical calculations.
- Background data included from MW-8, MW-10S, and P-19S.
- Background well MW-6.

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Probability Plots to determine the distribution of **TDS**

Complete the following table where

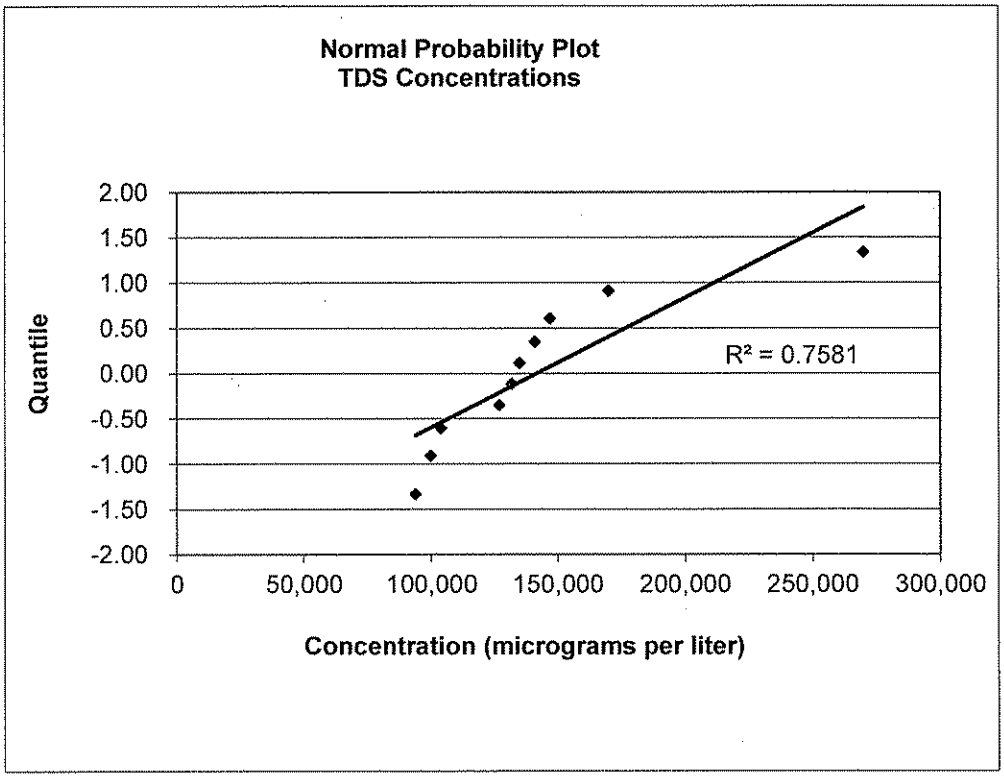
i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
LN[X(i)] = Natural Log Value of sample concentrations arranged from smallest to largest
[i/(n+1)] = Cumulative probability
n = number of samples = 10

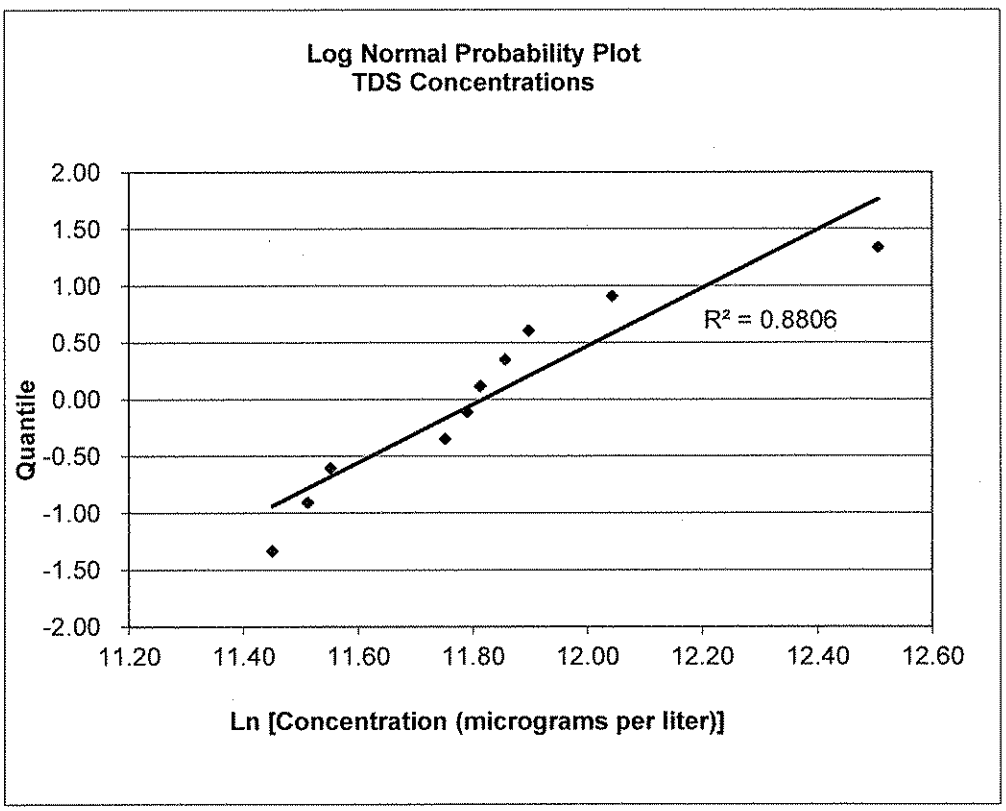
X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
94,000	11.45	1	1	0.091	-1.34
100,000	11.51	2	2	0.182	-0.91
104,000	11.55	3	3	0.273	-0.60
127,000	11.75	4	4	0.364	-0.35
132,000	11.79	5	5	0.455	-0.11
135,000	11.81	6	6	0.545	0.11
141,000	11.86	7	7	0.636	0.35
147,000	11.90	8	8	0.727	0.60
170,000	12.04	9	9	0.818	0.91
270,000	12.51	10	10	0.909	1.34

Plot analysis indicates that the data more closely follow a normal distribution in the log-transformed format.

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Probability Plots to determine the distribution of **TDS**





JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Determination of reported background value as an outlier

Analyte: **TDS**

Background Data

Sample No.	Sample Date	Location	ln(Concentration) (ug/l)	Quantitation Limit (ug/l)
1	19-Mar-09	MW-8	11.552	40,000
2	22-Apr-09	MW-8	104,000 B	20,000
3	14-May-09	MW-8	11.451	20,000
4	08-Oct-09	MW-8	164,000 B	20,000
5	19-Mar-09	MW-10S	12.506	40,000
6	22-Apr-09	MW-10S	204,000 B	20,000
7	14-May-09	MW-10S	210,000 B	20,000
8	08-Oct-09	MW-10S	288,000 B	20,000
9	19-Mar-09	P-19S	11.513	40,000
10	22-Apr-09	P-19S	84,000 B	20,000
11	14-May-09	P-19S	110,000 B	20,000
12	08-Oct-09	P-19S	152,000 B	20,000
13	27-Apr-10	MW-6	114,000 B	100,000
14	12-Oct-10	MW-6	11.857	25,000
15	14-Apr-11	MW-6	11.791	25,000
16	13-Oct-11	MW-6	12.044	25,000
17	17-Apr-12	MW-6	11.752	25,000
18	09-Oct-12	MW-6	11.813	25,000
19	02-Apr-13	MW-6	11.898	25,000
		mean =	11.818	
		STD =	0.305	

Note: All concentrations are micrograms per liter

Using the data listed above, form the statisitc Tn:

Tn = (Xn - mean) / STD

where:
Xn = largest observed sample value
mean = mean of the background values
STD = standard deviation of the background values

For
Xn = 12.506
mean = 11.818
STD = 0.305

Tn = 2.259

From Table 8 included in the Staistical Analysis of Groundwater Monitoring Data at RCRA Facilities - Interim Final Guidance, the critical value for the given sample group is

Number of samples = 10
Tc = 2.176

Since Tc<Tn, the sample result is considered to be an outlier

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **2-Apr-13**

Shapiro Wilk Test Statistic (W) for log normality of total **TDS**

Complete the following table where

i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
X(n-i+1) = sample values arranged from largest to smallest
A(n-i+1) = coefficient from table A-1, Statistical Analysis of Ground-Water Data at RCRA Facilities
B(i) = summation of (X(n-i+1)-X(i))A(n-i+1)

i	X(i)	X(n-i+1)	X(n-i+1) - X(i)	A(n-i+1)	B(i)
1	11.45	12.04	0.5925	0.5888	0.35
2	11.51	11.90	0.3853	0.3244	0.12
3	11.55	11.81	0.2609	0.1976	0.05
4	11.75	11.79	0.0386	0.0947	0.00
5	11.79	11.75	-0.0386	0.0000	0.00
6	11.81	11.55	-0.2609		
7	11.86	11.51	-0.3436		
8	11.90	11.51	-0.3853		
9	12.04	11.45	-0.5925		

The test statistic W can be found using:

W = SQR[B/(SD x SQRT(n-1))]

where:

B =	summation of (X(n-i+1)-X(i))A(n-i+1)	=	0.53
SD =	standard deviation of the data group	=	0.20
n =	number of samples	=	9

W = 0.905

Compare this value to the critical value in Table A-2 of Statistical Analysisof Ground-Water Monitoring Data at RCRA Facilities, Addendum to Interim Final Guidance (Draft) July, 1992, to determine if the data is normally distributed.

From Table A-2 with (n) samples and a 95% confidence level, the critical value is

W(crit) = 0.818
and the calculated W = 0.905

Therefore the data set is Log-Normal

JOYCE Project: **Coble's Sandrock - C&D Landfill**
Project No: **419.1301.12**
Task No: **01**
Date: **02-Apr-13**

Parametric Tolerance Interval for normally distributed data

Analyte: **TDS**

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	19-Mar-09	MW-8	104,000	40,000
2	22-Apr-09	MW-8	104,000 B	20,000
3	14-May-09	MW-8	94,000	20,000
4	08-Oct-09	MW-8	164,000 B	20,000
6	22-Apr-09	MW-10S	204,000 B	20,000
7	14-May-09	MW-10S	210,000 B	20,000
8	08-Oct-09	MW-10S	288,000 B	20,000
9	19-Mar-09	P-19S	100,000	40,000
10	22-Apr-09	P-19S	84,000 B	20,000
11	14-May-09	P-19S	110,000 B	20,000
12	08-Oct-09	P-19S	152,000 B	20,000
13	27-Apr-10	MW-6	114,000 B	100,000
14	12-Oct-10	MW-6	141,000	25,000
15	14-Apr-11	MW-6	132,000	25,000
16	13-Oct-11	MW-6	170,000	25,000
17	17-Apr-12	MW-6	127,000	25,000
18	09-Oct-12	MW-6	135,000	25,000
19	02-Apr-13	MW-6	147,000	25,000

Note: All sample concentrations are micrograms per liter

Using the background data, the upper Tolerance Limit can be determined using:

Upper Tolerance Limit = (Mean Concentration) + K x (Standard Deviation Samples)

where: Mean Conc = mean concentration background samples
K = factor for constructing one sided normal tolerance limit taken from table 4-2, page 87, Statistical Methods for Groundwater Monitoring, Gibbons, 1994
n = number of background samples
STDS = Standard Deviation Samples

For:
n = 9
K = 3.032
Mean Conc = 127,778
STDS = 24,687

UTL = 202,629 µg/L