Prepared for:

Granville County Solid Waste Department
P.O. Box 906
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JEI Project No. 660.06, Task No. 27

FIRST SEMIANNUAL GROUNDWATER MONITORING REPORT OF 2009

BUTNER LANDFILL
GRANVILLE COUNTY, NORTH CAROLINA
PERMIT NUMBER 39-02

October 2009

Prepared by:

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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)
Butner Landfill	State Road 1004 Butner, NC	39-02	.0500	July 9, 2009

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 — 10/14/09 Date

Affix NC Licensed Professional Geologist Seal

NORTH CAROLINA LICENSED SEAL 1349 GEOLOGIST G. VAN NESS BURBACH

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Facility Representative Address

C-0782

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

Revised 6/2009

First Semiannual Groundwater Monitoring Report of 2009
Butner Landfill
Granville County, North Carolina

TABLE OF CONTENTS

1.0 INTRODUCTION 1
1.1 Site Information 1
1.2 Site Geology 1
1.3 Groundwater Monitoring History 1
1.4 Regulatory Status 2
2.0 FACILITY MONITORING PROGRAM 2
2.1 Groundwater Monitoring Program 2
2.2 Surface Water Monitoring Program 2
3.0 FIRST SEMIANNUAL SAMPLING EVENT OF 2009 2
3.1 Field Work 2
3.2 Laboratory Analysis and JEI Quality Control 3
4.0 ANALYTICAL RESULTS AND STATISTICAL ANALYSES 4
4.1 Statistical Methods 4
4.2 Analytical Results for Groundwater and Comparisons to Standards 4
4.2.1 Inorganic Analyses 4
4.2.2 Organic Analyses 5
4.3 Results of Statistical Analyses for Groundwater 5
4.4 Analytical Results for Surface Water and Comparisons to Standards 6
5.0 HYDROGEOLOGICAL CONDITIONS 6
6.0 CONCLUSION 7
7.0 REFERENCES 8
8.0 ACRONYMS 9

Tables
Table 1 Historically Detected Inorganic Constituents
Table 2 Historically Detected Organic Constituents
Table 3 Summary of Statistical Analyses
Table 4 Historical Groundwater Elevation Data
Table 5 Estimated Hydraulic Gradients and Groundwater Flow Velocities

Figure
Figure 1 Site Location Map

Drawing
Drawing 1 Groundwater Surface Map

Appendices
Appendix A Laboratory Analytical Reports and Field Data Logs
Appendix B Statistical Analyses Worksheets

1.0 INTRODUCTION

1.1 Site Information

The Butner Landfill is a closed municipal solid waste (MSW) landfill, located off State Route 1004 near the town of Butner, in Granville County, North Carolina (Figure No. 1). The Butner facility started receiving waste prior to May 1973. Permit Number 39-02, was issued from the State of North Carolina on March 3, 1982. The facility stopped receiving waste in August 1998. A small recycling center and transfer station are operated by the County of Granville at the entrance of the closed landfill.

The site entered an Assessment Monitoring Program in December of 1997 as a result of detections of volatile organic compounds and pesticide above NC 2L Standards. An Assessment of Corrective Measures was initiated in 2003, and then suspended by DENR since there had been no more NC2L exceedances. The Nature and Extent Study and Assessment of Corrective Measures recommenced in 2007 when exceedances of the current NC 2L Standards began to appear.

1.2 Site Geology

The Butner Landfill lies within the Piedmont physiographic province. The topography of the area consists of rolling hills that support farmland and forest. The majority of the landfill area is underlain by Carolina Slate Belt felsic volcanic rocks, which have been metamorphosed into greenish grey foliated tuffs. The southeastern portion of the site is underlain by Triassic Sanford Formation (conglomerate, sandstone, and mudstone), which unconformably overlies the Carolina Slate Belt felsic volcanic rocks. There is no exposure of the Sanford Formation at the site; however, float material consisting of grey, coarse-grained sandstone with quartz pebbles was observed. Geologic descriptions were taken from GAI Consultants-NC, Inc. December 1993 *Groundwater and Surface Water Monitoring System* report.

1.3 Groundwater Monitoring History

- **April 1994** – Current Monitoring Well Network installed.
- **Dec. 1997** - The facility entered Assessment Monitoring.
- **June 2003** – NC 2L exceedances for heptachlor in MW-2R and MW-3R initiated an Assessment of Corrective Measures (ACM).
- **Dec. 2004 & June 2005** – There were no NC 2L exceedances, so DENR agreed to put the ACM on hold pending future monitoring results. At first, DENR said the facility needed deed restrictions on adjoining property owned by the County, but this was apparently based on false information (the County did not own the property) so the requirement for deed restrictions was dropped.
- **Dec. 2006** – Confirmed NC 2L exceedances for VOCs in MW-2R & MW-3R.
- **June 14, 2007** - Granville County and JEI met with DENR on to discuss a strategy for performing a Nature and Extent Study (NES) and an ACM.
- **Nov. 2007** – Nature & Extent well NES-1 installed downgradient of MW-2R & MW-3R.
- **Dec. 2007** – NES & MNA sampling event on selected wells.

1.4 Regulatory Status

Groundwater and surface water monitoring at the Butner Landfill is completed in accordance with North Carolina Solid Waste Management Regulations (NCSWMR) §1634 (Assessment Monitoring Program) and the Transition Plan for this facility. The site is currently in an Assessment Monitoring Program. A Nature and Extent Study and an Assessment of Corrective Measures have been initiated. Groundwater samples are collected semiannually and analyzed for all constituents listed in NCSWMR Appendix I plus previously detected Appendix II constituents during the fall sampling event, and all NCSWMR Appendix I and Appendix II constituents during the spring sampling event. Surface water samples are collected and sampled for Appendix I constituents during each sampling event.

2.0 FACILITY MONITORING PROGRAM

2.1 Groundwater Monitoring Program

Six active groundwater monitoring wells comprise the monitoring network at the Butner Landfill. The current compliance network consists of the following monitoring wells: MW-1R (facility background well), MW-2R, MW-3R, MW-4, MW-5, and MW-6. An additional well, NES-1, was installed as part of a Nature and Extent Study on November 14, 2007.

Monitoring Well	Date Installed	Classification	Monitoring Program	Total Depth from TOC (ft)	Lithology of Screened Interval
MW-1R	4/21/94	Background	Assessment	45.1	Saprolite
MW-2R	4/12/94	Compliance	Assessment	19.0	Saprolite
MW-3R	4/14/94	Compliance	Assessment	37.2	Bedrock
MW-4	4/18/94	Compliance	Assessment	31.5	Bedrock
MW-5	4/18/94	Compliance	Assessment	23.4	Saprolite
MW-6	4/19/94	Compliance	Assessment	31.7	Saprolite/Bedrock
NES-1	11/14/07	Nature & Extent	N/A	33.0	Saprolite/Bedrock

2.2 Surface Water Monitoring Program

Two surface water samples have been collected semiannually since September 1994 at the Butner Landfill. The points SW-1 and SW-2 are located respectively upstream and downstream of the facility, along an unnamed tributary of Picture Creek.

3.0 FIRST SEMIANNUAL SAMPLING EVENT OF 2009

3.1 Field Work

On July 9, 2009, Joyce Engineering, Inc. (JEI) personnel visited Butner Landfill to purge and sample monitoring wells MW-1R, MW-2R, MW-3R, MW-4, MW-5, and MW-6. Monitoring wells were purged and sampled using new, disposable bailers. Measurements of temperature, pH, turbidity and specific conductivity were recorded in a field log. Prior to sampling, laboratory-supplied containers were prepared with the following information:

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

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

Surface water points SW-1 and SW-2 were sampled using a decontaminated graduated dipper. Laboratory- prepared sampling containers were filled, placed in a cooler, and chilled on ice. JEI personnel measured temperature, pH, specific conductivity, and turbidity of the surface water in the field at the time of sampling. Field Logs are included in Appendix A.

Due to a questionable detection of cyanide in MW-5 during the July sampling event, MW-5 was resampled for cyanide on September 28, 2009. A field log is included in Appendix A.

3.2 Laboratory Analysis and JEI Quality Control

Pace Analytical Services Inc. of Huntersville, North Carolina analyzed the July 2009 groundwater and surface water samples under chain-of-custody control. The groundwater samples were analyzed for NC Appendix II constituents. The surface water was analyzed for NC Appendix I constituents. The samples were received by the laboratory on July 10, 2009, in good condition, properly preserved, at proper temperatures, and within analysis hold times.

In addition to samples collected for compliance monitoring at the Butner Landfill, JEI personnel collected a Field Blank as part of the July 2009 sampling event. The Field Blank was analyzed for the NC Appendix II constituents. Also, a Trip Blank that was prepared by the laboratory accompanied the volatile sampling containers to and from the laboratory. The Trip Blank was analyzed for the NC Appendix I list of volatile organic compounds.

Upon receipt of the laboratory data package, JEI personnel reviewed the following data:

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

No questions or problems were discovered based on the review to warrant reissue of the laboratory report. The complete laboratory analytical report is included in Appendix A.

4.0 ANALYTICAL RESULTS AND STATISTICAL ANALYSES

4.1 Statistical Methods

Monitoring well MW-1R is designated as the up-gradient background well for the facility. Data from MW-1R between September 1994 and July 2009 have been used to determine statistical background concentrations for inorganic and organic constituents detected at the facility.

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. The data set was evaluated to determine the appropriate procedure for calculation of the background value for each parameter.

4.2 Analytical Results for Groundwater and Comparisons to Standards

4.2.1 Inorganic Analyses

The inorganic constituents listed below were detected in one or more down-gradient monitoring well samples for the July 2009 sampling event.

Constituent	NC2L /GWPS	Background	Downgradient						Blanks
		MW-1R	MW-2R	MW-3R	MW-4	MW-5	MW-6	NES-1	
Arsenic	50	ND	13.5	10.9	5.6 J	ND	4.0 J	ND	ND
Barium	2,000	4.6 B	121	63.4 B	0.37 B	81.4 B	0.94 B	72.4 B	17.6 J
Beryllium	4	ND	0.18 J	0.22 J	0.17 J	ND	ND	0.23 J	ND
Cadmium	1.75	ND	1.4	ND	ND	ND	ND	ND	ND
Chromium	50	1.2 J	2.4 J	1.1 J	1.6 J	0.68 J	0.53 J	4.8 J	ND
Cobalt	70	ND	6.2 J	ND	ND	100	ND	2.2 J	ND
Copper	1,000	ND	ND	6.3 J	ND	5.7 J	ND	8.8 J	ND
Nickel	100	2.2 J	93.5	29.4 J	11.7 J	23.2 J	ND	13.1 J	ND
Selenium	50	ND	ND	4.2 J	ND	ND	ND	ND	ND
Silver	17.5	ND	0.84 J	0.63 J	0.45 J	ND	0.11 J	ND	ND
Thallium	0.28	ND	ND	ND	4.1 J	ND	ND	ND	ND
Tin	NE	ND	21.4 J	8.6 J	ND	ND	ND	NS	ND
Vanadium	3.5	3.9 J	9.7 J	2.5 B	18.4 J	2.9 B	2.2 B	8.5 J	1.3 J
Zinc	1,050	3.4 B	ND	ND	ND	ND	ND	6.1 B	1.6 J
Cyanide	70	ND	ND	ND	ND	46.9 (ND)	ND	ND	ND

ND = Not detected above laboratory detection limits. NE = NC2L or GWPS not established.
Results in parenthesis ( ) are for the resampling event dated 9/28/09 .

All concentrations are reported in micrograms per liter (µg/L). Concentrations with a "J" below the SWSL and are considered to be estimated. Concentrations with a "B" are blank-qualified and are attributed to lab or field contamination. Complete historical analytical results for inorganic constituents are presented in Table 1. The laboratory analytical reports and the chains of custody are included in the Appendix A.

Cobalt was detected above its 15A-NCAC-2L (NC2L) standard; however, it is not considered a statistically significant increase (SSI) above background (see Section 4.3). No other inorganic constituents were in exceedance of the NC2L Groundwater Standards or Groundwater Protection Standards (GWPS). Cyanide was detected in MW-5 above the SWSL but below the NC2L in the July 2009 sampling event; however, the results of the resampling event performed in September 2009 showed no detectable cyanide, therefore the initial cyanide detection is refuted.

4.2.2 Organic Analyses

The following organic constituents were detected in one or more down-gradient monitoring well samples for the July 2009 sampling event. Historical analytical results for organic constituents are presented in Table 2. The laboratory analytical reports, the laboratory quality assurance/quality control information, and the chain of custody, are included in the Appendix A.

Constituent	NC2L /GWPS	Background	Downgradient						Blanks
		MW-1R	MW-2R	MW-3R	MW-4	MW-5	MW-6	NES-1	
Benzene	1	ND	[illegible]	0.34 J	ND	ND	ND	ND	ND
Chlorobenzene	50	ND	16.1	17.2	6.1	ND	ND	ND	ND
Chloroethane	2,800	ND	ND	ND	3.8 J	ND	ND	ND	ND
1,2-Dichlorobenzene	24	ND	1.6 J	2.0 J	0.36 J	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	0.84 J	ND	ND	ND	ND
Naphthalene	21	ND	2.4 J	ND	ND	ND	ND	ND	ND
Toluene	1,000	ND	0.46 J	ND	ND	ND	ND	ND	ND
Vinyl Chloride	0.015	ND	ND	0.99 J	ND	ND	ND	ND	ND
Xylenes (Total)	530	ND	1.5 J	ND	ND	ND	ND	ND	ND

ND = Not detected above laboratory detection limits.

All concentrations are reported in micrograms per liter (µg/L). Concentrations with a "J" are considered to be estimated. Concentrations with a "B" are considered to be attributed to lab or field contamination. Highlighted data have been detected above the NC 2L and/or GWPS.

4.3 Results of Statistical Analyses for Groundwater

A summary of the July 2009 statistical background calculations are provided in the table below and in Table 3. Details of the statistical analyses can be found in Appendix B. Based on these statistical analyses, no inorganic or organic detections were considered to be SSIs compared to background values.

Constituent	Data Distribution	Statistical Method used to Establish Background	Background Concentration	Noted SSI's
Arsenic	100% Truncated	Upper Poisson Prediction Limit	30.7	None
Barium	76% Truncated	Nonparametric Prediction Limit	200	None
Cadmium	94% Truncated	Upper Poisson Prediction Limit	5.94	None
Cobalt	66% Truncated	Nonparametric Prediction Limit	130	None
Nickel	94% Truncated	Upper Poisson Prediction Limit	139	None
Benzene	100% Truncated	Upper Poisson Prediction Limit	15.1	None
Chlorobenzene	100% Truncated	Upper Poisson Prediction Limit	13.1	None

*All concentrations are in µg/L (micrograms per liter).
SSI = Statistically significant increase above background.

4.4 Analytical Results for Surface Water and Comparisons to Standards

The surface water samples from the Butner Landfill were collected from an unnamed tributary to Picture Creek, which has its confluence with Picture Creek approximately ½ mile south of the site. Picture Creek at this location is classified WS-IV/NSW. Surface water analytical results from the site were compared to the 15A-NCAC-2B (NC2B) surface water standards or EPA National Criteria (EPA-NC) either for water supply-classified waters, human health, or fresh-water aquatic life, whichever is lowest for a given constituent.

The inorganic and organic constituents listed below were detected in surface water during the July 2009 sampling event. The historical analytical results for surface water are included in Tables 1 and 2. The laboratory analytical reports, the laboratory quality assurance/quality control information, and the chain of custody, are included in the Appendix A.

Constituent	NC2B/ EPA-NC	SW-1	SW-2	Blanks
Barium	1000	36.8 B	78.4 B	17.6 J
Chromium	50	2.6 J	1.2 J	ND
Nickel	25	4.1 J	12.3 J	ND
Silver	NE	ND	0.10 J	ND
Vanadium	NE	5.0 B	3.4 B	1.3 J
Zinc	50	ND	4.9 B	1.6 J
Chloromethane	2.6	ND	0.19 J	ND

NE = Not established. ND = Not detected above laboratory detection limits.

All concentrations are reported in micrograms per liter (µg/L). Concentrations with a "J" below the SWSL and are considered to be estimated. Concentrations with a "B" are blank-qualified and are attributed to lab or field contamination. There were no detections above the NC2B Standards or EPA-NC for the July 2009 sampling event.

5.0 HYDROGEOLOGICAL CONDITIONS

Groundwater in the saprolite feeds the fractures in the bedrock and discharges into creeks northeast of the landfill. Groundwater flow direction at deeper levels within the fractured bedrock is controlled by fracture orientation. A groundwater surface contour map, developed with static water level data obtained in July 2009, is presented as *Drawing 1*. The static water elevations depict groundwater flow to the northeast.

Depth to groundwater was measured in the compliance monitoring wells at the site prior to sampling. The groundwater elevations were calculated relative to the surveyed measuring point (top of casing) for each monitoring well. The historical groundwater elevations are summarized in Table 4. The groundwater elevation contours shown on Drawing 1 are based on data from the July 2009 sampling event. Horizontal groundwater gradients along representative flow paths were estimated from the July 2009 groundwater contours shown on Drawing 1 and are summarized in Table 5. Horizontal gradients across the site ranged from 0.0450 to 0.0581 ft/ft, with an average of approximately 0.0534 ft/ft. This is consistent with previous estimates.

Linear groundwater flow velocities for wells screened in saprolite were computed using the modified Darcy equation: $V = Ki/n$, where V = average linear velocity (feet/year), K = hydraulic conductivity (feet/day), i = horizontal hydraulic gradient, and n = effective porosity. The geometric mean of hydraulic conductivities ($K = 3.42 \times 10^{-02}$ feet/day) from slug-tests conducted in 1994 (GAI, 1994) was used in these calculations. The average effective porosity ($n = 31\%$) from test results (GAI, 1994) was also used. Although the regolith and bedrock are hydraulically connected, the effective porosity generally decreases with depth into the underlying fractured bedrock. The modified Darcy equation makes the simplifying assumption of a homogeneous and isotropic aquifer.

The calculated linear groundwater velocities ranged from approximately 1.82 to 2.34 feet/year. The average estimated linear groundwater flow velocity under the facility was calculated at approximately 2.15 feet/year (Table 5). Groundwater flow direction ranges from south to southeast.

6.0 CONCLUSION

The only detections above the NC2L or GWPS detected at the Butner Landfill during the July 2009 sampling event were benzene in MW-2R and cobalt in MW-5. There were no quantified detections of inorganic or organic constituents in down-gradient monitoring wells that represented statistically significant increases above background. There were no exceedances of surface water standards. Based on analytical results from the July 2009 sampling event, Butner Landfill will remain in Assessment Monitoring.

A Nature and Extent Study (NES) and an Assessment of Corrective Measures (ACM) were initiated in 2007. Reevaluation of the data indicates that there have been no statistically significant exceedances of NC2L standards; therefore, the NES and ASD have been suspended.

The groundwater flow regime is consistent with previous events and the groundwater monitoring network remains adequate to monitor the site. The next semiannual sampling event is scheduled for the December 2009.

7.0 REFERENCES

Brady, P.V., M. V. Brady, D. J. Borns. 1998. *Natural Attenuation-CERCLA, RBCA's, and the Future of Environmental Remediation*. Lewis Publishers, New York.

GAI Consultants – NC, 1994. *Ground and Surface Water Monitoring System, Granville County, Butner Landfill, NC Permit No. 39-02.* June, 1994.

Hinchee, R.E., A. Leeson, L. Semprini, and S.K. Ong. 1994. *Bioremediation of Chlorinated and Polycyclic Aromatic Hydrocarbon Compounds*. Lewis Publishers, Boca Raton.

Interstate Technology and Regulatory Cooperation Work Group (ITRC). September 1999. *Natural Attenuation of Chlorinated Solvents in Groundwater: Principles and Practices. Technical/Regulatory Guidelines.*

Interstate Technical Regulatory Council (ITRC). 2003. *Technical and Regulatory Guidance Document for Constucted Treatment Wetlands.*

Joyce Engineering, Inc. (JEI). May 2005. *Preliminary Site Evaluation for a Potential C&D, Granville County Butner Landfill, Permit Number 39-02.*

JEI. July 2008. *Assessment of Corrective Measures Report, Granville County Butner Landfill, Permit Number 39-02.*

JEI. August 2008. *Second Semiannual Groundwater Monitoring Report of 2007, Granville County Butner Landfill, Permit Number 39-02.*

U.S. Department of Energy (USDE). May 1999. *Decision-Making Framework Guide for the Evaluation and Selection of Monitored Natural Attenuation Remedies at Department of Energy Sites.*

USEPA. May 1996. *Seminars on Bioremediation of Hazardous Waste Sites: Practical Approaches to Implementation.* ORD,EPA/625/K-96/001. Chapters 15 (Natural Attenuation of Groundwater) and 17 (Natural Attenuation of Landfills).

USEPA. May 1995. *How to Evaluate Alternative Cleanup Technologies for Underground Storage Tank Sites: A Guide for Corrective Action Plan Reviewers*. Chapters 2 (Soil Vapor Extraction) and 10 (In-Situ Groundwater Bioremediation).

USEPA. February 1991. *Conducting Remedial Investigations/Feasibility Studies for CERCLA Municipal Landfill Sites*. OSWER Directive 9355.3-11, EPA/540/P-91/001.

USEPA. October 1988. *Interim Final Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA*. Office of Solid Waste and Emergency Response (OSWER) Directive 9355.3-01, EPA/540/G-89/004.

USEPA and U.S. Air Force (USAF). July 1993. *Remediation Technologies Screening Matrix Reference Guide, Version I.* Joint Project of OSWER and Environics Directorate, PB93-2118212.

8.0 ACRONYMS

ACM	Assessment of Corrective Measures (Report)
AOC	Area of Concern
C&D	Construction and Demolition Waste
CAP	Corrective Action Plan (Report)
CASE	Corrective Action Status Evaluation (Report)
COC	Constituent of Concern
DENR	North Carolina Department of Environment and Natural Resources
DL	Detection Limit (for laboratory data)
DO	Dissolved Oxygen
EPA	United States Environmental Protection Agency
GWPS	Groundwater Protection Standards (established by DENR-SWS)
JEI	Joyce Engineering, Inc.
LFG	Landfill Gas
MNA	Monitored Natural Attenuation
MSW	Municipal Solid Waste
MW	Monitoring Well
NC2B	North Carolina Surface Water Standards found in 15A NCAC 2B
NC2L	North Carolina Groundwater Standards found in 15A NCAC 2L
NCAC	North Carolina Administrative Code
NCSWMR	North Carolina Solid Waste Management Regulations (15A NCAC 13B.1600)
ND	Not Detected (for laboratory data)
NES	Nature and Extent Study (Report)
O&M	Operations and Maintenance
QL	Quantitation Limit (for laboratory data)
QRA	Quantitative Risk Assessment (Report)
RL	Reporting Limit (for laboratory data)
SWQS	Surface Water Quality Standards
SWS	Solid Waste Section (of DENR)
SWSL	North Carolina Solid Waste Section Reporting Limits
VOC	Volatile Organic Compound
WQMP	Water Quality Monitoring Plan (Report)

TABLES

Table 1	Historically Detected Inorganic Constituents
Table 2	Historically Detected Organic Constituents
Table 3	Summary of Statistical Analyses
Table 4	Historical Groundwater Elevation Data
Table 5	Estimated Hydraulic Gradients and Groundwater Flow Velocities

TABLE 1
HISTORICALLY DETECTED INORGANIC CONSTITUENTS

Constituent	Date	DL	RL	Concentration (µg/L)									
				Background	Downgradient						Surface Water		Blanks
				MW-1R	MW-2R	MW-3R	MW-4	MW-5	MW-6	NES-1	SW-1	SW-2	
Antimony	Sep-94	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-98	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	30	ND	80.0	38.0	32.0	33.0	31.0	NI	ND	ND	NS
	Oct-00	NR	30	30.0	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	30	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	30	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	6	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	6	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
GWPS = 1.4 ug/L (10/23/07)	19-Dec-07	NR	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 5.6 ug/L (03/28/08)	08-Jul-08	NR	6	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	17-Dec-08	2.6	6.0	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	2.6	6.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Arsenic	Sep-94	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	10	6.0 J	15.0	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	10	ND	5.0 J	ND	ND	ND	ND	NI	ND	ND	NS
	May-98	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	10	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	10	2.0 J	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 50 ug/L (10/23/07)	19-Dec-07	NR	10	ND	4.1 J	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 10 ug/L (03/28/08)	08-Jul-08	NR	10	ND	4.9 J	ND	ND	ND	ND	NS	ND	ND	ND
	17-Dec-08	2.7	10.0	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	2.7	10.0	ND	13.5	10.9	5.6 J	ND	4.0 J	ND	ND	ND	ND
Barium	Sep-94	NR	500	ND	270	ND	ND	830	860	NI	ND	ND	NS
	Dec-94	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	500	ND	ND	ND	ND	510	ND	NI	ND	ND	NS
	Mar-95	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	500	ND	82.0	30.0	ND	15.0	ND	NI	37.0	37.0	NS
	Jun-97	NR	500	200	320	37.0	17.0	210	31.0	NI	37.0	62.0	NS
	Dec-97	NR	500	61.0	180	43.0	46.0	220	33.0	NI	53.0	45.0	NS
	May-98	NR	500	30.0	150	45.0	13.0	180	22.0	NI	24.0	69.0	NS
	Nov-98	NR	500	48.0	120	42.0	ND	380	12.0	NI	ND	100	NS
	Jul-99	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	500	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	500	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	100	5.2 J	120	64.9	1.5 J	64.1	1.8 J	NI	37.5	40.6	0.20 J
	12-Jul-07	NR	100	2.5 J	129	65.7 J	1.1 J	77.0 J	1.3 J	NI	33.3 J	DRY	ND
NC 2L = 2,000 ug/L (10/23/07)	19-Dec-07	NR	100	2.8 B	99.2	50.0 B	1.4 B	49.6 B	1.7 B	87.8	52.6 B	149	11.7
NC 2B/EPA NC = 1,000 ug/L (03/28/08)	08-Jul-08	NR	100	5.8 J	102	58.4 J	1.1 B	57.9 J	1.2 B	NS	33.8 J	161	0.29 J
	17-Dec-08	0.20	100	2.7 B	92.9 J	53.1 B	1.2 B	55.5 J	1.1 B	NS	30.2 B	33.5 B	10.7 J
	09-Jul-09	0.20	100	4.6 B	121	63.4 B	0.37 B	81.4 B	0.94 B	72.4 B	36.8 B	78.4 B	17.6 J

TABLE 1
HISTORICALLY DETECTED INORGANIC CONSTITUENTS

Constituent	Date	Concentration (µg/L)																		
		DL	RL	Background		Downgradient									Surface Water				Blanks	
				MW-1R		MW-2R		MW-3R		MW-4		MW-5		MW-6		NES-1		SW-1		SW-2		
Beryllium	Sep-94	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Dec-94	NR	2	ND		ND		ND		ND		4.0		ND		NI		ND		ND		NS
	Feb-95	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Mar-95	NR	2	ND		ND		ND		ND		2.0		ND		NI		ND		ND		NS
	Nov-95	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	May-96	NR	2	ND		ND		ND		ND		6.0		ND		NI		ND		ND		NS
	Nov-96	NR	2	ND		ND		ND		ND		3.0		ND		NI		ND		ND		NS
	Jun-97	NR	2	2.0		3.0		ND		ND		1.0		ND		NI		ND		ND		NS
	Dec-97	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	May-98	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Nov-98	NR	2	ND		ND		ND		ND		2.0		ND		NI		ND		ND		NS
	Jul-99	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Nov-99	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	May-00	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Oct-00	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Apr-01	NR	2	ND		12.0		ND		ND		ND		ND		NI		ND		ND		NS
	Oct-01	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Jun-02	NR	2	ND		ND		ND		ND		ND		ND		NI		NS		NS		NS
	Nov-02	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Jun-03	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Dec-03	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Jun-04	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Dec-04	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Dec-04	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Jun-05	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Dec-05	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	28-Jun-06	NR	2	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	29-Dec-06	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	12-Jul-07	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		DRY		ND
GWPS = 4 ug/L (10/23/07)	19-Dec-07	NR	1	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND
NC 2B/EPA NC = 6.5 ug/L (03/28/08)	08-Jul-08	NR	1	ND		ND		ND		ND		ND		ND		NS		0.32	J	ND		ND
	17-Dec-08	0.10	1.0	ND		ND		ND		ND		0.14	J	ND		NS		ND		ND		ND
	09-Jul-09	0.10	1.0	ND		0.18	J	0.22	J	0.17	J	ND		ND		0.23	J	ND		ND		ND
Cadmium	Sep-94	NR	1	ND		ND		ND		ND		ND		4.0		NI		ND		ND		NS
	Dec-94	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Feb-95	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Mar-95	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Nov-95	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	May-96	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Nov-96	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Jun-97	NR	1	ND		3.0		1.0		ND		ND		ND		NI		ND		ND		NS
	Dec-97	NR	1	ND		2.0		ND		ND		ND		ND		NI		ND		ND		NS
	May-98	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Nov-98	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Jul-99	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Nov-99	NR	1	ND		3.0		3.0		ND		2.0		ND		NI		ND		ND		NS
	May-00	NR	1	5.0		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Oct-00	NR	1	ND		2.0		ND		ND		ND		ND		NI		ND		ND		NS
	Apr-01	NR	1	ND		11.0		ND		ND		ND		ND		NI		ND		ND		NS
	Oct-01	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Jun-02	NR	1	ND		2.0		ND		ND		ND		ND		NI		NS		NS		NS
	Nov-02	NR	1	2.0		2.0		ND		ND		2.0		ND		NI		ND		ND		NS
	Jun-03	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Dec-03	NR	1	ND		1.0		ND		ND		ND		ND		NI		ND		ND		ND
	Jun-04	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Dec-04	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Jun-05	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Dec-05	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	28-Jun-06	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	29-Dec-06	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	12-Jul-07	NR	1	ND		ND		ND		ND		ND		ND		NI		ND		DRY		ND
NC 2L = 1.75 ug/L (10/23/07)	19-Dec-07	NR	1	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND
NC 2B/EPA NC = 2 ug/L (03/28/08)	08-Jul-08	NR	1	ND		ND		ND		ND		ND		ND		NS		ND		ND		ND
	17-Dec-08	0.50	1.0	ND		ND		ND		ND		ND		ND		NS		ND		ND		ND
	09-Jul-09	0.50	1.0	ND		1.4		ND		ND		ND		ND		ND		ND		ND		ND
Chromium	Sep-94	NR	10	8.0		44.0		ND		6.0		48.0		80.0		NI		ND		ND		NS
	Dec-94	NR	10	14.0		ND		ND		ND		18.0		ND		NI		ND		ND		NS
	Feb-95	NR	10	14.0		ND		ND		10.0		ND		ND		NI		ND		ND		NS
	Mar-95	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Nov-95	NR	10	13.0		13.0		ND		ND		ND		ND		NI		ND		ND		NS
	May-96	NR	10	33.0		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Nov-96	NR	10	3.0		ND		ND		ND		ND		3.0		NI		ND		ND		NS
	Jun-97	NR	10	57.0		43.0		ND		3.0		2.0		6.0		NI		ND		3.0		NS
	Dec-97	NR	10	29.0		ND		ND		ND		ND		ND		NI		ND		ND		NS
	May-98	NR	10	10.0		3.0		ND		ND		12.0		ND		NI		ND		ND		NS
	Nov-98	NR	10	17.0		3.0		ND		ND		5.0		ND		NI		ND		ND		NS
	Jul-99	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Nov-99	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	May-00	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Oct-00	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Apr-01	NR	10	ND		12.0		ND		ND		ND		ND		NI		ND		ND		NS
	Oct-01	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Jun-02	NR	10	ND		ND		ND		ND		ND		ND		NI		NS		NS		NS
	Nov-02	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Jun-03	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		NS
	Dec-03	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Jun-04	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Dec-04	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Jun-05	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	Dec-05	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	28-Jun-06	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	29-Dec-06	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		ND		ND
	12-Jul-07	NR	10	ND		ND		ND		ND		ND		ND		NI		ND		DRY		ND
NC 2L = 50 ug/L (10/23/07)	19-Dec-07	NR	10	ND		2.0	B	ND		ND		ND		ND		1.1	B	2.2	B	2.6	B	1.4	J
NC 2B/EPA NC = 50 ug/L (03/28/08)	08-Jul-08	NR	10	ND		0.54	J	0.58	J	ND		ND		ND		NS		2.5	J	2.2	J	ND	
	17-Dec-08	0.40	10.0	0.73	J	1.8	J	0.96	J	ND		0.96	J	0.70	J	NS		1.4	J	2.6	J	ND	
	09-Jul-09	0.40	10.0	1.2	J	2.4	J	1.1	J	1.6	J	0.68	J	0.53	J	4.8	J	2.6	J	1.2	J	ND	

TABLE 1
HISTORICALLY DETECTED INORGANIC CONSTITUENTS

Constituent	Date	DL	RL	Concentration (µg/L) Background MW-1R	Downgradient MW-2R	MW-3R	MW-4	MW-5	MW-6	NES-1	Surface Water SW-1	SW-2	Blanks
Cobalt	Sep-94	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	10	11.0	ND	13.0	16.0	22.0	ND	NI	ND	ND	NS
	Feb-95	NR	10	20.0	14.0	ND	48.0	39.0	ND	NI	ND	ND	NS
	Mar-95	NR	10	16.0	21.0	ND	29.0	121.0	ND	NI	ND	ND	NS
	Nov-95	NR	10	20.0	21.0	ND	ND	27.0	ND	NI	ND	ND	NS
	May-96	NR	10	30.0	16.0	ND	ND	122	ND	NI	ND	ND	NS
	Nov-96	NR	10	6.0	13.0	ND	4.7	93.0	ND	NI	ND	ND	NS
	Jun-97	NR	10	130	38.0	ND	6.0	45.0	3.0	NI	ND	ND	NS
	Dec-97	NR	10	32.0	21.0	ND	12.0	36.0	4.0	NI	ND	ND	NS
	May-98	NR	10	15.0	16.0	2.0	9.0	100	3.0	NI	2.0	2.0	NS
	Nov-98	NR	10	21.0	16.0	2.0	7.0	180	3.0	NI	ND	3.0	NS
	Jul-99	NR	10	ND	16.0	ND	ND	100	ND	NI	ND	ND	NS
	Nov-99	NR	10	ND	15.0	ND	ND	38.0	ND	NI	ND	ND	NS
	May-00	NR	10	ND	17.0	ND	ND	61.0	ND	NI	ND	ND	NS
	Oct-00	NR	10	ND	15.0	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	10	ND	27.0	ND	ND	74.0	ND	NI	ND	ND	NS
	Oct-01	NR	10	ND	12.0	ND	ND	47.0	ND	NI	ND	22.0	NS
	Jun-02	NR	10	ND	14.0	ND	ND	251	ND	NI	NS	NS	NS
	Nov-02	NR	10	ND	10.0	ND	ND	57.0	ND	NI	ND	ND	NS
	Jun-03	NR	10	ND	15.0	ND	ND	75.0	ND	NI	ND	10.0	NS
	Dec-03	NR	10	ND	17.0	ND	ND	52.0	ND	NI	ND	ND	ND
	Jun-04	NR	10	ND	16.0	ND	ND	31.0	ND	NI	ND	ND	ND
	Dec-04	NR	10	ND	11.0	ND	ND	46.0	ND	NI	ND	ND	ND
	Jun-05	NR	10	ND	11.0	ND	ND	43.0	ND	NI	ND	ND	ND
	Dec-05	NR	10	ND	12.0	ND	ND	30.0	ND	NI	ND	ND	ND
	28-Jun-06	NR	10	ND	ND	ND	ND	72.5	ND	NI	ND	ND	ND
	29-Dec-06	NR	10	ND	11.4	ND	ND	37.5	ND	NI	ND	ND	ND
	12-Jul-07	NR	10	ND	11.8	ND	2.7	58.4	ND	NI	ND	DRY	ND
GWPS = 70 ug/L (10/23/07)	19-Dec-07	NR	10	2.5 B	ND	ND	2.0 B	103	2.6 B	8.0 B	4.2 B	1.2 B	1.8 J
NC 2B/EPA NC = 2.5 ug/L (03/28/08)	08-Jul-08	NR	10	10.3 B	12.1 B	2.0 B	9.0 B	130	4.8 B	NS	4.8 B	10.5 B	6.2 J
	17-Dec-08	0.60	10.0	2.1 B	11.8 B	2.3 B	3.6 B	43.7	1.6 B	NS	1.7 B	1.1 B	2.5 J
	09-Jul-09	0.60	10.0	ND	6.2 J	ND	ND	100	ND	2.2 J	ND	ND	ND
Copper	Sep-94	NR	200	ND	ND	ND	ND	ND	660	NI	ND	ND	NS
	Dec-94	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	200	ND	ND	32.0	13.0	100	ND	NI	ND	ND	NS
	Jun-97	NR	200	34.0	350	13.0	37.0	28.0	77.0	NI	ND	ND	NS
	Dec-97	NR	200	19.0	72.0	14.0	88.0	15.0	34.0	NI	ND	ND	NS
	May-98	NR	200	12.0	48.0	380	41.0	53.0	28.0	NI	ND	ND	NS
	Nov-98	NR	200	10.0	ND	410	28.0	53.0	14.0	NI	ND	ND	NS
	Jul-99	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	200	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	200	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	10	ND	ND	11.3	5.50 J	10.4	1.90 B	NI	1.30 B	1.10 B	0.60 J
	12-Jul-07	NR	10	ND	ND	13.4	7.90	2.6 J	ND	NI	ND	DRY	ND
NC 2L = 1,000 ug/L (10/23/07)	19-Dec-07	NR	10	2.0 B	ND	8.6 B	3.8 B	7.0 B	0.73 B	5.8 B	5.3 B	ND	9.8
NC 2B/EPA NC = 7 ug/L (03/28/08)	08-Jul-08	NR	10	0.64 J	ND	12.1	3.7 J	8.5 J	ND	NS	1.7 J	4.2 J	ND
	17-Dec-08	0.30	10.0	0.80 J	13.6	10.2	3.9 J	11.9	0.37 J	NS	1.4 J	1.5 J	ND
	09-Jul-09	0.30	10.0	ND	ND	6.3 J	ND	5.7 J	ND	8.8 J	ND	ND	ND
Lead	Sep-94	NR	10	ND	13.0	ND	ND	30.0	36.0	NI	ND	ND	NS
	Dec-94	NR	10	11.0	ND	ND	ND	36.0	ND	NI	ND	ND	NS
	Feb-95	NR	10	ND	ND	ND	10.0	37.0	ND	NI	ND	ND	NS
	Mar-95	NR	10	ND	ND	ND	ND	44.0	ND	NI	ND	ND	NS
	Nov-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	10	ND	ND	ND	ND	42.0	ND	NI	ND	ND	NS
	Nov-96	NR	10	ND	ND	ND	ND	13.0	ND	NI	ND	ND	NS
	Jun-97	NR	10	20.0	29.0	ND	ND	13.0	ND	NI	ND	ND	NS
	Dec-97	NR	10	8.0	14.0	ND	5.0	14.0	ND	NI	ND	ND	NS
	May-98	NR	10	ND	6.0	ND	6.0	21.0	ND	NI	ND	8	NS
	Nov-98	NR	10	5.0	ND	ND	ND	58.0	ND	NI	ND	ND	NS
	Jul-99	NR	10	ND	12.0	14.0	ND	ND	ND	NI	ND	10	NS
	Nov-99	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	10	11.0	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	10	ND	ND	ND	ND	12.0	ND	NI	ND	ND	NS
	Jun-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	10	ND	ND	ND	ND	ND	2.1 J	NI	ND	ND	ND
	12-Jul-07	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 15 ug/L (10/23/07)	19-Dec-07	NR	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 25 ug/L (03/28/08)	08-Jul-08	NR	10	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	17-Dec-08	4.0	10.0	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	4.0	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 1
HISTORICALLY DETECTED INORGANIC CONSTITUENTS

Constituent	Date	Concentration (µg/L)																							
		DL	RL	Background		Downgradient															Surface Water				Blanks	
				MW-1R		MW-2R		MW-3R		MW-4		MW-5		MW-6		NES-1					SW-1		SW-2			
Mercury	Dec-97	NR	0.5	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Nov-98	NR	0.5	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Nov-99	NR	0.5	ND		0.59		0.65		0.65		0.76		ND		NI					NS		NS		NS	
	May-00	NR	0.5	NS		ND		ND		ND		ND		NS		NI					NS		NS		NS	
	Oct-00	NR	0.5	NS		ND		ND		ND		ND		NS		NI					NS		NS		NS	
	Apr-01	NR	0.5	NS		ND		ND		ND		ND		NS		NI					NS		NS		NS	
	Jun-02	NR	0.5	NS		ND		ND		ND		ND		NS		NI					NS		NS		NS	
	Jun-03	NR	0.5	NS		ND		ND		ND		ND		NS		NI					NS		NS		NS	
	Dec-03	NR	0.5	NS		NS		NS		NS		NS		NS		NI					NS		NS		NS	
	Jun-04	NR	0.5	ND		ND		ND		ND		ND		ND		NI					NS		NS		ND	
	Dec-04	NR	NR	NS		NS		NS		NS		NS		NS		NI					NS		NS		NS	
	Jun-05	NR	0.5	ND		ND		ND		ND		ND		ND		NI					NS		NS		ND	
	Dec-05	NR	NR	NS		NS		NS		NS		NS		NS		NI					NS		NS		NS	
	28-Jun-06	NR	2	ND		ND		ND		ND		ND		ND		NI					NS		NS		ND	
	29-Dec-06	NR	NR	NS		NS		NS		NS		NS		NS		NI					NS		NS		NS	
	12-Jul-07	NR	0.2	ND		ND		ND		ND		ND		ND		NI					ND		DRY		ND	
NC 2L = 1.05 ug/L (10/23/07)	19-Dec-07	NR	NR	NS		NS		NS		NS		NS		NS		ND					NS		NS		NS	
NC 2B/EPA NC = 0.012 ug/L (03/28/08)	08-Jul-08	NR	0.2	ND		ND		ND		ND		ND		ND		NS					NS		NS		ND	
	17-Dec-08	NR	NR	NS		NS		NS		NS		NS		NS		NS					NS		NS		NS	
	09-Jul-09	0.070	0.2	ND		ND		ND		ND		ND		ND		NS					NS		NS		ND	
Nickel	Sep-94	NR	50	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Dec-94	NR	50	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Feb-95	NR	50	ND		72		ND		ND		ND		ND		NI					ND		ND		NS	
	Mar-95	NR	50	ND		100		ND		ND		ND		ND		NI					ND		ND		NS	
	Nov-95	NR	50	ND		61.0		ND		ND		ND		ND		NI					ND		ND		NS	
	May-96	NR	50	ND		85.0		ND		ND		ND		ND		NI					ND		ND		NS	
	Nov-96	NR	50	ND		72.0		ND		ND		ND		ND		NI					ND		ND		NS	
	Jun-97	NR	50	75		98.0		ND		ND		ND		ND		NI					ND		ND		NS	
	Dec-97	NR	50	ND		89.0		ND		ND		ND		ND		NI					ND		ND		NS	
	May-98	NR	50	ND		91.0		ND		ND		ND		ND		NI					ND		ND		NS	
	Nov-98	NR	50	ND		83.0		ND		ND		ND		ND		NI					ND		ND		NS	
	Jul-99	NR	50	ND		109		ND		ND		ND		ND		NI					ND		ND		NS	
	Nov-99	NR	50	ND		122		ND		ND		ND		ND		NI					ND		ND		NS	
	May-00	NR	50	ND		104		ND		ND		ND		ND		NI					ND		ND		NS	
	Oct-00	NR	50	ND		93.0		ND		ND		ND		ND		NI					ND		ND		NS	
	Apr-01	NR	50	ND		107		ND		ND		ND		ND		NI					ND		ND		NS	
	Oct-01	NR	50	ND		92.0		ND		ND		ND		ND		NI					ND		ND		NS	
	Jun-02	NR	50	ND		98.0		ND		ND		ND		ND		NI					NS		NS		NS	
	Nov-02	NR	50	ND		74.0		ND		ND		ND		ND		NI					ND		ND		NS	
	Jun-03	NR	50	ND		85.0		ND		ND		ND		ND		NI					ND		ND		NS	
	Dec-03	NR	50	ND		100		ND		ND		ND		ND		NI					ND		ND		ND	
	Jun-04	NR	50	ND		120 (81.0)		ND		ND		ND		ND		NI					ND		ND		ND	
	Dec-04	NR	50	ND		100		ND		ND		ND		ND		NI					ND		50.0 (ND)		ND	
	Jun-05	NR	50	ND		150 (92.0)		ND		ND		ND		ND		NI					ND		ND		ND	
	Dec-05	NR	50	ND		96.0		ND		ND		ND		ND		NI					ND		ND		ND	
	28-Jun-06	NR	50	ND		88.7		ND		ND		ND		ND		NI					ND		ND		ND	
	29-Dec-06	NR	50	ND		94.7		30.1		14.2		8.9	J	ND		NI					ND		2.9	J	ND	
	12-Jul-07	NR	50	ND		99.0		30.6	J	13.9	J	13.7	J	ND		NI					3.8	J	DRY		ND	
NC 2L = 100 ug/L (10/23/07)	19-Dec-07	NR	50	ND		83.4		23.7		11.0		18.3		ND		11.4					6.0		31.5		ND	
NC 2B/EPA NC = 25 ug/L (03/28/08)	08-Jul-08	NR	50	ND		76.0		28.1	J	11.5	J	27.0	J	ND		NS					3.2	J	29.8	J	ND	
	17-Dec-08	1.7	50.0	ND		75.5		27.8	J	12.2	J	11.0	B	ND		NS					2.4	B	4.0	B	2.4	J
	09-Jul-09	1.7	50.0	2.2	J	93.5		29.4	J	11.7	J	23.2	J	ND		13.1	J				4.1	J	12.3	J	ND	
Selenium	Sep-94	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Dec-94	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Feb-95	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Mar-95	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Nov-95	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	May-96	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Nov-96	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Jun-97	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Dec-97	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	May-98	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Nov-98	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Jul-99	NR	20	ND		ND		ND		ND		36.0		ND		NI					ND		ND		NS	
	Nov-99	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	May-00	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Oct-00	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Apr-01	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Oct-01	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Jun-02	NR	20	ND		ND		ND		ND		ND		ND		NI					NS		NS		NS	
	Nov-02	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Jun-03	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		NS	
	Dec-03	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		ND	
	Jun-04	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		ND	
	Dec-04	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		ND	
	Jun-05	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		ND	
	Dec-05	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		ND	
	28-Jun-06	NR	20	ND		ND		ND		ND		ND		ND		NI					ND		ND		ND	
	29-Dec-06	NR	10	ND		ND		ND		ND		ND		ND		NI					ND		ND		ND	
	12-Jul-07	NR	10	ND		ND		ND		ND		ND		ND		NI					ND		DRY		ND	
NC 2L = 50 ug/L (10/23/07)	19-Dec-07	NR	10	ND		11.5		ND		ND		ND		ND		ND					ND		ND		ND	
NC 2B/EPA NC = 5 ug/L (03/28/08)	08-Jul-08	NR	10	ND		ND		ND		ND		ND		ND		NS					ND		ND		ND	
	17-Dec-08	3.8	10.0	4.8	B	5.1	B	4.8	B	ND		ND		ND		NS					ND		ND		4.9	J
	09-Jul-09	3.8	10.0	ND		ND		4.2	J	ND		ND		ND		ND					ND		ND		ND	

TABLE 1
HISTORICALLY DETECTED INORGANIC CONSTITUENTS

Constituent	Date	Concentration (µg/L)												
		DL	RL	Background	Downgradient						Surface Water		Blanks
				MW-1R	MW-2R	MW-3R	MW-4	MW-5	MW-6	NES-1	SW-1	SW-2	
Silver	Sep-94	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	10	ND	8.0	ND	ND	ND	3	NI	ND	ND	NS
	May-98	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	10	ND	15.0	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	10	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	10	ND	ND	ND	ND	ND	ND	NI	2.2 J	DRY	ND
NC 2L = 17.5 ug/L (10/23/07)	19-Dec-07	NR	10	ND	0.57 J	0.60 J	0.55 J	ND	0.33 J	ND	ND	0.34 J	ND
NC 2B/EPA NC = 0.06 ug/L (03/28/08)	08-Jul-08	NR	10	ND	2.7 J	2.3 J	1.1 J	0.22 J	0.69 J	NS	0.35 B	1.0 J	0.12 J
	17-Dec-08	0.10	10.0	0.13 J	1.8 J	1.4 J	0.85 J	0.12 J	0.51 J	NS	ND	ND	ND
	09-Jul-09	0.10	10.0	ND	0.84 J	0.63 J	0.45 J	ND	0.11 J	ND	ND	0.10 J	ND
Thallium	Sep-94	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	10	ND	3.0	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-98	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	10	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	10	ND	10 J (ND)	ND	ND	ND	ND	NI	ND	10.0 (ND)	ND
	Jun-05	NR	10	ND	22.0 (30.0)	13.0 (24.0)	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	10	ND	23.0	20.0	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	10	ND	25.7	12.6	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	6	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	5.5	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
GWPS = 0.28 ug/L (10/23/07)	19-Dec-07	NR	5.5	ND	4.0 J	ND	ND	ND	ND	ND	3.6 J	ND	ND
NC 2B/EPA NC = 0.24 ug/L (03/28/08)	08-Jul-08	NR	5.5	ND	ND	ND	ND	ND	ND	NS	3.4 J	ND	ND
	17-Dec-08	3.0	5.5	ND	3.2 J	3.2 J	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	3.0	5.5	ND	ND	ND	4.1 J	ND	ND	ND	ND	ND	ND
Tin	Dec-97	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	100	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Oct-00	NR	100	NS	ND	ND	ND	ND	NS	NI	NS	NS	NS
	Apr-01	NR	100	NS	ND	ND	ND	ND	NS	NI	NS	NS	NS
	Oct-01	NR	100	NS	NS	NS	NS	NS	NS	NI	NS	NS	NS
	Jun-02	NR	100	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	100	NS	NS	NS	NS	NS	NS	NI	NS	NS	NS
	Jun-03	NR	100	ND	149	127	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	100	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Dec-04	NR	100	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Jun-05	NR	100	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Dec-05	NR	100	ND	ND	ND	ND	ND	ND	NI	NR	NR	ND
	28-Jun-06	NR	100	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	29-Dec-06	NR	100	ND	41.1	14.4	3.2 J	ND	ND	NI	NS	NS	ND
	12-Jul-07	NR	100	ND	35.2 J	13.9 J	5.2 J	ND	ND	NI	ND	DRY	ND
NC 2L = NE ug/L (10/23/07)	19-Dec-07	NR	100	ND	33.6	7.4	ND	ND	ND	ND	NS	NS	ND
NC 2B/EPA NC = 770 ug/L (03/28/08)	08-Jul-08	NR	100	4.4 J	28.6 J	15.1 J	5.4 J	3.0 J	3.6 J	NS	NS	NS	ND
	17-Dec-08	1.8	100	ND	22.5 J	9.2 J	ND	ND	ND	NS	NS	NS	ND
	09-Jul-09	1.8	100	ND	21.4 J	8.6 J	ND	ND	ND	NS	NS	NS	ND

TABLE 1
HISTORICALLY DETECTED INORGANIC CONSTITUENTS

Constituent	Date	Concentration (µg/L)																											
		DL	RL	Background		Downgradient														Surface Water				Blanks	
				MW-1R		MW-2R		MW-3R		MW-4		MW-5		MW-6		NES-1				SW-1		SW-2			
Vanadium	Sep-94	NR	40	ND		ND		ND		ND		ND		130		NI				ND		ND		NS	
	Dec-94	NR	40	63.0		ND		ND		45.0		ND		ND		NI				ND		ND		NS	
	Feb-95	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Mar-95	NR	40	41.0		ND		ND		45.0		ND		ND		NI				ND		ND		NS	
	Nov-95	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	May-96	NR	40	83.0		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Nov-96	NR	40	7.0		17		ND		21.0		ND		ND		NI				ND		ND		NS	
	Jun-97	NR	40	450		560		ND		19.0		ND		ND		NI				ND		ND		NS	
	Dec-97	NR	40	62.0		88.0		ND		41.0		ND		10.0		NI				ND		ND		NS	
	May-98	NR	40	25.0		15.0		ND		10.0		5.0		ND		NI				ND		ND		NS	
	Nov-98	NR	40	33.0		29.0		5.0		16.0		9.0		5.0		NI				ND		ND		NS	
	Jul-99	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Nov-99	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	May-00	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Oct-00	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Apr-01	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Oct-01	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Jun-02	NR	40	ND		ND		ND		ND		ND		ND		NI				NS		NS		NS	
	Nov-02	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Jun-03	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Dec-03	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		ND	
	Jun-04	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		ND	
	Dec-04	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		ND	
	Jun-05	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		ND	
	Dec-05	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		ND	
	28-Jun-06	NR	40	ND		ND		ND		ND		ND		ND		NI				ND		ND		ND	
	29-Dec-06	NR	25	2.7	J	ND		ND		14.5		ND		1.0	J	NI				1.6	J	2.0	J	ND	
	12-Jul-07	NR	25	ND		ND		ND		19.4	J	ND		ND		NI				4.6	J	DRY		ND	
GWPS = 3.5 ug/L (10/23/07)	19-Dec-07	NR	25	2.2	B	2.2	B	ND		15.7	J	3.0	B	1.2	B	4.0	J			3.3	J	1.4	B	0.62	J
NC 2B/EPA NC = NE ug/L (03/28/08)	08-Jul-08	NR	25	2.6	J	2.4	J	ND		14.6	J	1.4	J	1.2	J	NS				5.2	J	2.3	J	0.20	J
	17-Dec-08	0.20	25.0	1.9	B	2.3	B	ND		13.9	J	2.5	B	1.2	B	NS				1.8	B	2.7	B	0.76	J
	09-Jul-09	0.20	25.0	3.9	B	9.7	J	2.5	B	18.4	J	2.9	B	2.2	B	8.5	J			5.0	B	3.4	B	1.30	J
Zinc	Sep-94	NR	50	110		160		ND		ND		320		430		NI				ND		ND		NS	
	Dec-94	NR	50	132		ND		ND		70		164		ND		NI				ND		ND		NS	
	Feb-95	NR	50	144		89		ND		91		79		74		NI				ND		ND		NS	
	Mar-95	NR	50	67		ND		ND		ND		111		ND		NI				ND		ND		NS	
	Nov-95	NR	50	ND		50		ND		ND		ND		ND		NI				ND		ND		NS	
	May-96	NR	50	136		ND		ND		ND		122		ND		NI				ND		ND		NS	
	Nov-96	NR	50	79.0		48.0		28.0		ND		38.0		ND		NI				11.0		ND		NS	
	Jun-97	NR	50	370		410		33.0		39.0		36.0		69.0		NI				ND		ND		NS	
	Dec-97	NR	50	140		110		11.0		45.0		34.0		30.0		NI				20.0		ND		NS	
	May-98	NR	50	70.0		63.0		23.0		31.0		47.0		34.0		NI				20.0		28.0		NS	
	Nov-98	NR	50	61.0		33.0		21.0		17.0		53.0		10.0		NI				ND		ND		NS	
	Jul-99	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Nov-99	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	May-00	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Oct-00	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Apr-01	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Oct-01	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Jun-02	NR	50	ND		ND		ND		ND		382		ND		NI				NS		NS		NS	
	Nov-02	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Jun-03	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		NS	
	Dec-03	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		ND	
	Jun-04	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		ND	
	Dec-04	NR	50	ND		ND		ND		66.0		ND		ND		NI				ND		ND		ND	
	Jun-05	NR	50	ND		54.0		56.0		ND		ND		ND		NI				ND		ND		ND	
	Dec-05	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		ND	
	28-Jun-06	NR	50	ND		ND		ND		ND		ND		ND		NI				ND		ND		ND	
	29-Dec-06	NR	50	8.0	J	ND		ND		4.1	J	4.3	J	4.1	J	NI				ND		ND		ND	
	12-Jul-07	NR	10	9.6	J	ND		ND		ND		ND		ND		NI				ND		DRY		ND	
NC 2L = 1,050 ug/L (10/23/07)	19-Dec-07	NR	10	4.3	B	14.3	B	6.3	B	ND		ND		ND		2.4	B			24.6	B	ND		102	
NC 2B/EPA NC = 50 ug/L (03/28/08)	08-Jul-08	NR	10	5.9	B	ND		ND		ND		4.1	B	ND		NS				ND		ND		1.2	J
	17-Dec-08	0.40	10.0	2.4	B	6.3	J	ND		ND		4.6	J	0.60	B	NS				ND		0.89	B	0.49	J
	09-Jul-09	0.40	10.0	3.4	B	ND		ND		ND		ND		ND		6.1	B			ND		4.9	B	1.6	J
Cyanide	09-Jul-09	5.0	10	ND		ND		ND		ND		46.9		ND		ND				NS		NS		ND	
Resample >	28-Sep-09	5.0	10	NS		NS		NS		NS		ND		NS		NS				NS		NS		ND	
NC 2L = 70 ug/L (10/23/07)																									
NC 2B/EPA NC = 5 ug/L (03/28/08)																									

Notes:
1. All concentrations are in micrograms per liter (mg/L).
2. RL = Laboratory reporting limit (NC SWSL from October 2007 to present).
3. ND = Not detected above laboratory reporting limit.
4. B = Blank-qualified data; result is expected to be biased high based on concentrations in the blanks
5. NC 2L = North Carolina 2L Groundwater Standards.
6. GWPS = Groundwater Protection Standards.
7. When the NC 2L has not been established, the GWPS will be used.
8. Shaded values for groundwater are above the NC 2L Groundwater Standards or Groundwater Protection Standards.
7. Shaded values for surface water are above the NC 2B Surface Water Standards (NC2B) or National Criteria per EPA (EPA NC).
9. DL = Laboratory detection limit.
10. J = Estimated value between the DL and the RL
11. NI = Well/Piezometer not installed.
12. NS = Not sampled.
13. NR = Not Reported.
14. DRY = Monitoring well or surface water point considered to be dry.
15. Surface waters are classified as WS-IV/NSW (WS, human health, and fresh-water aquatic life).

TABLE 2
HISTORICALLY DETECTED ORGANIC CONSTITUENTS

Constituent	Date	Concentration (µg/L)											
		DL	RL	Background	Downgradient						Surface Water		Blanks
				MW-1R	MW-2R	MW-3R	MW-4	MW-5	MW-6	NES-1	SW-1	SW-2	
Acetone	Sep-94	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-98	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	100	244 B	109 B	ND	130 B	128 B	476 B	NI	168 B	337 B	479
	Jun-02	NR	100	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Jun-02	NR	100	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 700 ug/L (10/23/07)	19-Dec-07	NR	100	ND	ND	ND	ND	ND	ND	ND	12.7 B	ND	4.5 J
NC 2B/EPA NC = 2,000 ug/L (03/28/08)	08-Jul-08	NR	100	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	17-Dec-08	20.0	100	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	20.0	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	Sep-94	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-98	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	5	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	3	ND	1.5	ND	ND	ND	ND	NI	ND	ND	ND
Resample	23-Feb-07	NR	3	NS	1.2	NS	NS	NS	NS	NI	NS	NS	ND
	12-Jul-07	NR	1	ND	1.9	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 1 ug/L (10/23/07)	19-Dec-07	NR	1	ND	1.8	0.48 J	0.26 J	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 1.9 ug/L (03/28/08)	08-Jul-08	NR	1	ND	1.4	0.51 J	0.32 J	ND	ND	NS	ND	ND	ND
	17-Dec-08	0.25	1.0	ND	1.7	0.54 J	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	0.25	1.0	ND	1.7	0.34 J	ND	ND	ND	ND	ND	ND	ND
Bromomethane	17-Dec-08	0.29	10.0	ND	ND	0.58 J	ND	ND	ND	NS	ND	ND	ND
NC 2L = NE ug/L (10/23/07)	09-Jul-09	0.29	10.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 47 ug/L (03/28/08)													
2-Butanone	17-Dec-08	0.96	100	ND	ND	ND	ND	1.2 J	ND	NS	ND	ND	ND
NC 2L = 4,200 ug/L (10/23/07)	09-Jul-09	0.96	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 20,000 ug/L (03/28/08)													
Carbon Disulfide	Sep-94	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	100	ND	64.0	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	100	ND	5.0	8.0	ND	ND	ND	NI	ND	ND	NS
	May-98	NR	100	ND	7.5	6.2	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	5	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 700 ug/L (10/23/07)	19-Dec-07	NR	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = NE ug/L (03/28/08)	08-Jul-08	NR	100	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	17-Dec-08	1.2	100	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	1.2	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2
HISTORICALLY DETECTED ORGANIC CONSTITUENTS

Constituent	Date	Concentration (µg/L)											
		DL	RL	Background	Downgradient						Surface Water		Blanks
				MW-1R	MW-2R	MW-3R	MW-4	MW-5	MW-6	NES-1	SW-1	SW-2	
Chlorobenzene	Sep-94	NR	5	ND	10.0	7.0	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	5	ND	ND	7.0	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	5	ND	13.0	8.0	6.0	ND	ND	NI	ND	ND	NS
	Mar-95	NR	5	ND	12.0	9.0	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	5	ND	14.0	8.0	9.0	ND	ND	NI	ND	ND	NS
	May-96	NR	5	ND	15.0	9.0	10.0	ND	ND	NI	ND	ND	NS
	Nov-96	NR	5	ND	15.0	ND	11.0	ND	ND	NI	ND	ND	NS
	Jun-97	NR	5	ND	19.0	11.0	14.0	ND	ND	NI	ND	ND	NS
	Dec-97	NR	5	ND	17.0	9.0	14.0	ND	ND	NI	ND	ND	NS
	May-98	NR	5	ND	20.0	8.6	12.0	ND	ND	NI	ND	ND	NS
	Nov-98	NR	5	ND	17.2	9.2	10.0	ND	ND	NI	ND	ND	NS
	Jul-99	NR	5	ND	14.0	10.0	11.0	ND	ND	NI	ND	ND	NS
	Nov-99	NR	5	ND	16.0	10.0	8.0	ND	ND	NI	ND	ND	NS
	May-00	NR	5	ND	17.0	11.0	10.0	ND	ND	NI	ND	ND	NS
	Oct-00	NR	5	ND	16.0	12.0	9.0	ND	ND	NI	ND	ND	NS
	Apr-01	NR	5	ND	16.0	13.0	6.0	ND	ND	NI	ND	ND	NS
	Oct-01	NR	0.5	ND	17.0	12.0	9.0	ND	ND	NI	ND	ND	NS
	Jun-02	NR	0.5	ND	16.0	11.0	8.0	ND	ND	NI	NS	NS	NS
	Nov-02	NR	0.5	ND	18.0	15.0	9.0	ND	ND	NI	ND	ND	NS
	Jun-03	NR	0.5	ND	17.7	13.3	7.4	ND	ND	NI	ND	7.2	ND
	Dec-03	NR	5	ND	20.0	15.0	6.1	ND	ND	NI	ND	ND	ND
	Jun-04	NR	5	ND	18.0	15.0	9.9	ND	ND	NI	ND	ND	ND
	Dec-04	NR	5	ND	19.0	16.0	9.4	ND	ND	NI	ND	ND	ND
	Jun-05	NR	5	ND	15.0	13.0	8.0	ND	ND	NI	ND	ND	ND
	Dec-05	NR	5	ND	18.0	16.0	5.0	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	5	ND	16.5	10.8	7.8	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	3	ND	17.0	17.0	4.2	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	3	ND	17.0	16.0	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 50 ug/L (10/23/07)	19-Dec-07	NR	3	ND	17.3	16.9	4.7	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 130 ug/L (03/28/08)	08-Jul-08	NR	3	ND	17.2	17.4	6.5	ND	ND	NS	ND	ND	ND
	17-Dec-08	0.23	3.0	ND	15.9	15.6	2.6 J	ND	ND	NS	ND	ND	ND
	09-Jul-09	0.23	3.0	ND	16.1	17.2	6.1	ND	ND	ND	ND	ND	ND
Chloroethane	Sep-94	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	10	ND	5.0	2.0	2.0	ND	ND	NI	ND	ND	NS
	May-98	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	10	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	10	ND	2.2	1.9	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 2,800 ug/L (10/23/07)	19-Dec-07	NR	10	ND	1.9	1.9	1.5	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 12 ug/L (03/28/08)	08-Jul-08	NR	10	ND	2.2 J	2.5 J	1.8 J	ND	ND	NS	ND	ND	ND
	17-Dec-08	0.54	10.0	ND	1.6 J	ND	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	0.54	10.0	ND	ND	ND	3.8 J	ND	ND	ND	ND	ND	ND
Chloromethane	09-Jul-09	0.11	1.0	ND	ND	ND	ND	ND	ND	ND	ND	0.19 J	ND
NC 2L = 2.6 ug/L (10/23/07)													
NC 2B/EPA NC = 2.6 ug/L (03/28/08)													
1,2-Dichlorobenzene	Sep-94	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	5	ND	3.0	2.0	1.0	ND	ND	NI	ND	ND	NS
	May-98	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	5	ND	2.4	2.3	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	5	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	5	ND	1.5	2.3	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	5	ND	1.4 J	1.7 J	0.31 J	ND	ND	NI	ND	DRY	ND
NC 2L = 24 ug/L (10/23/07)	19-Dec-07	NR	5	ND	1.6	2.0	0.37 J	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 420 ug/L (03/28/08)	08-Jul-08	NR	5	ND	1.6 J	2.0 J	0.39 J	ND	ND	NS	ND	ND	ND
	17-Dec-08	0.30	5.0	ND	1.4 J	1.9 J	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	0.30	5.0	ND	1.6 J	2.0 J	0.36 J	ND	ND	ND	ND	ND	ND

TABLE 2
HISTORICALLY DETECTED ORGANIC CONSTITUENTS

Constituent	Date	Concentration (µg/L)											
		DL	RL	Background	Downgradient						Surface Water		Blanks
				MW-1R	MW-2R	MW-3R	MW-4	MW-5	MW-6	NES-1	SW-1	SW-2	
1,4-Dichlorobenzene	9/8/1994	NR	5	ND	ND	5.0	ND	ND	ND	NI	ND	ND	NS
	12/1/1994	NR	5	ND	ND	5.0	ND	ND	ND	NI	ND	ND	NS
	2/9/1995	NR	5	ND	8.0	6.0	ND	ND	ND	NI	ND	ND	NS
	3/2/1995	NR	5	ND	7.0	6.0	ND	ND	ND	NI	ND	ND	NS
	11/15/1995	NR	5	ND	7.0	6.0	ND	ND	ND	NI	ND	ND	NS
	5/28/1996	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	11/22/1996	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	6/17/1997	NR	5	ND	7.6	6.2	ND	ND	ND	NI	ND	ND	NS
	12/1/1997	NR	5	ND	6.0	5.0	4.0	ND	ND	NI	ND	ND	NS
	5/20/1998	NR	5	ND	7.6	ND	ND	ND	ND	NI	ND	ND	NS
	11/19/1998	NR	5	ND	3.7	2.8	ND	ND	ND	NI	ND	ND	NS
	7/21/1999	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	11/16/1999	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	5/10/2000	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	10/26/2000	NR	5	ND	5.0	6.0	ND	ND	ND	NI	ND	ND	NS
	4/18/2001	NR	5	ND	ND	5.0	6.0	ND	ND	NI	ND	ND	NS
	10/27/2001	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	6/13/2002	NR	5	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	11/19/2002	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	6/27/2003	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	12/30/2003	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	6/30/2004	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12/29/2004	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	6/29/2005	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12/29/2005	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	6/28/2006	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12/29/2006	NR	3	ND	3.0	3.3	ND	ND	ND	NI	ND	ND	ND
Resample	2/23/2007	NR	3	NS	3.2	3.3	NS	NS	NS	NI	NS	NS	ND
	7/12/2007	NR	1	ND	3.3	2.9	0.31 J	ND	ND	NI	ND	DRY	ND
NC 2L = 1.4 ug/L (10/23/07)	12/19/2007	NR	1	ND	3.0	2.7	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 63 ug/L (03/28/08)	7/8/2008	NR	1	ND	3.0	2.4	ND	ND	ND	NS	ND	ND	ND
	12/17/2008	0.33	1.0	ND	2.9	2.5	ND	ND	ND	NS	ND	ND	ND
	7/9/2009	0.33	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,4-Dichloro-2-Butene	Sep-94	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-98	NR	100	ND	ND	5.1	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-02	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	100	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = NE ug/L (10/23/07)	19-Dec-07	NR	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = NE ug/L (03/28/08)	08-Jul-08	NR	100	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	17-Dec-08	1.0	100	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	1.0	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	Sep-94	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	5	ND	ND	1.0	ND	ND	ND	NI	ND	ND	NS
	May-98	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	5	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	5	ND	ND	0.36 J	0.52 J	ND	ND	NI	ND	DRY	ND
NC 2L = 70 ug/L (10/23/07)	19-Dec-07	NR	5	ND	ND	ND	0.57 J	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 6,700 ug/L (03/28/08)	08-Jul-08	NR	5	ND	ND	ND	0.60 J	ND	ND	NS	ND	ND	ND
	17-Dec-08	0.32	5.0	ND	ND	ND	0.51 J	ND	ND	NS	ND	ND	ND
	09-Jul-09	0.32	5.0	ND	ND	ND	0.84 J	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	17-Dec-08	0.12	1.0	ND	ND	0.15 J	ND	ND	ND	NS	ND	ND	ND
NC 2L = 0.38 ug/L (10/23/07)	09-Jul-09	0.12	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.19 J
NC 2B/EPA NC = 0.38 ug/L (03/28/08)													
Ethylbenzene	17-Dec-08	0.30	1.0	ND	0.31 J	ND	ND	ND	ND	NS	ND	ND	ND
NC 2L = 550 ug/L (10/23/07)	09-Jul-09	0.30	1.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 97 ug/L (03/28/08)													

TABLE 2
HISTORICALLY DETECTED ORGANIC CONSTITUENTS

Constituent	Date	Concentration (µg/L)											
		DL	RL	Background	Downgradient						Surface Water		Blanks
				MW-1R	MW-2R	MW-3R	MW-4	MW-5	MW-6	NES-1	SW-1	SW-2	
Methylene Chloride	09-Jul-09	0.97	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.6
NC 2L = 4.3 ug/L (10/23/07)													
NC 2B/EPA NC = 97 ug/L (03/28/08)													
Naphthalene	08-Jul-08	NR	10	ND	3.8 J	ND	ND	ND	ND	NS	ND	ND	ND
NC 2L = 21 ug/L (10/23/07)	17-Dec-08	NR	NR	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
NC 2B/EPA NC = 4.6 ug/L (03/28/08)	09-Jul-09	0.24	10.0	ND	2.4 J	ND	ND	ND	ND	NS	NS	NS	ND
Toluene	Sep-94	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-98	NR	5	ND	ND	8.1	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	5	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	-
	Dec-03	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	1	ND	0.49 B	ND	ND	ND	ND	NI	ND	DRY	0.34 J
NC 2L = 1,000 ug/L (10/23/07)	19-Dec-07	NR	1	ND	0.51 J	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 11 ug/L (03/28/08)	08-Jul-08	NR	1	ND	0.39 J	ND	ND	1.3	ND	NS	ND	ND	ND
	17-Dec-08	0.26	1.0	1.4	1.6	ND	ND	11.7	ND	NS	ND	ND	ND
	09-Jul-09	0.26	1.0	ND	0.46 J	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	Sep-94	NR	10	ND	ND	12.0	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	10	ND	ND	13.0	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	10	ND	ND	15.0	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	10	ND	ND	14.0	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	10	ND	ND	11.0	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	10	ND	ND	7.0	4.0	ND	ND	NI	ND	ND	NS
	May-98	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	10	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	5.5	ND	ND	0.98 J	ND	ND	ND	NI	ND	ND	ND
Resample	23-Feb-07	NR	5.5	NS	NS	1.0	NS	NS	NS	NI	NS	NS	ND
	12-Jul-07	NR	1	ND	ND	ND	ND	ND	ND	NS	ND	DRY	ND
NC 2L = 0.015 ug/L (10/23/07)	19-Dec-07	NR	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 0.025 ug/L (03/28/08)	08-Jul-08	NR	1	ND	ND	0.76 J	ND	ND	ND	NS	ND	ND	ND
	17-Dec-08	0.62	1.0	ND	ND	0.76 J	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	0.62	1.0	ND	ND	0.99 J	ND	ND	ND	ND	ND	ND	ND
Total Xylenes	Sep-94	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-94	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Feb-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Mar-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-95	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-96	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-96	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-97	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-97	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-98	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jul-99	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	May-00	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-00	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Apr-01	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-02	NR	5	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Jun-02	NR	5	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Dec-03	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-04	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-05	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Dec-05	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	28-Jun-06	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	29-Dec-06	NR	5	ND	1.4	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	4	ND	1.2 J	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 530 ug/L (10/23/07)	19-Dec-07	NR	4	ND	2.0	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 800 ug/L (03/28/08)	08-Jul-08	NR	4	ND	1.1 J	ND	ND	ND	ND	NS	ND	ND	ND
	17-Dec-08	0.66	2.0	1.4 J	2.7	ND	ND	ND	ND	NS	ND	ND	ND
	09-Jul-09	0.66	2.0	ND	1.5 J	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 2
HISTORICALLY DETECTED ORGANIC CONSTITUENTS

Constituent	Date	Concentration (µg/L)											
		DL	RL	Background	Downgradient						Surface Water		Blanks
				MW-1R	MW-2R	MW-3R	MW-4	MW-5	MW-6	NES-1	SW-1	SW-2	
Phorate	Dec-97	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	10	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Oct-00	NR	10	NS	ND	ND	ND	ND	NS	NI	NS	NS	NS
	Apr-01	NR	10	NS	3.2	ND	ND	ND	NS	NI	NS	NS	NS
	Oct-01	NR	5	ND	8.1	ND	ND	ND	ND	NI	ND	ND	NS
	Oct-01	NR	0.5	NS	8.1	1.3	ND	ND	NS	NI	NS	NS	NS
	Jun-02	NR	5	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Jun-02	NR	0.5	NS	ND	ND	ND	ND	NS	NI	NS	NS	NS
	Nov-02	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Jun-03	NR	5	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	Jun-04	NR	10	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Jun-05	NR	10	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Dec-05	NR	NR	NS	NS	NS	NS	NS	NS	NI	NS	NS	NS
	28-Jun-06	NR	10	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	29-Dec-06	NR	NR	NS	NS	NS	NS	NS	NS	NI	NS	NS	NS
	12-Jul-07	NR	10	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 1.4 ug/L (10/23/07)	19-Dec-07	NR	NR	NS	NS	NS	NS	NS	NS	ND	NS	NS	NS
NC 2B/EPA NC = NE ug/L (03/28/08)	08-Jul-08	NR	10	ND	ND	ND	ND	ND	ND	NS	NS	NS	ND
	17-Dec-08	NR	NR	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	09-Jul-09	6.6	22.2	ND	ND	ND	ND	ND	ND	NS	NS	NS	ND
Gamma-BHC	Dec-97	NR	0.05	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	0.05	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Oct-00	NR	0.05	NS	ND	ND	ND	ND	NS	NI	NS	NS	NS
	Apr-01	NR	0.05	NS	ND	ND	ND	ND	NS	NI	NS	NS	NS
	Oct-01	NR	NR	NS	NS	NS	NS	NS	NS	NI	NS	NS	NS
	Jun-02	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Jun-02	NR	0.05	NS	ND	ND	ND	ND	NS	NI	NS	NS	NS
	Jun-02	NR	0.5	NS	ND	ND	ND	ND	NS	NI	NS	NS	NS
	Nov-02	NR	NR	NS	NS	NS	NS	NS	NS	NI	NS	NS	NS
	Jun-03	NR	1.05	ND	0.085	ND	ND	ND	ND	NI	NS	NS	ND
	Dec-03	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Jun-04	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Dec-04	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NR	NR	ND
	Jun-05	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Dec-05	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NR	NR	ND
	28-Jun-06	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	29-Dec-06	NR	0.05	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	0.05	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 0.2 ug/L (10/23/07)	19-Dec-07	NR	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 0.01 ug/L (03/28/08)	08-Jul-08	NR	0.50	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	17-Dec-08	0.050	0.050	ND	ND	ND	ND	ND	ND	NS	NS	NS	ND
	09-Jul-09	0.050	0.050	ND	ND	ND	ND	ND	ND	NS	NS	NS	ND
Heptachlor	Dec-97	NR	0.05	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-98	NR	0.05	ND	ND	ND	ND	ND	ND	NI	ND	ND	NS
	Nov-99	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Oct-00	NR	0.05	NS	ND	ND	ND	ND	NS	NI	NS	NS	NS
	Apr-01	NR	0.05	NS	ND	ND	ND	ND	NS	NI	NS	NS	NS
	Oct-01	NR	NR	NS	NS	NS	NS	NS	NS	NI	NS	NS	NS
	Jun-02	NR	1.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	NS
	Nov-02	NR	NR	NS	NS	NS	NS	NS	NS	NI	NS	NS	NS
	Jun-03	NR	1.05	ND	0.03	0.17	ND	ND	ND	NI	NS	NS	ND
	Dec-03	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Jun-04	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Dec-04	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Jun-05	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Dec-05	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NR	NR	ND
	28-Jun-06	NR	0.05	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	29-Dec-06	NR	0.05	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	0.05	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 0.0078 ug/L (10/23/07)	19-Dec-07	NR	0.05	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 0.00008 ug/L (03/28/08)	08-Jul-08	NR	0.05	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	17-Dec-08	0.050	0.050	ND	ND	ND	ND	ND	ND	NS	NS	NS	ND
	09-Jul-09	0.050	0.050	ND	ND	ND	ND	ND	ND	NS	NS	NS	ND
2,4-D	Jun-03	NR	3	NS	5.9	ND	ND	ND	NS	NI	NS	NS	NS
	Dec-03	NR	2	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Jun-04	NR	2	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Dec-04	NR	2	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Jun-05	NR	2	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	Dec-05	NR	2	ND	ND	ND	ND	ND	ND	NI	NR	NR	ND
	28-Jun-06	NR	2	ND	ND	ND	ND	ND	ND	NI	NS	NS	ND
	29-Dec-06	NR	2	ND	ND	ND	ND	ND	ND	NI	ND	ND	ND
	12-Jul-07	NR	2	ND	ND	ND	ND	ND	ND	NI	ND	DRY	ND
NC 2L = 70 ug/L (10/23/07)	19-Dec-07	NR	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NC 2B/EPA NC = 100 ug/L (03/28/08)	08-Apr-08	NR	2	ND	ND	ND	ND	ND	ND	NS	ND	ND	ND
	17-Dec-08	NR	2.0	ND	ND	ND	ND	ND	ND	NS	NS	NS	ND
	09-Jul-09	NR	2.0	ND	ND	ND	ND	ND	ND	NS	NS	NS	ND

Notes:
1. All concentrations are in micrograms per liter (mg/L).
2. RL = Laboratory reporting limit (NC SWSL from October 2007 to present).
3. ND = Not detected above laboratory reporting limit.
4. B = Blank-qualified data; result is expected to be biased high based on concentrations in the blanks
5. NC 2L = North Carolina 2L Groundwater Standards.
6. GWPS = Groundwater Protection Standards.
7. When the NC 2L has not been established, the GWPS will be used.
8. Shaded values for groundwater are above the NC 2L Groundwater Standards or Groundwater Protection Standards.
7. Shaded values for surface water are above the NC 2B Surface Water Standards (NC2B) or National Criteria per EPA (EPA NC).
9. DL = Laboratory detection limit.
10. J = Estimated value between the DL and the RL
11. NI = Well/Piezometer not installed.
12. NS = Not sampled.
13. NR = Not Reported.
14. DRY = Monitoring well or surface water point considered to be dry.
15. Surface waters are classified as WS-IV/NSW (WS, human health, and fresh-water aquatic life).

TABLE 3
Summary of Statistical Analyses
July 2009 Sampling Event

Analyte	Data Distribution	Statistical Method used to Establish Background	Background (µg/L)	NC2L (*GWPS) (µg/L)	SSI above Background	Above NC2L or GWPS
Arsenic	100% Truncated	Upper Poisson Prediction Limit	30.7	70 *	None	None
Barium	76% Truncated	Nonparametric Prediction Limit	200	1000	None	None
Cadmium	94% Truncated	Upper Poisson Prediction Limit	5.94	100	None	None
Cobalt	66% Truncated	Nonparametric Prediction Limit	130	70 *	None	None
Nickel	94% Truncated	Upper Poisson Prediction Limit	139	100	None	None
Benzene	100% Truncated	Upper Poisson Prediction Limit	15.1	1	None	MW-2R
Chlorobenzene	100% Truncated	Upper Poisson Prediction Limit	13.1	50	None	None

Notes:
SSI = Statistically Significant Increase
NC 2L = 15A NCAC 2L Groundwater Standard
GWPS = Groundwater Protection Standard (indicated by * for constituents with no NC2L)
SWSL = NC Solid Waste Section Limit
n/a = not applicable
n/e = No NC2L or GWPS not established
µg/L = micrograms per liter = parts per billion
Only constituents with quantified detections above the SWSL in one or more down-gradient moniotoring wells are included.
Constituents with only blank-qualified and/or estimated concentrations are not included.

TABLE 4
HISTORICAL GROUNDWATER ELEVATION DATA

Well No.	Background	Downgradient				
	MW-1R	MW-2R	MW-3R	MW-4	MW-5	MW-6
Well TOC Elev.	482.33	350.87	350.76	360.69	363.53	381.75
Well Depth	56.00	18.85	35.83	31.43	23.52	32.63
Aug-99	440.50	348.40	347.86	350.39	350.48	371.32
Nov-99	441.57	344.65	344.31	351.42	353.98	372.19
May-00	446.35	348.87	348.63	354.04	354.14	374.94
Oct-00	441.03	348.53	347.95	351.22	350.59	372.00
Apr-01	440.58	348.69	348.43	353.46	354.01	373.44
Oct-01	434.35	348.31	347.74	350.46	349.88	370.14
Jun-02	435.52	347.65	347.21	350.10	349.94	370.26
Nov-02	435.22	348.52	348.15	351.46	356.82	370.16
Jun-03	445.43	348.84	348.73	354.13	353.64	374.43
Dec-03	442.05	348.97	348.91	354.38	354.43	374.14
Jun-04	440.63	348.65	348.28	352.15	351.04	372.32
Dec-04	439.84	348.77	348.71	353.34	353.79	374.36
Jun-05	440.63	348.37	349.06	351.51	350.55	371.98
Dec-05	435.20	348.56	348.51	352.67	353.92	370.74
27-Jun-06	436.57	348.44	348.20	352.07	353.21	372.65
28-Dec-06	437.36	348.67	348.66	353.46	354.89	373.24
12-Jul-07	438.64	347.96	347.77	351.20	350.17	371.52
18-Dec-07	434.41	348.21	347.88	350.21	347.57	367.12
08-Jul-08	436.34	348.47	345.80	351.35	350.50	370.25
17-Dec-08	434.61	348.66	348.64	353.04	354.68	370.04
09-Jul-09	438.98	348.44	349.28	352.19	351.01	371.39

Notes:
1. TOC = top of casing
2. - = data not available
3. Water levels are measured from TOC.

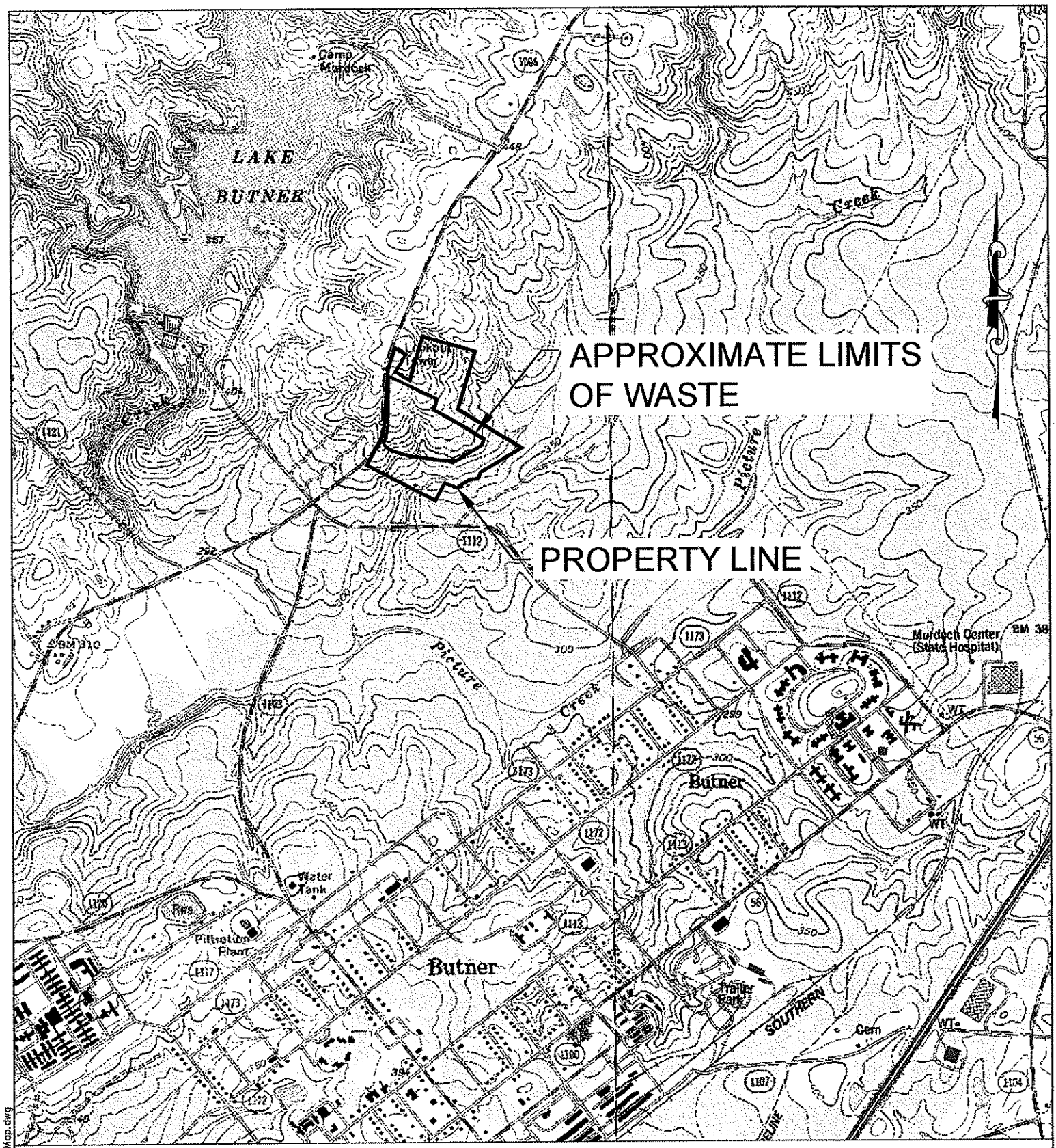
TABLE 5
ESTIMATED HYDRAULIC GRADIENTS AND GROUNDWATER FLOW VELOCITIES

			July 2009				
GRADIENT CALCULATION SEGMENT	FLOW LINE LENGTH (feet)	FLOW DIRECTION	GROUND-WATER ELEVATION (feet)	HORIZ. GRADIENT, **i** (ft/ft)	HYDRAULIC CONDUCTIVITY, **K** (ft/day)	EFFECTIVE POROSITY **n**	LINEAR VELOCITY, **V** (ft/year)
i_1	1226	SE	430 360	0.0571	3.42E-02	0.31	2.30
i_2	1554	SE	420 350	0.0450	3.42E-02	0.31	1.82
i_3	1377	SSE	430 350	0.0581	3.42E-02	0.31	2.34
			Average	0.0534		Average	2.15

Notes:
1. Hydraulic conductivity (K) value is representative of a geometric mean of results from slug-tests conducted in 1994 (GAI, 1994).
2. Average effective porosity (n) of 0.31 taken from GAI, 1994.
3. Linear flow velocity = Ki/n (modified Darcy equation).
4. Refer to Drawling 1 for gradient segments.

FIGURE

Figure 1 Site Location Map



NOTE: U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLES FOR LAKE MICHIE AND STEM, NORTH CAROLINA.

GRAPHIC SCALE

0 1000 2000 4000

(FEET)

FIGURE NO. 1	JOYCE ENGINEERING, INC. 2211 WEST MEADOWVIEW ROAD GREENSBORO, N.C. 27407 PHONE: (336) 323-0092	SCALE 1"=2000'	PROJECT NO. 660.06.24	SITE LOCATION MAP BUTNER LANDFILL GRANVILLE COUNTY, NORTH CAROLINA

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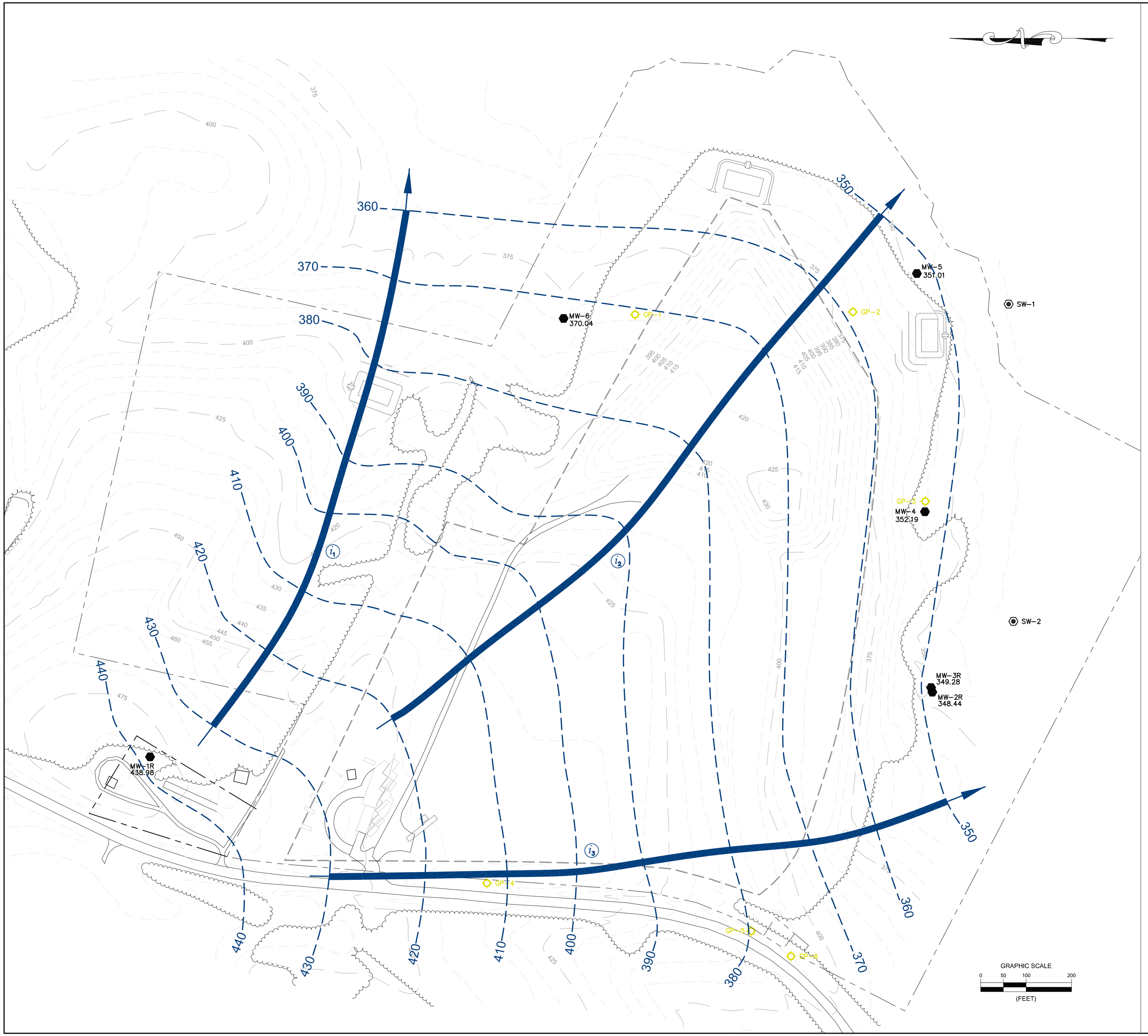
L:\Granville\dwg\Butner\Site Location Map.dwg

DRAWING

Drawing 1 Groundwater Surface Map



LEGEND

130	EXISTING 25' TOPOGRAPHIC CONTOUR
	EXISTING 5' TOPOGRAPHIC CONTOUR
	PROPERTY LINE
	APPROXIMATE LIMITS OF WASTE
380	GROUNDWATER SURFACE CONTOUR (FEET ABOVE MEAN SEA LEVEL)
	GROUNDWATER FLOW DIRECTION WITH GRADIENT CALCULATION SEGMENT
	EXISTING ROAD
	CENTERLINE OF STREAM
MW-1R 438.98	GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION
i_1	SEGMENT USED FOR GRADIENT CALCULATIONS
GP-1	GAS PROBE LOCATION AND IDENTIFICATION
SW-1	SURFACE WATER MONITORING POINT
(NM)	NOT MEASURED

NOTES

1. TOPOGRAPHIC CONTOUR INTERVAL = 5 FEET
2. GROUNDWATER SURFACE CONTOUR INTERVAL = 5 FEET
3. STATIC WATER LEVELS MEASURED ON 07/09/09.
4. GROUNDWATER CONTOURS BASED ON KNOWN DATA, TOPOGRAPHIC CONTOURS, AND LINEAR INTERPOLATION AND EXTRAPOLATION FROM KNOWN FIELD CONDITIONS.
5. ELEVATION RELATIVE TO MEAN SEA LEVEL.
6. GROUNDWATER ELEVATION IS BASED ON A WELL SURVEY PERFORMED IN APRIL 2008
7. TOPOGRAPHIC CONTOURS SHOWN IN THIS MAP ARE BASED ON EARLIER SURVEY DATA AND DIFFER FROM THE APRIL 2008 DATA BY SEVERAL FEET IN SOME LOCATIONS.

DATE	REVISIONS AND RECORD OF ISSUE	NO	BY	CK	APP

DESIGNED CTM
DRAWN CADD/RFB
CHECKED CTM
APPROVED GVB
DATE 08/31/09

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JOYCE ENGINEERING, INC.
2211 W. MEADOWVIEW ROAD
GREENSBORO, NC 27407
PHONE: (336) 323-0092

BUTNER LANDFILL
GRANVILLE COUNTY, NORTH CAROLINA

GROUNDWATER SURFACE MAP
JULY 19, 2009

PROJECT NO.
660.06.27

SCALE
AS NOTED

DRAWING NO.
1

L:\Granville\dwg\Butner\GW Event Maps\GW Event 7-09.dwg Layout=Layout1

APPENDICES

Appendix A	Laboratory Analytical Reports and Field Data Logs
Appendix B	Statistical Analyses Worksheets

Appendix A

Laboratory Analytical Reports
and Field Data Logs

DATE: 7/9/09

JOYCE ENGINEERING, INC.

GROUND WATER SAMPLING LOG

Project Name: BUTNER, Granville Co. **Project No./Task No.:** 660.06.27

Well ID: MW-1R **Sampler(s):** C. Mitchell/D. Girdner

Well Location: North of the entrance at the treeline under the tower

Well Diameter: 2 inches

Initial Depth to Water (DTW): 43.35 feet

Depth to Bottom (DTB): 56.00 feet

Water Column Thickness (WCT): 12.65 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 2.06 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 6.18 gallons

Actual Amount Purged/Bailed : 3.0 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling : 43.35 feet

Gallons	Time	pH	Temp. °C	Cond. µ.s.	Turb. ntu	Initials
0	7:09	7.00	15.9	106.3	6.68	DG
2.06	7:15	6.40	15.2	96.4	188	DG
DRY @ 3.0						
Before Sampling	15:00	7.36	18.4	104.4	49.8	DG

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

7/9-Cloudy, upper 60's

Sample: mid 80's

Signature: Carrie Mitchell **Date:** 7/9/09

QA/QC Sign Off: Daniel S. Girdner **Date:** 9/21/09

DATE: 7/9/09

JOYCE ENGINEERING, INC.

GROUND WATER SAMPLING LOG

Project Name: BUTNER, Granville Co. **Project No./Task No.:** 660.06.27

Well ID: MW-2R **Sampler(s):** C. Mitchell/D. Girdner

Well Location: South side of fill, inside tree line and next to MW-3R

Well Diameter: 2 inches

Initial Depth to Water (DTW): 2.43 feet

Depth to Bottom (DTB): 18.85 feet

Water Column Thickness (WCT): 16.42 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 2.68 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 8.04 gallons

Actual Amount Purged/Bailed : 6.50 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling : 2.44 feet

Gallons	Time	pH	Temp. °C	Cond. µ.s.	Turb. ntu	Initials
0	9:41	6.83	16.1	1947	21.1	CM
2.68	9:46	6.99	14.6	1944	59.5	CM
5.36	9:50	7.12	14.0	1886	85	CM
DRY @6.5						
Before Sampling	17:10	8.01	16.0	1921	15.0	CM

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

Cloudy, 80's

Signature: [signature] **Date:** 7/9/09

QA/QC Sign Off: Daniel S. Gardner **Date:** 9/21/09

DATE: 7/9/09

JOYCE ENGINEERING, INC.

GROUND WATER SAMPLING LOG

Project Name: BUTNER, Granville Co. **Project No./Task No.:** 660.06.27

Well ID: MW-3R **Sampler(s):** C. Mitchell/D. Girdner

Well Location: Next to MW-2R, inside tree line

Well Diameter: 2 inches

Initial Depth to Water (DTW): 1.48 feet

Depth to Bottom (DTB): 35.83 feet

Water Column Thickness (WCT): 34.35 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 5.60 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 16.80 gallons

Actual Amount Purged/Bailed : 7.50 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling : 2.63 feet

Gallons	Time	pH	Temp. °C	Cond. µs.	Turb. ntu	Initials
0	9:17	7.50	16.6	1253	10.09	CM
5.60	9:26	7.59	16.4	1368	8.62	CM
DRY @ 7.5						CM
Before Sampling	16:55	6.95	16.7	1525	2.92	DG

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

Cloudy, 80's

Signature: Carrie Mitchell **Date:** 7/9/09

QA/QC Sign Off: Daniel S. Girdner **Date:** 9/21/09

DATE: 7/9/09

JOYCE ENGINEERING, INC.

GROUND WATER SAMPLING LOG

Project Name: BUTNER, Granville Co. **Project No./Task No.:** 660.06.26

Well ID: MW-4 **Sampler(s):** C. Mitchell/D. Girdner

Well Location: south of fill, just inside tree line

Well Diameter: 2 inches

Initial Depth to Water (DTW): 8.50 feet

Depth to Bottom (DTB): 31.43 feet

Water Column Thickness (WCT): 22.93 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 3.74 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 11.22 gallons

Actual Amount Purged/Bailed : 4.0 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling : 11.00 feet

Gallons	Time	pH	Temp. °C	Cond. µ.s.	Turb. ntu	Initials
0	8:42	7.38	16.5	1219	13.07	CM
3.74	8:56	7.41	15.0	1287	55.9	CM
DRY @ 4.0						CM
Before Sampling	16:30	7.56	16.6	1262	4.91	CM

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

Cloudy, 80's

black ants in water

Signature: Carrie Mitchell **Date:** 7/9/09

QA/QC Sign Off: Daniel S. Girdner **Date:** 9/21/09

DATE: 7/9/09

JOYCE ENGINEERING, INC.

GROUND WATER SAMPLING LOG

Project Name: BUTNER Granville Co. **Project No./Task No.:** 660.06.26

Well ID: MW-5 **Sampler(s):** C. Mitchell/D. Girdner

Well Location: South side of old SED. pond, Basin in the woods

Well Diameter: 2 inches

Initial Depth to Water (DTW): 12.52 feet

Depth to Bottom (DTB): 23.52 feet

Water Column Thickness (WCT): 11.00 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 1.79 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 5.37 gallons

Actual Amount Purged/Bailed : 3.58 gallons

Purged with: **Disposable Bailer**

Sampled with: **Disposable Bailer**

Depth to Water before Sampling : 15.36 feet

Gallons	Time	pH	Temp(°C)	Cond. (µS)	Turb.(ntu)	Initials
0	8:16	8.42	15.0	519	84.0	CM
1.79	8:24	7.32	14.1	467	629	CM
3.58	8:26	7.46	13.9	435	952	CM
DRY@ 2 WV						CM
Before Sampling	16:00	7.15	15.9	423	18.1	DG

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

Cloudy, 80's

Signature: Daniel S. Girdner **Date:** 7/9/09

QA/QC Sign Off: Daniel S. Girdner **Date:** 9/21/09

DATE: 7/9/09

JOYCE ENGINEERING, INC.

GROUND WATER SAMPLING LOG

Project Name: BUTNER Granville Co. **Project No./Task No.:** 660.06.27

Well ID: MW-6 **Sampler(s):** C. Mitchell/D. Girdner

Well Location: other side of large mulch pile

Well Diameter: 2 inches

Initial Depth to Water (DTW): 10.36 feet

Depth to Bottom (DTB): 32.63 feet

Water Column Thickness (WCT): 22.27 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 3.63 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 10.89 gallons

Actual Amount Purged/Bailed : 6.75 gallons

Purged with: Disposable Bailer

Sampled with: Disposable Bailer

Depth to Water before Sampling : 10.71 feet

Gallons	Time	pH	Temp(°C)	Cond. (µS)	Turb.(ntu)	Initials
0	7:44	7.67	15.9	666	14.0	CM
3.63	7:53	8.07	14.8	668	49.6	CM
DRY @ 6.75						
Before Sampling	15:35	7.88	17.0	643	10.15	CM

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

Cloudy, 70's

Signature: [signature] **Date:** 7/9/09

QA/QC Sign Off: Daniel A. Mudner **Date:** 9/21/09

DATE: 7/9/09

ENGINEERING, INC.

SURFACE WATER MONITORING LOG

Project Name: BUTNER, Granville Co. **Project/Task No.:** 660.06.27

Surface Point ID: SW-1 **Sampler(s):** C. Mitchell/D. Girdner

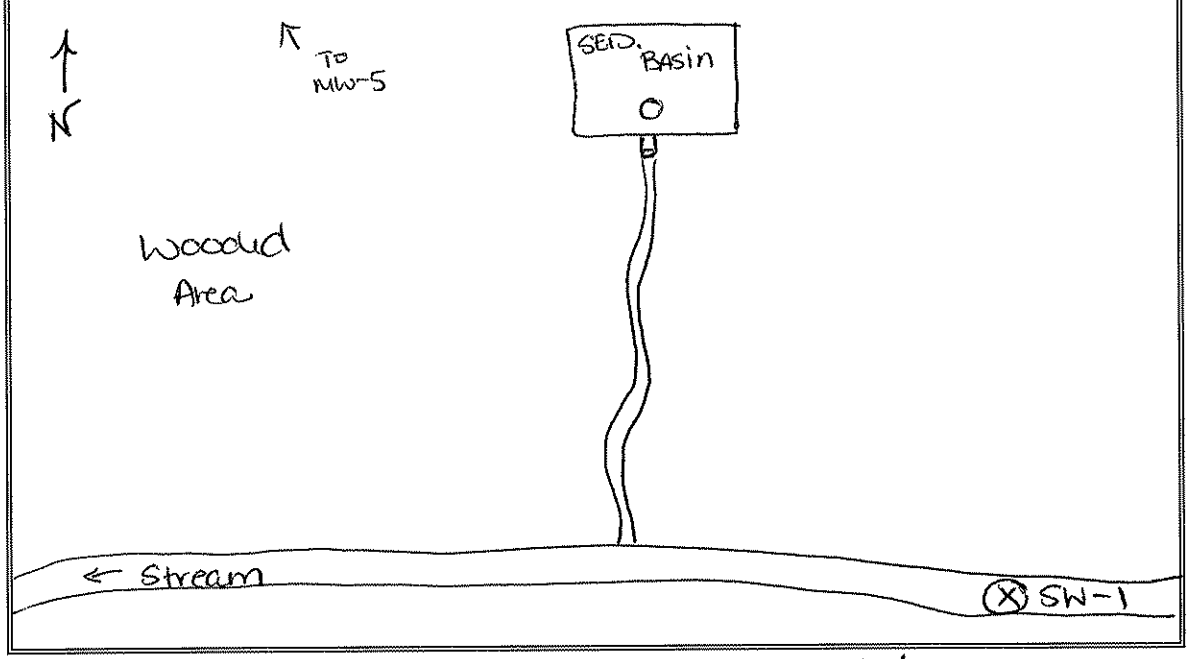
Location: Near Sed. pond, Basin

Field Parameters:

Time of Sampling:	16:15	
pH:	8.03	
Temperature :	20.3	**(°C)**
Conductivity :	299	**(µS)**
Turbidity :	22.8	**(ntu)**

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

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



Signature: Daniel S. Girdner **Date:** 7/9/09

QA/QC Sign Off: Daniel S. Girdner **Date:** 9/21/09

DATE: 7/9/09

JOYCE ENGINEERING, INC.

SURFACE WATER MONITORING LOG

Project Name: BUTNER, Granville Co. **Project/Task No.:** 660.06.27

Surface Point ID: SW-2 **Sampler(s):** C. Mitchell/D. Girdner

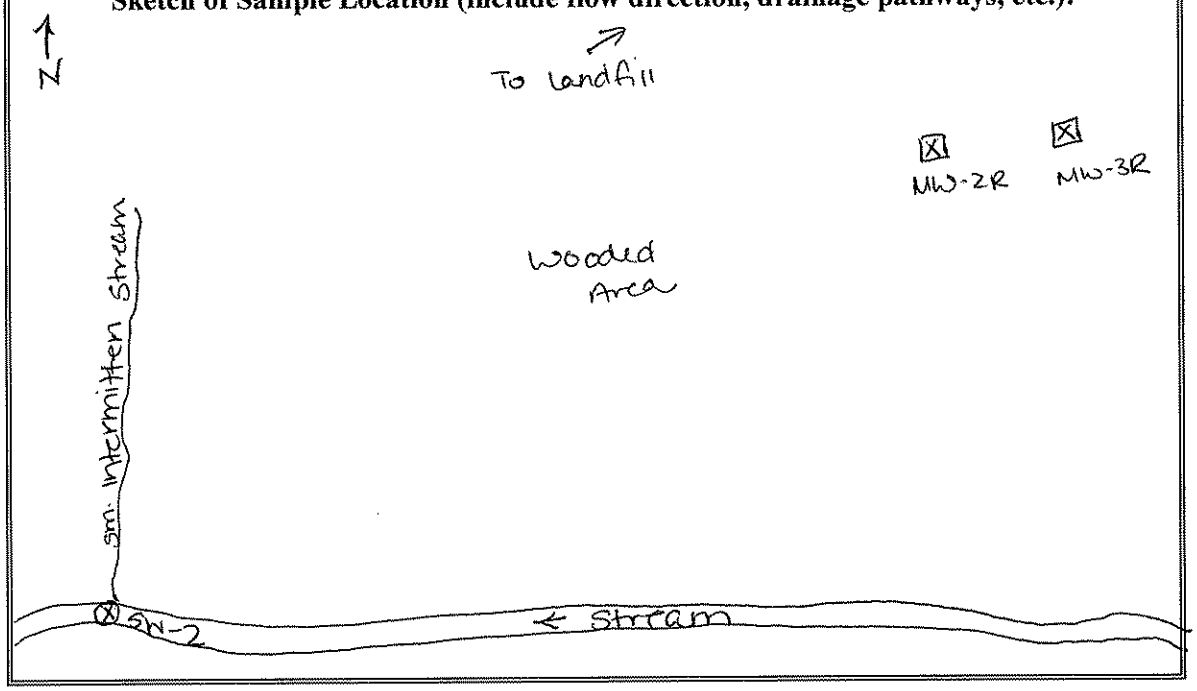
Location: Down from MW-2R & MW-3R

Field Parameters:

Time of Sampling:	18:05	
pH:	7.98	
Temperature :	22.0	(°C)
Conductivity :	743	(µS)
Turbidity :	6.82	(ntu)

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

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



Signature: Carrie Mitchell **Date:** 7/9/09

QA/QC Sign Off: Daniel S. Girdner **Date:** 9/21/09

DATE: 7/9/09

JOYCE ENGINEERING, INC.

GROUND WATER SAMPLING LOG

Project Name: BUTNER, Granville Co. **Project No./Task No.:** 660.06.27

Well ID: NES-1S **Sampler(s):** C. Mitchell/D. Girdner

Well Location: Near MW-4R

Well Diameter: 2 inches

Initial Depth to Water (DTW): 18.28 feet

Depth to Bottom (DTB): 36.10 feet

Water Column Thickness (WCT): 17.82 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 2.90 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 8.70 gallons

Actual Amount Purged/Bailed : 8.70 gallons

Purged with: disposable bailer

Sampled with: disposable bailer

Depth to Water before Sampling : 18.47 feet

Gallons	Time	pH	Temp. °C	Cond. µ.s.	Turb. ntu	Initials
0	12:17	6.89	16.2	123.3	21.2	CM
2.90	12:24	6.14	14.4	114.1	664	CM
5.80	12:30	6.59	14.5	110.1	518	CM
8.70	12:35	5.52	13.8	110.1	146	CM
Before Sampling	18:15	7.55	15.9	139.4	56.8	DG

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

Cloudy, 80's

Signature: Daniel A. Girdner **Date:** 7/9/09

QA/QC Sign Off: Daniel A. Girdner **Date:** 7/21/09

DATE: 9/28/09

JOYCE ENGINEERING, INC.

GROUND WATER SAMPLING LOG

Project Name: BUTNER Granville Co. **Project No./Task No.:** 660.09.01

Well ID: MW-5 **Sampler(s):** C. Mitchell

Well Location: South side of old SED. pond, Basin in the woods

Well Diameter: 2 inches

Initial Depth to Water (DTW): 13.66 feet

Depth to Bottom (DTB): 23.52 feet

Water Column Thickness (WCT): 9.86 feet [DTB-DTW]

Calculation for One Well Volume (WV):

For 2" Well: WCT X 0.163 = 1.61 gallons

For 4" Well: WCT X 0.653 = _____ gallons

For THREE Well Volumes: WV X 3 = 4.83 gallons

Actual Amount Purged/Bailed : 3.22 gallons

Purged with: **Disposable Bailer**

Sampled with: **Disposable Bailer**

Depth to Water before Sampling : 15.36 feet

Gallons	Time	pH	Temp(°C)	Cond. (µS)	Turb.(ntu)	Initials
0	13:32	8.32	17.7	562	11.50	CM
1.61	13:34	7.94	16.3	472	172	CM
3.22	13:38	6.94	15.9	450	480	CM
DRY@ 2 WV						CM
Before Sampling	14:05	8.14	16.1	425	69.4	CM

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

Sunny high 70's – low 80's

Field blank @ 14:20

Signature: Carrie [illegible] **Date:** 9.28.09

QA/QC Sign Off: [illegible] **Date:** 10/21/09

Appendix B

Statistical Analyses Worksheets

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.27**
Sample Date: **9-Jul-09**

Analyte: **Arsenic**

Sample No.	Sample Date	Location	Concentration (ug/L)		PQL/RL (ug/L)
1	Sep-94	MW-1R	ND		10
2	Dec-94	MW-1R	ND		10
3	Feb-95	MW-1R	ND		10
4	Mar-95	MW-1R	ND		10
5	Nov-95	MW-1R	ND		10
6	May-96	MW-1R	ND		10
7	Nov-96	MW-1R	ND		10
8	Jun-97	MW-1R	6	J	10
9	Dec-97	MW-1R	ND		10
10	May-98	MW-1R	ND		10
11	Nov-98	MW-1R	ND		10
12	Jul-99	MW-1R	ND		10
13	Nov-99	MW-1R	ND		10
14	May-00	MW-1R	ND		10
15	Oct-00	MW-1R	ND		10
16	Apr-01	MW-1R	ND		10
17	Oct-01	MW-1R	ND		10
18	Jun-02	MW-1R	ND		10
19	Nov-02	MW-1R	ND		10
20	Jun-03	MW-1R	ND		10
21	Dec-03	MW-1R	ND		10
22	Jun-04	MW-1R	ND		10
23	Dec-04	MW-1R	ND		10
24	Jun-05	MW-1R	ND		10
25	Dec-05	MW-1R	ND		10
26	28-Jun-06	MW-1R	ND		10
27	29-Dec-06	MW-1R	2	J	10
28	12-Jul-07	MW-1R	ND		10
29	19-Dec-07	MW-1R	ND		10
30	08-Jul-08	MW-1R	ND		10
31	17-Dec-08	MW-1R	ND		10
32	09-Jul-09	MW-1R	ND		10

Number of Samples:	32	
Number of truncated data (ND):	32	
Percent Truncated:	100%	
Poisson Prediction Interval:	**30.7**	**µg/L**

Notes:
- All concentrations in micrograms per liter (µg/L).
- J = Estimated concetration below the RL (included in the calculations)

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.27**
Date: **9-Jul-09**

Upper Poisson Prediction Limit

Analyte: **Arsenic**

Background Data

Sample	Date	Location	Concentration	Reporting Limit	Half RL or Concent.	Discrete Poisson Count
1	Sep-94	MW-1R	ND	10	5	10
2	Dec-94	MW-1R	ND	10	5	10
3	Feb-95	MW-1R	ND	10	5	10
4	Mar-95	MW-1R	ND	10	5	10
5	Nov-95	MW-1R	ND	10	5	10
6	May-96	MW-1R	ND	10	5	10
7	Nov-96	MW-1R	ND	10	5	10
8	Jun-97	MW-1R	ND	10	6	12
9	Dec-97	MW-1R	ND	10	5	10
10	May-98	MW-1R	ND	10	5	10
11	Nov-98	MW-1R	ND	10	5	10
12	Jul-99	MW-1R	ND	10	5	10
13	Nov-99	MW-1R	ND	10	5	10
14	May-00	MW-1R	ND	10	5	10
15	Oct-00	MW-1R	ND	10	5	10
16	Apr-01	MW-1R	ND	10	5	10
17	Oct-01	MW-1R	ND	10	5	10
18	Jun-02	MW-1R	ND	10	5	10
19	Nov-02	MW-1R	ND	10	2	4
20	Jun-03	MW-1R	ND	10	5	10
21	Dec-03	MW-1R	ND	10	5	10
22	Jun-04	MW-1R	ND	10	5	10
23	Dec-04	MW-1R	ND	10	5	10
24	Jun-05	MW-1R	ND	10	5	10
25	Dec-05	MW-1R	ND	10	5	10
26	28-Jun-06	MW-1R	ND	10	5	10
27	29-Dec-06	MW-1R	ND	10	2	4
28	12-Jul-07	MW-1R	ND	10	5	10
29	12-Dec-07	MW-1R	ND	10	5	10
30	08-Jul-08	MW-1R	ND	10	5	10
31	17-Dec-08	MW-1R	ND	10	5	10
32	09-Jul-09	MW-1R	ND	10	5	10

Poisson Discrete Distribution Ajustment Factor = 2

Note: All sample concentrations are micrograms per liter

Using the background data, the upper Poisson Prediction Limit, y*, is determined by:

$$y^* = c\,y + [(t^2)\,c / 2] + t\,c\,[y\,(1 + (1/c)) + ((t^2) / 4)]^{0.5}$$

where:

c = k / n
y = Poisson count
t = t(n-1, 0.95), Student's t-distribution
n-1 = degrees of freedom (number of samples - 1)
k = number of downgradient samples per event
.95 = confidence interval
n = number of background samples

For:

c = 0.156
y = 310
t = 1.696
k = 5
n = 32

y* = 61.36
Adjusted y* = 30.68

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.27**
Sample Date: **9-Jul-09**

Analyte: **Barium**

Sample No.	Sample Date	Location	Concentration	
1	Sep-94	MW-1R	ND	
2	Dec-94	MW-1R	ND	
3	Feb-95	MW-1R	ND	
4	Mar-95	MW-1R	ND	
5	Nov-95	MW-1R	ND	
6	May-96	MW-1R	ND	
7	Nov-96	MW-1R	ND	
8	Jun-97	MW-1R	200	
9	Dec-97	MW-1R	61	
10	May-98	MW-1R	30	
11	Nov-98	MW-1R	48	
12	Jul-99	MW-1R	ND	
13	Nov-99	MW-1R	ND	
14	May-00	MW-1R	ND	
15	Oct-00	MW-1R	ND	
16	Apr-01	MW-1R	ND	
17	Oct-01	MW-1R	ND	
18	Jun-02	MW-1R	ND	
19	Nov-02	MW-1R	ND	
20	Jun-03	MW-1R	ND	
21	Dec-03	MW-1R	ND	
22	Jun-04	MW-1R	ND	
23	Dec-04	MW-1R	ND	
24	Jun-05	MW-1R	ND	
25	Dec-05	MW-1R	ND	
26	28-Jun-06	MW-1R	ND	
27	29-Dec-06	MW-1R	5.2	J
28	12-Jul-07	MW-1R	2.5	J
29	19-Dec-07	MW-1R	2.8	B
30	8-Jul-08	MW-1R	5.8	J
31	17-Dec-08	MW-1R	2.7	B
32	9-Jul-09	MW-1R	4.6	B

Number of Samples: 29
Number of truncated data (ND): 22
Percent Truncated: 76%

Non-parametric Prediction Limit: 200

Notes:
- All concentrations in micrograms per liter (µg/L).
J = Estimated value below RL (included in statistical calculations).
B = Blank-qualified data (excluded from statistical calculations).

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.27**
Sample Date: **9-Jul-09**

Analyte: **Cadmium**

Sample No.	Sample Date	Location	Concentration (ug/L)	PQL/RL (ug/L)
1	Sep-94	MW-1R	ND	1
2	Dec-94	MW-1R	ND	1
3	Feb-95	MW-1R	ND	1
4	Mar-95	MW-1R	ND	1
5	Nov-95	MW-1R	ND	1
6	May-96	MW-1R	ND	1
7	Nov-96	MW-1R	ND	1
8	Jun-97	MW-1R	ND	1
9	Dec-97	MW-1R	ND	1
10	May-98	MW-1R	ND	1
11	Nov-98	MW-1R	ND	1
12	Jul-99	MW-1R	ND	1
13	Nov-99	MW-1R	ND	1
14	May-00	MW-1R	5	1
15	Oct-00	MW-1R	ND	1
16	Apr-01	MW-1R	ND	1
17	Oct-01	MW-1R	ND	1
18	Jun-02	MW-1R	ND	1
19	Nov-02	MW-1R	2	1
20	Jun-03	MW-1R	ND	1
21	Dec-03	MW-1R	ND	1
22	Jun-04	MW-1R	ND	1
23	Dec-04	MW-1R	ND	1
24	Jun-05	MW-1R	ND	1
25	Dec-05	MW-1R	ND	1
26	28-Jun-06	MW-1R	ND	1
27	29-Dec-06	MW-1R	ND	1
28	12-Jul-07	MW-1R	ND	1
29	19-Dec-07	MW-1R	ND	1
30	08-Jul-08	MW-1R	ND	1
31	17-Dec-08	MW-1R	ND	1
32	09-Jul-09	MW-1R	ND	1

Number of Samples: 32
Number of truncated data (ND): 32
Percent Truncated: 100%

Poisson Prediction Interval: 5.94 µg/L

Notes:
- All concentrations in micrograms per liter (µg/L).

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.27**
Date: **9-Jul-09**

Upper Poisson Prediction Limit

Analyte: **Cadmium**

Background Data

Sample	Date	Location	Concentration	Reporting Limit	Half RL or Concent.	Discrete Poisson Count
1	Sep-94	MW-1R	ND	1	0.5	1
2	Dec-94	MW-1R	ND	1	0.5	1
3	Feb-95	MW-1R	ND	1	0.5	1
4	Mar-95	MW-1R	ND	1	0.5	1
5	Nov-95	MW-1R	ND	1	0.5	1
6	May-96	MW-1R	ND	1	0.5	1
7	Nov-96	MW-1R	ND	1	0.5	1
8	Jun-97	MW-1R	ND	1	0.5	1
9	Dec-97	MW-1R	ND	1	0.5	1
10	May-98	MW-1R	ND	1	0.5	1
11	Nov-98	MW-1R	ND	1	0.5	1
12	Jul-99	MW-1R	ND	1	0.5	1
13	Nov-99	MW-1R	ND	1	0.5	1
14	May-00	MW-1R	ND	1	5	10
15	Oct-00	MW-1R	ND	1	0.5	1
16	Apr-01	MW-1R	ND	1	0.5	1
17	Oct-01	MW-1R	ND	1	0.5	1
18	Jun-02	MW-1R	ND	1	0.5	1
19	Nov-02	MW-1R	ND	1	2	4
20	Jun-03	MW-1R	ND	1	0.5	1
21	Dec-03	MW-1R	ND	1	0.5	1
22	Jun-04	MW-1R	ND	1	0.5	1
23	Dec-04	MW-1R	ND	1	0.5	1
24	Jun-05	MW-1R	ND	1	0.5	1
25	Dec-05	MW-1R	ND	1	0.5	1
26	28-Jun-06	MW-1R	ND	1	0.5	1
27	29-Dec-06	MW-1R	ND	1	0.5	1
28	12-Jul-07	MW-1R	ND	1	0.5	1
29	12-Dec-07	MW-1R	ND	1	0.5	1
30	08-Jul-08	MW-1R	ND	1	0.5	1
31	17-Dec-08	MW-1R	ND	1	0.5	1
32	09-Jul-09	MW-1R	ND	1	0.5	1

Poisson Discrete Distribution Ajustment Factor = 2

Note: All sample concentrations are micrograms per liter

Using the background data, the upper Poisson Prediction Limit, y*, is determined by:

$$y^* = c\,y + [(t^2)\,c / 2] + t\,c\,[y\,(1 + (1/c)) + ((t^2) / 4)]^{0.5}$$

where:

c = k / n
y = Poisson count
t = t(n-1, 0.95), Student's t-distribution
n-1 = degrees of freedom (number of samples - 1)
k = number of downgradient samples per event
.95 = confidence interval
n = number of background samples

For:

c = 0.156
y = 44
t = 1.696
k = 5
n = 32

y* = 11.89
Adjusted y* = 5.94

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.27**
Sample Date: **9-Jul-09**

Analyte: **Cobalt**

Sample No.	Sample Date	Location	Concentration	
1	Sep-94	MW-1R	ND	
2	Dec-94	MW-1R	11	
3	Feb-95	MW-1R	20	
4	Mar-95	MW-1R	16	
5	Nov-95	MW-1R	20	
6	May-96	MW-1R	30	
7	Nov-96	MW-1R	6	
8	Jun-97	MW-1R	130	
9	Dec-97	MW-1R	32	
10	May-98	MW-1R	15	
11	Nov-98	MW-1R	21	
12	Jul-99	MW-1R	ND	
13	Nov-99	MW-1R	ND	
14	May-00	MW-1R	ND	
15	Oct-00	MW-1R	ND	
16	Apr-01	MW-1R	ND	
17	Oct-01	MW-1R	ND	
18	Jun-02	MW-1R	ND	
19	Nov-02	MW-1R	ND	
20	Jun-03	MW-1R	ND	
21	Dec-03	MW-1R	ND	
22	Jun-04	MW-1R	ND	
23	Dec-04	MW-1R	ND	
24	Jun-05	MW-1R	ND	
25	Dec-05	MW-1R	ND	
26	28-Jun-06	MW-1R	ND	
27	29-Dec-06	MW-1R	ND	
28	12-Jul-07	MW-1R	ND	
29	19-Dec-07	MW-1R	2.5	B
30	08-Jul-08	MW-1R	10.3	B
31	17-Dec-08	MW-1R	2.1	B
32	09-Jul-09	MW-1R	ND	

Number of Samples:	29	
Number of truncated data (ND):	19	
Percent Truncated:	66%	
Non-parametric Prediction Limit:	**130**	**µg/L**

Notes:
- All concentrations in micrograms per liter (µg/L).
J = Estimated value below RL (included in statistical calculations).
B = Blank-qualified data (excluded from statistical calculations).

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.26**
Sample Date: **9-Jul-09**

Analyte: **Nickel**

Sample No.	Sample Date	Location	Concentration (ug/L)		PQL/RL (ug/L)
1	Sep-94	MW-1R	ND		50
2	Dec-94	MW-1R	ND		50
3	Feb-95	MW-1R	ND		50
4	Mar-95	MW-1R	ND		50
5	Nov-95	MW-1R	ND		50
6	May-96	MW-1R	ND		50
7	Nov-96	MW-1R	ND		50
8	Jun-97	MW-1R	75		50
9	Dec-97	MW-1R	ND		50
10	May-98	MW-1R	ND		50
11	Nov-98	MW-1R	ND		50
12	Jul-99	MW-1R	ND		50
13	Nov-99	MW-1R	ND		50
14	May-00	MW-1R	ND		50
15	Oct-00	MW-1R	ND		50
16	Apr-01	MW-1R	ND		50
17	Oct-01	MW-1R	ND		50
18	Jun-02	MW-1R	ND		50
19	Nov-02	MW-1R	ND		50
20	Jun-03	MW-1R	ND		50
21	Dec-03	MW-1R	ND		50
22	Jun-04	MW-1R	ND		50
23	Dec-04	MW-1R	ND		50
24	Jun-05	MW-1R	ND		50
25	Dec-05	MW-1R	ND		50
26	28-Jun-06	MW-1R	ND		50
27	29-Dec-06	MW-1R	ND		50
28	12-Jul-07	MW-1R	ND		50
29	19-Dec-07	MW-1R	ND		50
30	08-Jul-08	MW-1R	ND		50
31	17-Dec-08	MW-1R	ND		50
32	09-Jul-09	MW-1R	2.2	J	50

Number of Samples:	32	
Number of truncated data (ND):	30	
Percent Truncated:	94%	
Poisson Prediction Interval:	**139**	**µg/L**

Notes:
- All concentrations in micrograms per liter (µg/L).

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.26**
Date: **9-Jul-09**

Upper Poisson Prediction Limit

Analyte: **Nickel**

Background Data

Sample	Date	Location	Concentration	Reporting Limit	Half RL or Concent.	Discrete Poisson Count
1	Sep-94	MW-1R	ND	50	25	125
2	Dec-94	MW-1R	ND	50	25	125
3	Feb-95	MW-1R	ND	50	25	125
4	Mar-95	MW-1R	ND	50	25	125
5	Nov-95	MW-1R	ND	50	25	125
6	May-96	MW-1R	ND	50	25	125
7	Nov-96	MW-1R	ND	50	25	125
8	Jun-97	MW-1R	75	50	75	375
9	Dec-97	MW-1R	ND	50	25	125
10	May-98	MW-1R	ND	50	25	125
11	Nov-98	MW-1R	ND	50	25	125
12	Jul-99	MW-1R	ND	50	25	125
13	Nov-99	MW-1R	ND	50	25	125
14	May-00	MW-1R	ND	50	25	125
15	Oct-00	MW-1R	ND	50	25	125
16	Apr-01	MW-1R	ND	50	25	125
17	Oct-01	MW-1R	ND	50	25	125
18	Jun-02	MW-1R	ND	50	25	125
19	Nov-02	MW-1R	ND	50	25	125
20	Jun-03	MW-1R	ND	50	25	125
21	Dec-03	MW-1R	ND	50	25	125
22	Jun-04	MW-1R	ND	50	25	125
23	Dec-04	MW-1R	ND	50	25	125
24	Jun-05	MW-1R	ND	50	25	125
25	Dec-05	MW-1R	ND	50	25	125
26	28-Jun-06	MW-1R	ND	50	25	125
27	29-Dec-06	MW-1R	ND	50	25	125
28	12-Jul-07	MW-1R	ND	50	25	125
29	12-Dec-07	MW-1R	ND	50	25	125
30	08-Jul-08	MW-1R	ND	50	25	125
31	17-Dec-08	MW-1R	ND	50	25	125
32	09-Jul-09	MW-1R	2.2	50	2.2	11

Poisson Discrete Distribution Ajustment Factor = 5

Note: All sample concentrations are micrograms per liter

Using the background data, the upper Poisson Prediction Limit, y*, is determined by:

$$y^* = c\,y + [(t^2)\,c / 2] + t\,c\,[y\,(1 + (1/c)) + ((t^2) / 4)]^{0.5}$$

where:
- c = k / n
- y = Poisson count
- t = t(n-1, 0.95), Student's t-distribution
- n-1 = degrees of freedom (number of samples - 1)
- k = number of downgradient samples per event
- .95 = confidence interval
- n = number of background samples

For:
- c = 0.156
- y = 4136
- t = 1.696
- k = 5
- n = 32

y* = 692.84
Adjusted y* = 138.57

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.27**
Sample Date: **9-Jul-09**

Analyte: **Benzene**

Sample No.	Sample Date	Location	Concentration (ug/L)	PQL/RL (ug/L)
1	Sep-94	MW-1R	ND	5
2	Dec-94	MW-1R	ND	5
3	Feb-95	MW-1R	ND	5
4	Mar-95	MW-1R	ND	5
5	Nov-95	MW-1R	ND	5
6	May-96	MW-1R	ND	5
7	Nov-96	MW-1R	ND	5
8	Jun-97	MW-1R	ND	5
9	Dec-97	MW-1R	ND	5
10	May-98	MW-1R	ND	5
11	Nov-98	MW-1R	ND	5
12	Jul-99	MW-1R	ND	5
13	Nov-99	MW-1R	ND	5
14	May-00	MW-1R	ND	5
15	Oct-00	MW-1R	ND	5
16	Apr-01	MW-1R	ND	5
17	Oct-01	MW-1R	ND	5
18	Jun-02	MW-1R	ND	5
19	Nov-02	MW-1R	ND	5
20	Jun-03	MW-1R	ND	5
21	Dec-03	MW-1R	ND	5
22	Jun-04	MW-1R	ND	5
23	Dec-04	MW-1R	ND	5
24	Jun-05	MW-1R	ND	5
25	Dec-05	MW-1R	ND	5
26	28-Jun-06	MW-1R	ND	5
27	29-Dec-06	MW-1R	ND	3
28	12-Jul-07	MW-1R	ND	1
29	19-Dec-07	MW-1R	ND	1
30	08-Jul-08	MW-1R	ND	1
31	17-Dec-08	MW-1R	ND	1
32	09-Jul-09	MW-1R	ND	1

Number of Samples: 32
Number of truncated data (ND): 32
Percent Truncated: 100%

Poisson Prediction Interval: 15.1 µg/L

Notes:
- All concentrations in micrograms per liter (µg/L).

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.27**
Date: **9-Jul-09**

Upper Poisson Prediction Limit

Analyte: **Benzene**

Background Data

Sample	Date	Location	Concentration	Reporting Limit	Half RL or Concent.	Discrete Poisson Count
1	Sep-94	MW-1R	ND	5	2.5	5
2	Dec-94	MW-1R	ND	5	2.5	5
3	Feb-95	MW-1R	ND	5	2.5	5
4	Mar-95	MW-1R	ND	5	2.5	5
5	Nov-95	MW-1R	ND	5	2.5	5
6	May-96	MW-1R	ND	5	2.5	5
7	Nov-96	MW-1R	ND	5	2.5	5
8	Jun-97	MW-1R	ND	5	2.5	5
9	Dec-97	MW-1R	ND	5	2.5	5
10	May-98	MW-1R	ND	5	2.5	5
11	Nov-98	MW-1R	ND	5	2.5	5
12	Jul-99	MW-1R	ND	5	2.5	5
13	Nov-99	MW-1R	ND	5	2.5	5
14	May-00	MW-1R	ND	5	2.5	5
15	Oct-00	MW-1R	ND	5	2.5	5
16	Apr-01	MW-1R	ND	5	2.5	5
17	Oct-01	MW-1R	ND	5	2.5	5
18	Jun-02	MW-1R	ND	5	2.5	5
19	Nov-02	MW-1R	ND	5	2.5	5
20	Jun-03	MW-1R	ND	5	2.5	5
21	Dec-03	MW-1R	ND	5	2.5	5
22	Jun-04	MW-1R	ND	5	2.5	5
23	Dec-04	MW-1R	ND	5	2.5	5
24	Jun-05	MW-1R	ND	5	2.5	5
25	Dec-05	MW-1R	ND	5	2.5	5
26	28-Jun-06	MW-1R	ND	5	2.5	5
27	29-Dec-06	MW-1R	ND	3	1.5	3
28	12-Jul-07	MW-1R	ND	1	0.5	1
29	12-Dec-07	MW-1R	ND	1	0.5	1
30	08-Jul-08	MW-1R	ND	1	0.5	1
31	17-Dec-08	MW-1R	ND	1	0.5	1
32	09-Jul-09	MW-1R	ND	1	0.5	1

Poisson Discrete Distribution Ajustment Factor = 2

Note: All sample concentrations are micrograms per liter

Using the background data, the upper Poisson Prediction Limit, y*, is determined by:

$$y^* = c\,y + [(t^2)\,c / 2] + t\,c\,[y\,(1 + (1/c)) + ((t^2) / 4)]^{0.5}$$

where:
- c = k / n
- y = Poisson count
- t = t(n-1, 0.95), Student's t-distribution
- n-1 = degrees of freedom (number of samples - 1)
- k = number of downgradient samples per event
- .95 = confidence interval
- n = number of background samples

For:
- c = 0.156
- y = 138
- t = 1.696
- k = 5
- n = 32

y* = 30.26
Adjusted y* = 15.13

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.27**
Sample Date: **9-Jul-09**

Analyte: **Chlorobenzene**

Sample No.	Sample Date	Location	Concentration (ug/L)	PQL/RL (ug/L)
1	Sep-94	MW-1R	ND	5
2	Dec-94	MW-1R	ND	5
3	Feb-95	MW-1R	ND	5
4	Mar-95	MW-1R	ND	5
5	Nov-95	MW-1R	ND	5
6	May-96	MW-1R	ND	5
7	Nov-96	MW-1R	ND	5
8	Jun-97	MW-1R	ND	5
9	Dec-97	MW-1R	ND	5
10	May-98	MW-1R	ND	5
11	Nov-98	MW-1R	ND	5
12	Jul-99	MW-1R	ND	5
13	Nov-99	MW-1R	ND	5
14	May-00	MW-1R	ND	5
15	Oct-00	MW-1R	ND	5
16	Apr-01	MW-1R	ND	5
17	Oct-01	MW-1R	ND	0.5
18	Jun-02	MW-1R	ND	0.5
19	Nov-02	MW-1R	ND	0.5
20	Jun-03	MW-1R	ND	0.5
21	Dec-03	MW-1R	ND	5
22	Jun-04	MW-1R	ND	5
23	Dec-04	MW-1R	ND	5
24	Jun-05	MW-1R	ND	5
25	Dec-05	MW-1R	ND	5
26	28-Jun-06	MW-1R	ND	5
27	29-Dec-06	MW-1R	ND	3
28	12-Jul-07	MW-1R	ND	3
29	19-Dec-07	MW-1R	ND	3
30	08-Jul-08	MW-1R	ND	3
31	17-Dec-08	MW-1R	ND	3
32	09-Jul-09	MW-1R	ND	3

Number of Samples: 32
Number of truncated data (ND): 32
Percent Truncated: 100%

Poisson Prediction Interval: 13.1 µg/L

Notes:
- All concentrations in micrograms per liter (µg/L).

JEI Project: **Granville County - Butner Landfill**
Project No: **660.06.27**
Date: **9-Jul-09**

Upper Poisson Prediction Limit

Analyte: **Chlorobenzene**

Background Data

Sample	Date	Location	Concentration	Reporting Limit	Half RL or Concent.	Discrete Poisson Count
1	Sep-94	MW-1R	ND	5	2.5	10
2	Dec-94	MW-1R	ND	5	2.5	10
3	Feb-95	MW-1R	ND	5	2.5	10
4	Mar-95	MW-1R	ND	5	2.5	10
5	Nov-95	MW-1R	ND	5	2.5	10
6	May-96	MW-1R	ND	5	2.5	10
7	Nov-96	MW-1R	ND	5	2.5	10
8	Jun-97	MW-1R	ND	5	2.5	10
9	Dec-97	MW-1R	ND	5	2.5	10
10	May-98	MW-1R	ND	5	2.5	10
11	Nov-98	MW-1R	ND	5	2.5	10
12	Jul-99	MW-1R	ND	5	2.5	10
13	Nov-99	MW-1R	ND	5	2.5	10
14	May-00	MW-1R	ND	5	2.5	10
15	Oct-00	MW-1R	ND	5	2.5	10
16	Apr-01	MW-1R	ND	5	2.5	10
17	Oct-01	MW-1R	ND	0.5	0.25	1
18	Jun-02	MW-1R	ND	0.5	0.25	1
19	Nov-02	MW-1R	ND	0.5	0.25	1
20	Jun-03	MW-1R	ND	0.5	0.25	1
21	Dec-03	MW-1R	ND	5	2.5	10
22	Jun-04	MW-1R	ND	5	2.5	10
23	Dec-04	MW-1R	ND	5	2.5	10
24	Jun-05	MW-1R	ND	5	2.5	10
25	Dec-05	MW-1R	ND	5	2.5	10
26	28-Jun-06	MW-1R	ND	5	2.5	10
27	29-Dec-06	MW-1R	ND	3	1.5	6
28	12-Jul-07	MW-1R	ND	3	1.5	6
29	12-Dec-07	MW-1R	ND	3	1.5	6
30	08-Jul-08	MW-1R	ND	3	1.5	6
31	17-Dec-08	MW-1R	ND	3	1.5	6
32	09-Jul-09	MW-1R	ND	3	1.5	6

Poisson Discrete Distribution Ajustment Factor = 4

Note: All sample concentrations are micrograms per liter

Using the background data, the upper Poisson Prediction Limit, y*, is determined by:

$$y^* = c\,y + [(t^2)\,c / 2] + t\,c\,[y\,(1 + (1/c)) + ((t^2) / 4)]^{0.5}$$

where:
- c = k / n
- y = Poisson count
- t = t(n-1, 0.95), Student's t-distribution
- n-1 = degrees of freedom (number of samples - 1)
- k = number of downgradient samples per event
- .95 = confidence interval
- n = number of background samples

For:
- c = 0.156
- y = 260
- t = 1.696
- k = 5
- n = 32

y* = 52.48
Adjusted y* = 13.12