WATER QUALITY MONITORING REPORT

FIRST SEMI-ANNUAL 2013 SAMPLING EVENT

Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28

Wake County, North Carolina

Submitted To:

Red Rock Disposal, LLC
7130 New Landfill Drive
Holly Springs, NC 27540

Submitted By: Golder Associates NC, Inc.
5B Oak Branch Drive
Greensboro, NC 27407 USA

May 2013 **0739-603513.100**

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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):

Golder Associates NC, Inc. on behalf of Red Rock Disposal, LLC

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

Name: David Y. Reedy II, P.G. Phone: (336) 852-4903

E-mail: dreedy@golder.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Red Rock Landfill	7130 New Landfill Dr Holly Springs, NC 27540	92-28	.0500	April 1, 2013

Environmental Status: (Check all that apply)

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

Type of data submitted: (Check all that apply)

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

Notification attached?

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

Certification

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

David Y. Reedy, P.G. Senior Project Hydrogeologist (336) 852-4903

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

Signature 5-23-13 Date

Affix NC Licensed/ Professional Geologist Seal

NORTH CAROLINA LICENSED SEAL 1963 GEOLOGIST DAVID YATES REEDY, II 5-23-13

Golder Associates NC, Inc., 5B Oak Branch Drive, Greensboro, NC 27407

Facility Representative Address

C-2862

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

Revised 6/2009

May 23, 2013 0739-603513.100

Ms. Jaclynne Drummond
North Carolina Department of Environment & Natural Resources
Division of Waste Management
401 Oberlin Road, Suite 150
Raleigh, NC 27605
(919) 733-4996

RE: WATER QUALITY MONITORING REPORT, FIRST SEMI-ANNUAL 2013 SAMPLING EVENT
RED ROCK DISPOSAL, LLC C&D LANDFILL, PERMIT NO. 92-28
WAKE COUNTY, NORTH CAROLINA

Dear Jackie:

On behalf of Red Rock Disposal, LLC, a subsidiary of Waste Industries USA, Inc., Golder Associates NC, Inc. is submitting the enclosed *Water Quality Monitoring Report,* which documents the results of the April 1, 2013, compliance monitoring event at the above-referenced facility. Red Rock Disposal, LLC monitors groundwater at this facility for parameters listed in Title 15A NCAC 13B.0544 of the North Carolina Solid Waste Management Rules (NCSWMR).

As presented, barium was detected at concentrations above the Solid Waste Section Limit (SWSL) in samples from one or more downgradient monitoring wells during the April 2013 monitoring event. The concentrations of barium in samples from upgradient well MW-10 and downgradient wells MW-3 and MW-6T exceed the NC 2L Standard. Statistical analyses were completed for the barium concentrations to determine the source of the exceedances and the concentrations were determined to be below background and therefore interpreted to be naturally occurring. Vanadium was detected in the samples from MW-3 and MW-14 at estimated concentrations below the SWSL, but above the Solid Waste Section Groundwater Protection Standard this event. These data are generally consistent with historical results at this facility and are also interpreted to represent background conditions.

Indicator parameters chloride, iron, manganese, and total dissolved solids were detected at concentrations in samples from one or more downgradient monitoring wells above their respective NC 2L Standards during this event, as they have been during previous events. These concentrations are generally consistent with historical data from these wells and appear to be representative of naturally-occurring conditions based on concentrations in upgradient wells and other background data; therefore, no further action is required.

No NC Appendix I organic constituents were detected above SWSLs in samples from downgradient monitoring wells during the April 2013 monitoring event. Additionally, no NC Appendix I constituents were detected in surface water monitoring points at concentrations above applicable surface water standards.

Based on these results, Red Rock Disposal, LLC will continue monitoring this facility in accordance with the requirements of the Detection Monitoring Program for Construction & Demolition Landfills as outlined in Title 15A NCAC 13B.0544. The next event is tentatively scheduled for September 2013. Should you have any questions or need further assistance, please contact the undersigned at 336-852-4903.

Golder Associates NC, Inc.
5B Oak Branch Drive
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Tel: (336) 852-4903 Fax: (336) 852-4904 www.golder.com

Sincerely,
GOLDER ASSOCIATES NC, INC.

David "Dusty" Y. Reedy II, P.G.
Senior Project Hydrogeologist

Ken Dizemore
FOR
Rachel P. Kirkman, P.G.
Associate and Senior Geologist

Enclosure

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1.0 INTRODUCTION

This report summarizes the monitoring results from the April 1, 2013, groundwater and surface water sampling and analysis event at the Red Rock Disposal, LLC Construction & Demolition (C&D) Landfill (Red Rock Landfill) in Wake County, North Carolina in accordance with Title 15A of the North Carolina Administrative Code (NCAC) Subchapter 13B.0544. The Red Rock Landfill, an active C&D landfill, is owned and operated by Red Rock Disposal, LLC a subsidiary of Waste Industries USA, Inc. (Waste Industries), under Permit No. 92-28 issued by the North Carolina (NC) Department of Environment and Natural Resources (DENR).

1.1 Site Description and Background

The location of the facility is shown on the inlay on Drawing 1. Red Rock Landfill is located in southwestern Wake County, approximately 5 miles southwest of Holly Springs, NC. Access to the site is from New Landfill Drive, located off Rex Road to the north of the site.

There are three streams that traverse the site, which drain into the Shearon Harris Reservoir, located to the southwest of the site. One stream is the Jim Branch that flows southwesterly along the southeastern portion of the property boundary. A second stream is an unnamed intermittent tributary of the Jim Branch, which flows southeasterly across a portion of the northern property boundary. A third stream is another unnamed tributary of the Jim Branch that flows southerly across a portion of the southern property boundary. The locations of these surface water features are shown on Drawing 1.

Based on the topography as shown on Drawing 1, topographic surface elevations at the facility range from elevations of approximately 250 feet above mean sea level (AMSL) near the southeastern portion of the site near the Jim Branch, to 298 feet AMSL near the northeastern property boundary along Rex Road. The site is surrounded predominantly by wooded or agricultural properties, along with a nearby rock quarry. NC-designated game lands border portions of the site to the west. A Progress Energy power line easement cuts through the southern portion of the site.

1.2 Compliance Monitoring History

Groundwater monitoring at the facility was initiated in October 2001 after approval of G.N. Richardson & Associates' Water Quality Monitoring Plan (WQMP) for Phase I, by the NC DENR, which included MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, and MW-10. Four additional wells (MW-11, MW-12, MW-13, and MW-14) were installed in August 2003. Compliance sampling of these four monitoring wells was initiated during the September 2008 sampling event, associated with construction activities for Phase 1C-2. Monitoring wells MW-1 and MW-9 were decommissioned during site construction activities in early 2008, and MW-13 was decommissioned in May 2011 during site construction activities.

The facility's current monitoring network is comprised of 8 monitoring wells (MW-2T, MW-3, MW-4, MW-5, MW-6T, MW-10, MW-11, and MW-14), which monitor the uppermost aquifer beneath the facility. Well MW-10 is the facility's upgradient background monitoring well. Monitoring wells MW-2T and MW-6T are replacement wells for MW-2 and MW-6, which were decommissioned. Wells MW-11 and MW-14 are located hydraulically upgradient with respect to Phase 1C-2. Well MW-12 remains for the collection of water levels only.

In addition to the groundwater monitoring points, the facility's monitoring network includes two downstream surface water sampling points, SW-2 and SW-3. Upstream surface water monitoring point SW-1 no longer exists due to site construction activities. Point SW-2 is located along an unnamed tributary of Jim Branch, which is downstream of the waste area. Point SW-3 is located along Jim Branch downstream of the facility. These points are sampled in conjunction with the groundwater monitoring wells in accordance with the facility's permit and WQMP.

1.3 Hydrogeologic Setting

Geologically, the facility is located within the Deep River basin and Durham sub-basin of the Triassic Basin in the Piedmont Physiographic Province of NC (NCGS 1985). Generally, the Triassic Basin consists of Lower Mesozoic sedimentary and igneous rocks that filled rift basins. The Durham sub-basin contains conglomerates, fanglomerates, sandstones, and mudstones. More specifically, all three Deep River sub-basins contain a middle clay-shale and mudstone interval approximately 50 to 400 meters thick, which is evident by the red shale present at the site, in addition to the presence of conglomerates and sandstones. The Deep River basin is bounded on the east by the Jonesboro fault system and is intruded by intersecting north and northwest-striking diabase dikes (Olsen, et al. 1991).

The uppermost groundwater beneath the facility is present in a shallow, unconfined aquifer comprised of saprolite, partially weathered rock (PWR), and conglomerate bedrock. Groundwater occurs at depths varying widely from approximately 2 feet below grade to more than 30 feet below grade across the site. Groundwater depths average approximately 3 to 10 feet below grade along the perimeter downgradient boundary, and approximately 5 to 25 feet below grade to the north along the upgradient northern perimeter boundary.

Depth-to-water measurements obtained during the April 2013 monitoring event and summarized in Table 1 were used to prepare a groundwater surface contour map presented on Drawing 1.

Surface water and groundwater at the site generally flows to the south and southeast toward Jim Branch, located along the southeastern portion of the site. The Jim Branch flows toward the southwest into the Shearon Harris Reservoir, located approximately ¾ of a mile from the site. Groundwater beneath the site flows in three distinguishable and vertically interconnected hydrogeologic units; saprolite, PWR, and

bedrock (GNR 2003). The groundwater contour map and interpreted flow directions are consistent with previously submitted interpretations for this facility.

Based on the April 2013 groundwater contour map, the hydraulic gradient in the shallow aquifer underlying the site as measured along the conceptual flow path shown on the contour map was calculated to be approximately 0.030 feet per foot. Groundwater velocities were calculated using a hydraulic conductivity of $7.45E^{-04}$ centimeters per second, which is the average of the hydraulic conductivities for each of the hydrogeologic units present at the facility (GNR 2003). The estimated effective porosity of the shallow aquifer is 0.10 (GNR 2003).

Using the above values, the estimated rate of groundwater flow for the uppermost aquifer beneath the facility was calculated using the following modified Darcy equation:

$$V_{gw} = Ki/n_e$$

where V_{gw} = average linear velocity (feet/year), K = hydraulic conductivity (feet/year), i = horizontal hydraulic gradient, and n_e = effective porosity.

The average estimated linear groundwater flow velocity under the waste management unit is approximately 228 feet/year, which is generally consistent with previous estimates (Table 2). The range of groundwater flow is expected to vary depending on the hydrogeologic unit in which it occurs. The linear velocity equation above makes the simplified assumptions of a homogeneous and isotropic aquifer. Therefore, this equation represents a likely average value for the uppermost aquifer and does not account for heterogeneous and/or anisotropic conditions that may be present in the uppermost aquifer at the facility.

2.0 FIELD PROGRAM, MONITORING RESULTS, AND DISCUSSION

Field activities conducted as part of the April 2013 sampling event are discussed in the following sections.

2.1 Visual Inspection Program

In order to ensure that a potential release is detected at the earliest indication, the visual inspection program is used at the Red Rock C&D Landfill by the sampling personnel. This program includes physical indicators such as potential water table mounding beneath the waste management unit, physical examination of any stresses in biological communities, unexplained changes in soil characteristics, and any other change to the environment due to the waste management unit. During the April 2013 compliance monitoring event, no physical indicators of a potential release were observed in the waste management areas by the sampling personnel.

2.2 Well Network and Groundwater Elevation Measurements

The current groundwater monitoring network at the facility consists of 8 wells. Available monitoring well construction information for site monitoring wells is summarized on Table 3 and the well locations are shown on Drawing 1. The well locations were selected to yield groundwater samples representative of the conditions in the uppermost aquifer underlying the facility, and to monitor for potential releases from the landfill unit. Two downstream (SW-2 and SW-3) surface water monitoring points are also monitored.

Monitoring well MW-10 is the facility's background well, and is located hydraulically upgradient to sidegradient of the waste disposal area. Monitoring wells MW-2T, MW-3, MW-4, MW-5, and MW-6T are located downgradient of the waste disposal area and represent the facility's downgradient compliance wells. Monitoring wells MW-11 and MW-14 are compliance wells installed to monitor Phase 1C-2. The well locations yield groundwater samples representative of the conditions in the uppermost aquifer underlying the facility and monitor for potential releases from the landfill unit.

Depth-to-water measurements were recorded to the nearest 0.01 foot prior to and during groundwater purging and sampling activities. The respective groundwater level elevations for this event are presented in Table 1. The historical water level data are also shown on this table.

As presented, recent groundwater elevation data for the current monitoring well network indicate that the hydraulic head level in the uppermost aquifer beneath the facility is fairly consistent, with temporal variation from the long-term average limited to approximately 5-10 feet (plus or minus). However, several historical groundwater elevation readings appear to be anomalous and are not considered representative of site hydrogeologic conditions. The range in fluctuation (excluding anomalous data and decommissioned wells) appears to be greatest in MW-10, which is the upgradient well, located in a groundwater recharge area. The range in fluctuation in compliance wells MW-3, MW-4, MW-5, and MW-6T, which are located near groundwater discharge areas, is much less, presumably due to the stabilizing effect of the hydraulic discharge boundary.

2.3 April 2013 Monitoring Event

Personnel from Golder visited the facility on April 1, 2013, to purge and sample the 8 monitoring wells and to sample surface water monitoring points SW-2 and SW-3. Depth-to-water measurements were obtained from the network monitoring wells to the nearest 0.01 foot using an electronic water level indicator prior to purging the wells.

All monitoring wells were purged using dedicated bladder pumps. Low-flow micropurge procedures were used during the purging and sampling of all wells. Measurements of pH, specific conductivity, temperature, turbidity, dissolved oxygen, and oxidation reduction potential were recorded using field-calibrated instruments on approximately 3 to 5-minute intervals, depending on the purge rate. In general, the purge rate for each well was matched to the yield of the monitoring well, as determined by

continuously monitoring the depth-to-water, up to a maximum purge rate of 500 milliliters per minute. Purging was continued until stabilization was indicated by the water quality parameters.

Prior to sampling, the laboratory-supplied sample containers were prepared. Each sample container was labeled with the sample identification number, sampling personnel, date and time of sample collection, project name and number, and requested chemical analyses.

The required groundwater samples were collected directly from the bladder pump discharge lines in the labeled, laboratory-supplied, pre-preserved sample containers after purging was completed based on stabilization of all water quality parameters. After collection, the samples were placed in a cooler on ice, under chain-of-custody control. Copies of the sampling logs are presented in Appendix A. Included in each log is a description of the sampling equipment, sampling method and location, field observations, and water quality measurements.

The surface water samples were collected from the stream flow, by lowering a decontaminated polyethylene dipper into the stream flow with the opening facing away from the current to minimize sample-induced turbidity. The collected water was then poured from the dipper into the sample containers, taking care to prevent the overflow of the sample containers. Measurements of temperature, pH, specific conductivity, turbidity, dissolved oxygen, and oxygen reduction potential were measured directly from the stream and recorded during the collection of the surface water samples.

After collection, the surface water samples were placed in a cooler on ice, under chain-of-custody control. Copies of the sampling logs are presented in Appendix A. Included in each log is a description of the sampling equipment, sampling location, sampling method, field observations, and water-quality measurements.

2.4 Laboratory Analysis Program

The April 1, 2013, groundwater and surface water samples were submitted to Environmental Conservation Laboratories, Inc. (ENCO) of Cary, NC under chain-of-custody control for analysis. As presented, groundwater samples at the facility were analyzed for NC Appendix I constituents plus several indicator parameters as specified in the Title 15A NCAC 13B.0544 of the Solid Waste Management Rules and tetrahydrofuran. Surface water samples were also analyzed for the NC Appendix I constituents plus tetrahydrofuran. Groundwater and surface water samples were received at the laboratory on April 2, 2013, in good condition and properly preserved.

2.5 April 2013 Sampling Results

Analytical results for the April 2013 groundwater samples are summarized in Table 4 with available historical data. Historical results for surface water samples are summarized in Table 5. The laboratory

certificates-of-analysis, chain-of-custody form, and laboratory data reviews for the sampling event are included in Appendix B.

As presented, one NC Appendix I inorganic constituent, barium, was detected at concentrations above its respective Solid Waste Section Limit (SWSL) in samples from one or more downgradient monitoring wells during the April 2013 monitoring event. No NC Appendix I organic constituents were detected above their respective SWSLs in groundwater samples. No NC Appendix I constituents were detected at quantifiable concentrations above their respective SWSLs in the surface water samples during this event.

3.0 LABORATORY AND FIELD QA/QC

A field blank was collected by Golder personnel as part of the April 2013 groundwater sampling event. In addition to the field blank, a laboratory-prepared trip blank accompanied the volatile sample containers to and from the laboratory. ENCO analyzed the field blank for NC Appendix I constituents plus indicator metals and the trip blank for NC Appendix I volatile organic compounds. Reviews of the laboratory data were performed by Golder personnel (included in Appendix B). Method blanks are also included in the laboratory QA/QC procedures.

Barium was detected at an estimated concentration in the field blank and chloride was detected at an estimated concentration in the method blank during this event. Based on our review, the concentration of chloride in the sample from MW-4 is considered to be blank-qualified.

4.0 DATA EVALUATION

The results of the data evaluations are presented in the following sections.

4.1 North Carolina Groundwater and Surface Water Standard Comparisons

The concentrations of barium in samples from upgradient well MW-10 and downgradient wells MW-3 and MW-6T exceed the SWSL and NC 2L Standard. Vanadium was also detected in the samples from MW-3 and MW-14 at estimated concentrations below the SWSL, but above the SWS Groundwater Protection Standard during this event; no action is required for the estimated concentrations. These data are generally consistent with historical data and are interpreted to represent background conditions as described below.

As presented in Table 4, several indicator parameters (chloride, iron, manganese, and total dissolved solids) were detected at concentrations above their respective NC 2L Standards during this event in samples from upgradient and/or downgradient wells. These concentrations are generally consistent with historical data and appear to be representative of naturally-occurring conditions based on concentrations in upgradient wells and other background data. As presented in Table 5, no NC Appendix I constituents

were detected above applicable surface water standards in surface water monitoring points during the April 2013 sampling event.

4.2 Statistical Evaluations

As presented above, one NC Appendix I inorganic constituent (barium) was detected above its respective SWSL and groundwater standard in samples from one or more downgradient monitoring wells during this sampling event. To determine the source of these above-standard concentrations, each concentration was statistically compared to background concentrations. The statistical worksheets and summary table are presented as Appendix C. Based on these analyses, the concentrations were determined to be below background concentrations and no further action is warranted as they are interpreted to be naturally occurring.

5.0 SUMMARY

Based on the results summarized herein, Red Rock Disposal, LLC, is in compliance with respect to water quality monitoring requirements and will continue monitoring the uppermost aquifer beneath this facility in accordance with the requirements of the Detection Monitoring Program for Construction & Demolition Landfills as outlined in Title 15A NCAC 13B.0544. The next sampling event is tentatively scheduled for September 2013.

6.0 REFERENCES

HGL (The Hutchinson Group, Ltd.), Murrysville, PA, various monitoring well, piezometer construction records and boring logs, July-October 2000.

GNR (G.N. Richardson & Associates, Inc.), Raleigh, NC, *Groundwater and Surface Water Monitoring Reports*, November 2001 through October 2006, and *Water Quality Monitoring Plans,* May 2001 and October 2003.

NCGS (North Carolina Geologic Survey), 1985. Geologic Map of North Carolina.

Olsen et al. (Olsen, Paul E., Froelich, Albert J., Daniels, David L., Smoot, Joseph P., Gore, Pamela J.W.), Rift Basins of Early Mesozoic Age, in Horton, J.W., Jr., and Zullo, V.A., eds., The Geology of the Carolinas: The University of Tennessee Press, 1991, pp. 142-170.

USGS (Heath, Ralph C.), Basic Ground-Water Hydrology, Water Supply Paper 2220, for U.S. Department of Interior and U.S.G.S., 1983.

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TABLES

TABLE 1

Summary of Historical Groundwater Elevation Data
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

	Monitoring Well										
	MW-2T*	**MW-3**	**MW-4**	**MW-5**	**MW-6T***	**MW-7**	**MW-8**	**MW-10****	**MW-11**	**MW-12**	**MW-14**
TOC Elevation (ft AMSL)	281.19	261.80	254.10	254.47	289.21	302.36	286.62	301.16	310.77	314.83	301.20
Date	**Static Water Elevation (ft AMSL)**										
11/30/2000	NI	248.38	241.87	251.28	NI	288.67	258.15	283.86	NI	NI	NI
1/10/2001	NI	248.23	249.18	251.48	NI	287.84	258.07	283.53	NI	NI	NI
2/13/2001	NI	248.66	251.48	251.87	NI	289.39	264.94	283.28	NI	NI	NI
4/9/2001	NI	249.95	251.24	251.49	NI	298.81	257.76	285.13	NI	NI	NI
4/26/2001	NI	249.57	250.10	251.76	NI	294.38	257.67	284.56	NI	NI	NI
6/11/2002	255.03	248.33	246.57	247.22	269.74	--	--	286.80	NI	NI	NI
11/1/2002	254.99	248.35	251.61	251.85	270.41	--	--	285.63	NI	NI	NI
3/6/2003	256.87	252.85	251.91	251.98	271.68	--	--	290.06	NI	NI	NI
9/9/2003	256.21	250.19	251.36	251.19	275.07	--	--	287.74	280.77	299.71	291.03
9/23/2003	237.32	249.92	250.86	250.82	275.24	--	--	--	--	--	--
3/11/2004	257.22	252.61	251.73	251.81	277.64	--	--	290.45	--	--	--
9/23/2004	257.62	250.98	251.57	251.44	275.73	--	NI	290.13	--	--	--
3/10/2005	257.31	252.19	251.88	251.99	275.37	--	--	290.88	--	--	--
9/22/2005	255.82	248.26	247.45	246.83	--	--	--	289.94	--	--	--
3/6/2006	256.17	250.29	250.61	250.59	274.96	--	--	291.63	--	--	--
9/19/2006	257.19	248.77	248.53	250.47	277.26	--	--	290.83	--	--	--
3/20/2007	266.28	251.80	251.30	251.05	275.79	--	--	293.25	289.81	300.53	290.12
9/27/2007	256.52	247.78	247.31	248.56	277.70	293.42	--	289.87	283.46	300.39	286.50
3/25/2008	255.94	249.68	251.79	252.27	274.91	298.75	266.67	290.19	288.16	295.82	285.98
9/29-30/2008	256.98	248.02	250.08	251.99	275.85	292.83	267.24	288.81	282.62	296.81	286.67
3/30-31/2009	256.60	251.61	251.74	252.04	275.29	301.86	266.52	292.66	287.02	297.31	290.13
9/29-30/2009	257.10	248.08	249.28	250.97	276.94	--	--	289.98	283.57	299.23	286.97
3/30-31/2010	257.12	251.50	251.54	251.89	275.62	300.57	268.15	294.24	290.05	301.74	290.48
9/29-30/2010	257.10	248.22	251.44	252.28	277.90	293.07	267.15	293.24	289.05	300.74	287.34
4/6-4/7/2011	255.19	248.70	251.28	251.72	275.31	290.51	267.01	289.45	290.04	299.02	287.45
9/28/2011	258.15	247.76	249.11	251.92	277.30	290.16	266.62	288.22	284.80	298.59	286.09
3/28/2012	257.68	250.72	251.48	251.98	276.30	296.79	265.57	291.30	290.36	298.51	288.34
9/26/2012	257.60	248.80	250.10	250.35	278.13	290.24	265.71	288.71	287.05	298.31	286.38
4/1/2013	255.48	249.48	251.45	251.82	277.43	289.71	264.71	289.81	291.05	297.51	285.31
MEAN	*256.23*	*249.64*	*250.20*	*251.13*	*275.55*	*293.56*	*264.13*	*289.08*	*286.99*	*298.87*	*287.77*
MAXIMUM	*266.28*	*252.85*	*251.91*	*252.28*	*278.13*	*301.86*	*268.15*	*294.24*	*291.05*	*301.74*	*291.03*
MINIMUM	*237.32*	*247.76*	*241.87*	*246.83*	*269.74*	*287.84*	*257.67*	*283.28*	*280.77*	*295.82*	*285.31*

Notes:
1. ft AMSL = feet above mean sea level.
2. -- = not measured or no data
3. TOC = top of casing
4. NI = not installed
5. MW = monitoring well
6. TOC and Water Elevation Data for dates prior to March 2007 from historical G.N. Richardson & Associates, Inc. *Ground and Surface Water Monitoring Reports* .
7. *MW-2T and MW-6T are replacement well installations for MW-2 and MW-6, respectively.
8. **TOC Elevation for MW-10 is listed as both 296.35 feet AMSL in the Hutchinson Group, Ltd. data and 301.16 feet AMSL in the Richardson data from the same sampling periods. The latest TOC elevation is used for this table.
9. It appears that MW-2T,MW-6T,and MW-10 were re-surveyed by G.N. Richardson & Associates, Inc. The TOC data from the most recent reports are used in this table.
10. Water level data for MW-2T from 9/23/2003 and 3/20/2007 and for MW-4 from 11/3/2000 appear to be anomalous and were not included in the mean, maximum, and minimum groundwater calculations.
11. Wells MW-1 and MW-9 were decomissioned in 2008 during site construction activities.
12. The elevations for MW-2T are unchanged since the inner casing was replaced after well was damaged.
13. Approval was received from NCDENR on 3-3-11 to monitor MW-12 for water levels only and to decommission MW-13 (which was decommissioned on 5-2-11).

TABLE 2

Summary of Estimated Horizontal Flow Velocities
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

April 2013							
Gradient Calculation Segment	**Flow Direction**	**Gradient Segment Length (feet)**	**Gradient Segment Elevations (feet)**	**Horizontal Gradient (i, feet)**	**Effective Porosity (n_e)**	**Hydraulic Conductivity (K, cm/sec)**	**Velocity (V_{gw}, feet/year)**
i_1	SE	566	300 / 280	0.0354	0.1	0.000745	272.60
i_2	SSE	1186	300 / 260	0.0337	0.1	0.000745	259.94
i_3	SSE	2038	290 / 250	0.0196	0.1	0.000745	151.29

Notes:

1. Horizontal velocities based on the modified Darcy equation $V_{gw} = Ki/n_e$.
2. Values for K and n_e were based on mean values for MW-1, MW-3, MW-5 and MW-10 and hydrogeologic data collected by G.N. Richardson & Associates, Inc. Values for n_e also based on typical effective porosities for similar hydrogeologic conditions as discussed in the 1983 U.S. Dept of Interior and U.S.G.S. publication *Basic Ground-Water Hydrology, Water-Supply Paper 2220,* by Ralph C. Heath.

TABLE 3

Summary of Well Construction Information

Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28

Wake County, North Carolina

Well Identification	Construction Date	Ground Surface Elevation (ft AMSL)	Measuring Point Elevation (ft AMSL)	Well Depth (feet)	Well Diameter (inches)	Screened Interval (ft bgs)	Screened Interval (ft AMSL)	Depth to Bedrock (ft bgs)	Well Status
MW-2T	9/29/2001	--	281.19	82	2	--	--	--	Active
MW-3	10/19/2000	257.5	261.80	31.5	2	17-27	240.5-230.5	5.00	Active
MW-4	10/11/2000	251.76	254.10	17	2	5-15	246.76-236.76	6.00	Active
MW-5	10/12/2000	252.04	254.47	15.5	2	4-14	248.04-238.04	11.00	Active
MW-6T	9/29/2001	287.38	289.21	45	2	35-45	252.38-242.38	10.00	Active
MW-7	10/17/2000	300.14	302.36	20.5	2	8-18	292.14-282.14	10.30	Water Levels Only
MW-8	10/18/2000	283.58	286.62	33.5	2	23-33	260.58-250.58	33.50	Water Levels Only
MW-10	10/18/2000	--	301.16	34	2	11-31	--	17.00	Active
MW-11	8/12/2003	308.17	310.77	50	2	40-50	268.17-258.17	12.00	Active
MW-12	8/11/2003	312.04	314.83	28.5	2	17-27	295.04-285.04	8.00	Water Levels Only
MW-14	8/12/2003	298.24	301.20	32	2	22-32	276.24-266.24	8.00	Active

Notes:

1. ft AMSL= feet above mean sea level
2. ft BGS= feet below ground surface
3. NA= not drilled to auger refusal
4. -- = no data available
5. Unless otherwise noted, well construction information given by G.N. Richardson & Associates, Inc. & The Hutchinson Group, Ltd. hydrogeologic data, including previous *Groundwater Monitoring Reports* and May 2001 and Oct 2003 *Water Quality Monitoring Plans.*
6. MW-2T & MW-6T are replacement wells for MW-2 and MW-6 and have been included as part of the monitoring well network since the April 2001 sampling event.
7. Well depths for MW-2T, MW-3, MW-4, MW-5, and MW-10 were based on Golder's March 2007 field measurements.
8. The elevation for the top of casing of MW-2T remains unchanged since the inner casing was replaced after well was damaged.
9. Approval was received from NCDENR on 3-3-11 to monitor MW-12 for water levels only and to decommission MW-13 (which was decommissioned on 5-2-11).

TABLE 4

Summary of Groundwater Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Antimony	ug/L	10/31/01	30	ND	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	ND
SWS GPS = 1 ug/L	ug/L	06/11/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	11/01/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/11/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/10/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/22/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/19/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/21/07	6	--	ND	--	1.09 J	ND	ND	0.60 J	--	ND	--	--	--	--	--	ND
	ug/L	09/28/07	6	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	6	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	ND	ND	ND
	ug/L	09/29/08	6	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/09	6	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/09	6	--	ND	--	ND	0.0950 J	0.132 J	0.0950 J	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/10	6	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/10	6	--	ND	--	ND	ND	ND	0.220 J	--	ND	--	ND	ND	ND	ND	ND
	ug/L	04/06/11	6	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	6	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	6	--	ND	--	0.404 J	0.390 J	ND	0.821 J	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	6	--	ND	--	ND	ND	ND	0.344 J	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	6	--	ND	--	ND	ND	ND	0.740 J	--	ND	--	ND	--	--	ND	ND
Arsenic	ug/L	10/31/01	10	ND	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	ND
NC 2L = 10 ug/L	ug/L	06/11/02	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	11/01/02	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/03	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/03	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/11/04	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/04	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/10/05	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/22/05	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/06	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/19/06	10	--	ND	--	ND	ND	ND	ND	--	17	--	--	--	--	--	ND
	ug/L	03/21/07	10	--	ND	--	ND	ND	4.8 J	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/28/07	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	10	--	ND	--	ND	ND	2.7 J	ND	--	ND	--	ND	--	ND	ND	ND
	ug/L	09/29/08	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/09	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/09	10	--	2.89 J	--	4.61 J	6.02 J	ND	4.20 J	--	8.65 J	--	ND	5.06 J	ND	ND	ND
	ug/L	03/30/10	10	--	ND	--	ND	ND	3.21 J	3.04 J	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/10	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	16.2	ND	ND
	ug/L	04/06/11	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	3.35 J	ND
	ug/L	09/28/11	10	--	ND	--	ND	ND	6.37 B	ND	--	ND	--	3.13 B	--	--	ND	4.13 J
	ug/L	03/28/12	10	--	ND	--	ND	7.54 J	ND	ND	--	6.72 J	--	ND	--	--	ND	ND
	ug/L	09/26/12	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	3.89 J
	ug/L	04/01/13	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND

TABLE 4

Summary of Groundwater Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Barium	ug/L	10/31/01	500	909	--	1410	--	1650	922	ND	ND	--	--	--	--	--	--	ND
NC 2L = 700 ug/L	ug/L	06/11/02	500	ND	ND	--	646	1547	ND	ND	--	837	--	--	--	--	--	ND
	ug/L	11/01/02	500	ND	ND	--	ND	1733	ND	ND	--	787	--	--	--	--	--	ND
	ug/L	03/06/03	500	ND	ND	--	535	1939	ND	ND	--	936	--	--	--	--	--	ND
	ug/L	09/23/03	500	1046	ND	--	ND	2090	ND	ND	--	1066	--	--	--	--	--	ND
	ug/L	03/11/04	500	752	707	--	ND	1881	ND	ND	--	966	--	--	--	--	--	ND
	ug/L	09/23/04	500	--	ND	--	ND	1830	ND	ND	--	977	--	--	--	--	--	ND
	ug/L	03/10/05	500	--	872	--	ND	2129	ND	ND	--	1164	--	--	--	--	--	ND
	ug/L	09/22/05	500	--	ND	--	ND	1871	ND	ND	--	1018	--	--	--	--	--	ND
	ug/L	03/06/06	500	--	590	--	ND	1838	ND	ND	--	1458	--	--	--	--	--	ND
	ug/L	09/19/06	500	--	ND	--	ND	2090	ND	ND	--	1787	--	--	--	--	--	ND
	ug/L	03/21/07	100	--	901	--	61.8 J	2080	24.7 J	226	--	1700	--	--	--	--	--	0.30 J
	ug/L	09/28/07	100	--	488	--	59.1 J	1930	286	238	--	1800	--	--	--	--	--	0.30 J
	ug/L	03/25/08	100	--	710	--	61.5 J	2010	37.6 J	91.0 J	--	1470	--	318	--	124	335	0.30 J
	ug/L	09/29/08	100	--	1040	--	42.6 J	2090	33.6 J	108	--	1880	--	25.3 J	1010	180	75.9 J	ND
	ug/L	03/30/09	100	--	999	--	41.5 J	1950	32.5 J	67.0 J	--	1950	--	23.9 J	329	77.4 J	61.4 J	ND
	ug/L	09/29/09	100	--	1100	--	40.1 J	1920	46.4 J	107	--	2180	--	53.8 J	858	173	97.2 J	ND
	ug/L	03/30/10	100	--	1120	--	40.4 J	1810	31.3 J	151	--	1880	--	16.0 J	553	106	86.7 J	ND
	ug/L	09/29/10	100	--	892	--	30.4 J	1770	28.4 J	103	--	1420	--	13.4 J	561	1050	57.2 J	ND
	ug/L	09/29/10	100	--	--	--	--	--	--	--	--	--	--	--	--	87.4 J	--	ND
	ug/L	04/06/11	100	--	1080	--	41.2 J	2020	37.4 J	186	--	2040	--	16.3 J	--	--	68.5 J	ND
	ug/L	09/28/11	100	--	1410	--	36.3 J	2060	33.2 J	137	--	2230	--	16.0 J	--	--	69.5 J	ND
	ug/L	03/28/12	100	--	974	--	39.7 J	2100	19.4 J	125	--	2250	--	15.4 J	--	--	70.7 J	ND
	ug/L	09/26/12	100	--	1350	--	38.0 J	2080	18.0 J	95.9 J	--	2420	--	14.9 J	--	--	66.6 J	ND
	ug/L	04/01/13	100	--	1120	--	41.8 J	2030	19.8 J	110	--	2280	--	15.1 J	--	--	76.8 J	1.16 J
Beryllium	ug/L	10/31/01	2	ND	--	ND	--	ND	4	ND	ND	--	--	--	--	--	--	ND
SWS GPS = 4 ug/L	ug/L	06/11/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	11/01/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/11/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/10/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/22/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/19/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/21/07	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/28/07	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	ND	ND	ND
	ug/L	09/29/08	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	0.1 J
	ug/L	03/30/09	1	--	ND	--	ND	ND	0.12 J	ND	--	ND	--	ND	ND	0.20 J	ND	ND
	ug/L	09/29/09	1	--	ND	--	ND	ND	0.109 B	0.437 B	--	ND	--	ND	ND	0.464 B	ND	0.133 J
	ug/L	03/30/10	1	--	ND	--	ND	ND	0.137 J	0.291 J	--	ND	--	ND	ND	0.317 J	ND	ND
	ug/L	09/29/10	1	--	ND	--	ND	ND	0.216 J	0.640 J	--	ND	--	ND	ND	2.45	ND	ND
	ug/L	09/29/10	1	--	--	--	--	--	--	--	--	--	--	--	--	0.223 J	--	ND
	ug/L	04/06/11	1	--	ND	--	ND	ND	0.174 J	1.29	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	1	--	ND	--	ND	ND	0.127 J	0.212 J	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	1	--	ND	--	ND	ND	0.118 J	0.187 J	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	1	--	ND	--	ND	ND	ND	0.294 J	--	ND	--	ND	--	--	ND	ND

TABLE 4

Summary of Groundwater Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Cadmium	ug/L	10/31/01	1	ND	--	ND	--	ND	ND	ND	ND	--	--	--	--	--	--	ND
NC 2L = 2 ug/L	ug/L	06/11/02	1	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	11/01/02	1	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/03	1	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/03	1	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/11/04	1	ND	ND	--	7	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/04	1	--	ND	--	1	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/10/05	1	--	ND	--	3	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/22/05	1	--	ND	--	7	ND	ND	ND	--	2	--	--	--	--	--	ND
	ug/L	03/06/06	1	--	ND	--	1	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/19/06	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/21/07	1	--	ND	--	0.80 J	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/28/07	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	ND	ND	ND
	ug/L	09/29/08	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/09	1	--	0.17 J	--	0.29 J	ND	ND	0.22 J	--	ND	--	ND	ND	0.10 J	ND	ND
	ug/L	09/29/09	1	--	ND	--	ND	ND	0.585 J	0.658 J	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/10	1	--	ND	--	ND	ND	ND	0.760 J	--	ND	--	ND	0.431 J	ND	ND	ND
	ug/L	09/29/10	1	--	ND	--	ND	ND	ND	1.07	--	ND	--	ND	ND	ND	ND	ND
	ug/L	04/06/11	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	1	--	ND	--	ND	ND	1.41	0.410 J	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	1	--	ND	--	ND	ND	0.504 J	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	1	--	ND	--	0.462 J	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
Chromium	ug/L	10/31/01	10	ND	--	ND	--	ND	ND	ND	ND	--	--	--	--	--	--	ND
NC 2L = 10 ug/L	ug/L	06/11/02	10	ND	ND	--	58	ND	29	ND	--	ND	--	--	--	--	--	ND
	ug/L	11/01/02	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/03	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/03	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/11/04	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/04	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/10/05	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/22/05	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/06	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/19/06	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/21/07	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/28/07	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	10	--	ND	--	ND	ND	3.8 J	ND	--	ND	--	2.8 J	--	6.5 J	ND	ND
	ug/L	09/29/08	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	3.1 J	ND	ND
	ug/L	03/30/09	10	--	ND	--	0.7 J	ND	1.2 J	ND	--	1.3 J	--	ND	ND	ND	ND	ND
	ug/L	09/29/09	10	--	1.91 J	--	1.21 J	3.69 J	2.34 J	2.40 J	--	3.91 J	--	2.45 J	2.95 J	2.89 J	1.28 J	ND
	ug/L	03/30/10	10	--	ND	--	1.95 J	ND	2.05 J	1.68 J	--	1.52 J	--	ND	3.90 J	ND	1.08 J	ND
	ug/L	09/29/10	10	--	ND	--	ND	2.60 J	1.32 J	1.89 J	--	ND	--	ND	3.76 J	11.5	ND	ND
	ug/L	09/29/10	10	--	--	--	--	--	--	--	--	--	--	--	--	ND	--	ND
	ug/L	04/06/11	10	--	ND	--	ND	5.62 J	1.06 J	4.89 J	--	2.84 J	--	ND	--	--	ND	ND
	ug/L	09/28/11	10	--	1.19 J	--	1.28 J	26.4	1.62 J	7.72 J	--	4.70 J	--	ND	--	--	ND	ND
	ug/L	03/28/12	10	--	ND	--	ND	3.84 J	ND	12.0	--	2.48 J	--	ND	--	--	ND	ND
(Verification Event)	ug/L	05/23/12	10	--	--	--	--	--	--	6.49 J	--	--	--	--	--	--	--	ND
	ug/L	09/26/12	10	--	ND	--	ND	3.87 J	ND	5.11 J	--	3.09 J	--	ND	--	--	ND	ND
	ug/L	04/01/13	10	--	ND	--	1.81 J	2.50 J	ND	4.17 J	--	1.71 J	--	ND	--	--	ND	ND

TABLE 4

Summary of Groundwater Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Cobalt	ug/L	10/31/01	10	ND	--	ND	--	ND	ND	ND	ND	--	--	--	--	--	--	ND
SWS GPS = 70 ug/L	ug/L	06/11/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	11/01/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/11/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/10/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/22/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/19/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/21/07	10	--	ND	--	ND	ND	3.1 J	30.7	--	ND	--	--	--	--	--	ND
	ug/L	09/28/07	10	--	ND	--	ND	ND	3.0 J	21.1	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	10	--	ND	--	ND	ND	3.3 J	2.9 J	--	ND	--	3.4 J	--	2.4 J	3.8 J	ND
	ug/L	09/29/08	10	--	ND	--	ND	ND	7.1 J	20.5	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/09	10	--	ND	--	ND	ND	1.6 J	1.1 J	--	0.7 J	--	ND	0.8 J	2.3 J	ND	ND
	ug/L	09/29/09	10	--	ND	--	ND	ND	16.1	9.24 J	--	ND	--	ND	2.15 J	2.03 J	ND	ND
	ug/L	03/30/10	10	--	ND	--	ND	ND	ND	2.43 J	--	ND	--	ND	1.47 J	2.33 J	ND	ND
	ug/L	09/29/10	10	--	ND	--	ND	1.15 J	ND	2.12 J	--	ND	--	ND	1.11 J	9.38 J	ND	ND
	ug/L	04/06/11	10	--	ND	--	ND	ND	ND	8.19 J	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	10	--	ND	--	ND	ND	ND	2.44 J	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	10	--	ND	--	ND	ND	ND	1.77 J	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
Copper	ug/L	10/31/01	200	ND	--	ND	--	ND	ND	ND	ND	--	--	--	--	--	--	ND
NC 2L = 1000 ug/L	ug/L	06/11/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	11/01/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/11/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/10/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/22/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/19/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/21/07	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	0.60 J
	ug/L	09/27/07	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	10	--	ND	--	ND	ND	ND	ND	--	ND	--	52.4	--	ND	ND	0.60 J
	ug/L	09/29/08	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	2.50 J	ND	ND
	ug/L	03/30/09	10	--	ND	--	ND	ND	1.24 B	ND	--	ND	--	1.14 B	ND	1.38 B	ND	1.39 J
	ug/L	09/29/09	10	--	ND	--	ND	ND	3.00 J	ND	--	ND	--	4.19 J	ND	5.57 J	ND	ND
	ug/L	03/30/10	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/10	10	--	ND	--	ND	ND	ND	2.81 J	--	ND	--	ND	ND	8.76 J	ND	ND
	ug/L	04/06/11	10	--	ND	--	2.80 B	ND	2.02 B	3.37 B	--	ND	--	ND	--	--	ND	2.07 J
	ug/L	09/28/11	10	--	ND	--	ND	ND	3.29 J	4.44 J	--	ND	--	ND	--	--	1.65 J	ND
	ug/L	03/28/12	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	10	--	ND	--	ND	ND	2.19 J	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	10	--	ND	--	3.19 J	ND	ND	3.25 J	--	ND	--	ND	--	--	ND	ND

TABLE 4

Summary of Groundwater Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Lead	ug/L	10/31/01	10	ND	--	ND	--	ND	14	ND	ND	--	--	--	--	--	--	ND
NC 2L = 15 ug/L	ug/L	06/11/02	10	ND	ND	--	ND	ND	17	ND	--	ND	--	--	--	--	--	ND
	ug/L	11/01/02	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/03	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/03	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/11/04	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/04	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/10/05	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/22/05	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/06	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/19/06	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/21/07	10	--	ND	--	ND	2.4 B	ND	6.0 B	--	ND	--	--	--	--	--	2.7 J
	ug/L	09/28/07	10	--	ND	--	ND	ND	15.9	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	10	--	ND	--	ND	ND	ND	ND	--	ND	--	58.1	--	4.6 J	15.5	ND
	ug/L	09/29/08	10	--	ND	--	ND	ND	2.3 J	ND	--	ND	--	ND	ND	5.9 J	ND	ND
	ug/L	03/30/09	10	--	2.6 J	--	ND	ND	1.9 J	3.0 J	--	2.2 J	--	ND	1.7 J	1.8 J	ND	ND
	ug/L	09/29/09	10	--	ND	--	ND	ND	2.74 J	ND	--	ND	--	3.66 J	ND	5.25 J	ND	ND
	ug/L	03/30/10	10	--	ND	--	51.7	ND	2.95 J	2.03 J	--	ND	--	ND	2.56 J	3.10 J	2.70 J	ND
	ug/L	09/29/10	10	--	ND	--	35.3	ND	ND	ND	--	ND	--	ND	3.07 J	56.7	ND	ND
	ug/L	09/29/10	10	--	--	--	--	--	--	--	--	--	--	--	--	ND	--	ND
	ug/L	04/06/11	10	--	ND	--	7.29 J	ND	ND	ND	--	ND	--	ND	--	--	2.09 J	ND
	ug/L	09/28/11	10	--	ND	--	16.5	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	10	--	ND	--	18.4	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	10	--	1.96 J	--	4.77 J	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	10	--	ND	--	2.59 J	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
Mercury	ug/L	10/31/01	0.5	ND	--	ND	--	ND	ND	ND	ND	--	--	--	--	--	--	ND
NC 2L = 1 ug/L	ug/L	06/11/02	1	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	11/01/02	1	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/03	1	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/03	1	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/11/04	0.5	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/04	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/10/05	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/22/05	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/06	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/19/06	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/21/07	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/27/07	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	0.16 J	--	--	0.59	ND
	ug/L	09/29/08	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/09	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/09	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/10	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/10	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	04/06/11	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	0.2	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND

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Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Nickel	ug/L	10/31/01	50	ND	--	ND	--	ND	ND	ND	ND	--	--	--	--	--	--	ND
NC 2L = 100 ug/L	ug/L	06/11/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	11/01/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/11/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/10/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/22/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/19/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/21/07	50	--	ND	--	ND	ND	ND	2.3 J	--	ND	--	--	--	--	--	ND
	ug/L	09/28/07	50	--	ND	--	ND	ND	ND	5.3 J	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	50	--	ND	--	2.9 J	ND	ND	ND	--	ND	--	ND	--	2.7 J	ND	ND
	ug/L	09/29/08	50	--	ND	--	1.9 J	ND	ND	ND	--	ND	--	ND	7.7 J	3.7 J	ND	ND
	ug/L	03/30/09	50	--	0.7 B	--	0.8 B	1.6 B	1.1 B	1.2 B	--	1.2 B	--	0.6 B	2.7 B	0.8 B	ND	0.6 J
	ug/L	09/29/09	50	--	2.10 J	--	ND	8.99 J	4.62 J	5.42 J	--	6.39 J	--	5.35 J	9.92 J	3.14 J	ND	ND
	ug/L	03/30/10	50	--	ND	--	2.88 J	2.42 J	ND	4.08 J	--	2.63 J	--	ND	8.42 J	ND	ND	ND
	ug/L	09/29/10	50	--	ND	--	ND	48.1 J	ND	8.26 J	--	ND	--	ND	5.18 J	ND	ND	ND
	ug/L	04/06/11	50	--	ND	--	ND	91.5	ND	32.2 J	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	50	--	ND	--	2.89 J	18.8 J	2.43 J	76.6	--	2.78 J	--	ND	--	--	ND	ND
	ug/L	03/28/12	50	--	ND	--	2.85 J	4.66 J	ND	7.90 J	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	50	--	ND	--	ND	3.37 J	ND	13.8 J	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	50	--	ND	--	ND	3.66 J	ND	3.06 J	--	ND	--	ND	--	--	ND	ND
Selenium	ug/L	10/31/01	20	ND	--	ND	--	ND	ND	ND	ND	--	--	--	--	--	--	ND
NC 2L = 20 ug/L	ug/L	06/11/02	20	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	11/01/02	20	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/03	20	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/03	20	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/11/04	20	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/04	20	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/10/05	20	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/22/05	20	--	ND	--	ND	22	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/06	20	--	ND	--	ND	22	ND	ND	--	23	--	--	--	--	--	ND
	ug/L	09/19/06	20	--	ND	--	ND	29	ND	ND	--	47	--	--	--	--	--	ND
	ug/L	03/21/07	10	--	ND	--	ND	ND	3.2 B	ND	--	ND	--	--	--	--	--	2.5 J
	ug/L	09/28/07	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	ND	ND	ND
	ug/L	09/29/08	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/09	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/09	10	--	ND	--	ND	ND	2.87 J	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/10	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/10	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	04/06/11	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	10	--	2.83 (ND) B	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	3.32 (ND) J
	ug/L	09/26/12	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND

TABLE 4

Summary of Groundwater Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Silver	ug/L	10/31/01	10	ND	--	ND	--	ND	ND	ND	ND	--	--	--	--	--	--	ND
NC 2L= 20 ug/L	ug/L	06/11/02	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	11/01/02	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/03	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/03	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/11/04	10	ND	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/23/04	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/10/05	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/22/05	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/06/06	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/19/06	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/21/07	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/27/07	10	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	10	--	ND	--	ND	ND	ND	ND	--	ND	--	2.3 J	--	--	--	ND
	ug/L	09/29/08	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/09	10	--	1.3 J	--	1.5 J	3.6 J	ND	1.5 J	--	4.3 J	--	ND	1.4 J	ND	1.4 J	ND
	ug/L	09/29/09	10	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/10	10	--	ND	--	ND	2.96 J	ND	2.27 J	--	5.62 J	--	ND	ND	ND	ND	ND
	ug/L	09/29/10	10	--	ND	--	ND	2.17 J	ND	ND	--	4.10 J	--	ND	ND	ND	ND	ND
	ug/L	04/06/11	10	--	ND	--	ND	1.92 J	ND	ND	--	7.15 J	--	ND	--	--	ND	ND
	ug/L	09/28/11	10	--	ND	--	5.83 J	ND	ND	ND	--	54.5 (16.5)	--	10.6	--	--	ND	ND
	ug/L	03/28/12	10	--	ND	--	ND	2.80 J	ND	1.92 J	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	10	--	ND	--	ND	3.16 J	ND	ND	--	7.51 J	--	2.64 J	--	--	ND	ND
	ug/L	04/01/13	10	--	ND	--	ND	ND	ND	ND	--	2.61 J	--	4.21 J	--	--	ND	ND
Thallium	ug/L	10/31/01	10	ND	--	ND	--	ND	ND	ND	ND	--	--	--	--	--	--	ND
SWS GPS = 0.28 ug/L	ug/L	06/11/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	11/01/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/11/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/10/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/22/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/19/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/21/07	5.5	--	ND	--	ND	ND	ND	0.132 J	--	ND	--	--	--	--	--	ND
	ug/L	09/28/07	5.5	--	0.042 B	--	0.043 B	0.045 B	0.101 B	0.072 B	--	ND	--	--	--	--	--	0.066 J
	ug/L	03/25/08	5.5	--	ND	--	ND	ND	0.046 J	0.066 J	--	ND	--	0.175 J	--	0.050 J	0.106 J	ND
	ug/L	09/29/08	5.5	--	ND	--	0.057 B	0.041 B	0.052 B	0.063 B	--	ND	--	0.042 B	ND	0.052 B	ND	0.062 J
	ug/L	03/30/09	5.5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/09	5.5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	0.125 J
	ug/L	03/30/10	5.5	--	ND	--	ND	ND	0.116 J	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/10	5.5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	04/06/11	5.5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	5.5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	5.5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	5.5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	5.5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND

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Summary of Groundwater Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Vanadium	ug/L	10/31/01	40	ND	--	ND	--	50	ND	ND	ND	--	--	--	--	--	--	ND
SWS GPS = 3.5 ug/L	ug/L	06/11/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	11/01/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/11/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/10/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/22/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/19/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/21/07	25	--	ND	--	17.4 J	22.9 J	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/28/07	25	--	ND	--	3.2 J	29.6	23.2 J	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	25	--	ND	--	3.6 J	25.5	1.7 J	ND	--	ND	--	72.9	--	3.9 J	31.8	ND
	ug/L	09/29/08	25	--	ND	--	ND	24.6 J	ND	ND	--	ND	--	ND	ND	5.7 J	8.1 J	ND
	ug/L	03/30/09	25	--	ND	--	2.3 J	41.3	3.4 J	ND	--	ND	--	0.8 J	0.8 J	2.2 J	9.5 J	ND
	ug/L	09/29/09	25	--	ND	--	ND	35.1	4.94 J	ND	--	ND	--	5.71 J	1.57 J	7.54 J	12.9 J	ND
	ug/L	03/30/10	25	--	ND	--	ND	30.3	3.60 J	ND	--	ND	--	ND	3.19 J	3.90 J	11.5 J	ND
	ug/L	09/29/10	25	--	ND	--	ND	23.3 J	4.85 J	2.47 J	--	ND	--	ND	1.70 J	59.9	9.73 J	ND
	ug/L	09/29/10	25	--	--	--	--	--	--	--	--	--	--	--	--	ND	--	ND
	ug/L	04/06/11	25	--	ND	--	ND	28.0	4.24 J	ND	--	ND	--	ND	--	--	11.1 J	ND
	ug/L	09/28/11	25	--	ND	--	ND	34.4	4.59 J	ND	--	ND	--	ND	--	--	10.3 J	ND
	ug/L	03/28/12	25	--	ND	--	ND	25.1	2.41 J	ND	--	ND	--	ND	--	--	10.3 J	ND
	ug/L	09/26/12	25	--	ND	--	ND	22.0 J	1.95 J	ND	--	ND	--	ND	--	--	9.75 J	ND
	ug/L	04/01/13	25	--	ND	--	ND	24.8 J	2.09 J	ND	--	ND	--	ND	--	--	9.99 J	ND
Zinc	ug/L	10/31/01	20	ND	--	22	--	ND	21	ND	ND	--	--	--	--	--	--	ND
NC 2L = 1000 ug/L	ug/L	06/11/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	11/01/02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/11/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/23/04	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/10/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/22/05	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/06/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	09/19/06	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	ug/L	03/21/07	10	--	ND	--	3.1 B	5.9 J	4.5 B	49.8	--	ND	--	--	--	--	--	1.1 J
	ug/L	09/28/07	10	--	2.3 J	--	ND	4.8 J	41.4	17.6	--	54.3	--	--	--	--	--	ND
	ug/L	03/25/08	10	--	2.1 B	--	9.9 B	1.6 B	10.9 B	9.1 B	--	ND	--	78.6	--	23.5	58.6	2.8 J
	ug/L	09/29/08	10	--	ND	--	4.3 J	ND	9.3 J	9.7 J	--	5.6 J	--	ND	12.6	15.7	ND	ND
	ug/L	03/30/09	10	--	ND	--	3.8 J	7.0 J	9.2 J	ND	--	ND	--	ND	7.3 J	5.2 J	ND	ND
	ug/L	09/29/09	10	--	5.13 B	--	6.49 B	10.1 B	23.5	18.8 B	--	4.26 B	--	16.4 B	20.9 B	20.3 B	13.4 B	4.60 J
	ug/L	03/30/10	10	--	ND	--	11.1	6.52 J	6.87 J	4.92 J	--	ND	--	ND	23.7	16.5	13.5	ND
	ug/L	09/29/10	10	--	ND	--	4.47 J	10.2	8.62 J	5.64 J	--	ND	--	ND	14.1	52.8	8.48 J	ND
	ug/L	04/06/11	10	--	ND	--	7.32 J	6.32 J	5.17 J	9.91 J	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	10	--	ND	--	ND	13.6	12.3	17.5	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	10	--	ND	--	6.10 J	13.7	ND	5.76 J	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	10	--	ND	--	5.70 J	8.44 J	ND	7.55 J	--	4.44 J	--	ND	--	--	ND	ND
	ug/L	04/01/13	10	--	ND	--	8.82 J	8.34 J	ND	5.34 J	--	ND	--	ND	--	--	ND	ND

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Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Iron	ug/L	03/21/07	300	--	20 J	--	26 J	ND	813	4820	--	ND	--	--	--	--	--	ND
NC 2L = 300 ug/L	ug/L	09/28/07	300	--	170 J	--	39 J	ND	21800	436	--	ND	--	--	--	--	--	--
	ug/L	03/25/08	300	--	242 J	--	ND	ND	3470	162 J	--	ND	--	27900	--	2990	13200	ND
	ug/L	09/29/08	300	--	144 J	--	267 J	ND	8780	5390	--	480	--	575	1050	5020	141 J	ND
	ug/L	03/30/09	300	--	141 J	--	107 J	ND	2240	150 J	--	1030	--	574	367	1120	ND	ND
	ug/L	09/29/09	300	--	457	--	247 J	156 J	7100	1750	--	1510	--	2400	1420	4310	1230	23.4 J
	ug/L	03/30/10	300	--	79.7 J	--	644	104 J	2250	200 J	--	959	--	170 J	1060	1430	745	ND
	ug/L	09/29/10	300	--	23.0 J	--	196 J	220 J	2210	175 J	--	590	--	115 J	768	42100	80.1 J	ND
	ug/L	09/29/10	300	--	--	--	--	--	--	--	--	--	--	--	--	97.7 J	--	ND
	ug/L	04/06/11	300	--	27.9 J	--	113 J	211 J	2260	96.8 J	--	990	--	112 J	--	--	82.8 J	ND
	ug/L	09/28/11	300	--	36.4 J	--	363	1620	2290	116 J	--	1080	--	79.2 J	--	--	31.3 J	ND
	ug/L	03/28/12	300	--	34.7 J	--	94.1 J	292 J	742	117 J	--	1010	--	39.0 J	--	--	50.0 J	ND
	ug/L	09/26/12	300	--	30.0 J	--	107 J	1800	599	143 J	--	1110	--	70.6 J	--	--	25.5 J	ND
	ug/L	04/01/13	300	--	64.5 J	--	58.0 J	376	677	54.6 J	--	1020	--	41.7 J	--	--	51.4 J	ND
Manganese	ug/L	03/21/07	50	--	166	--	141	16.8 J	743	3540	--	1370	--	--	--	--	--	ND
NC 2L = 50 ug/L	ug/L	09/28/07	50	--	251	--	36.0 J	33.7 J	498	2040	--	1580	--	--	--	--	--	--
	ug/L	03/25/08	50	--	508	--	11.6 J	ND	337	122	--	80.5	--	877	--	89.2	1620	ND
	ug/L	09/29/08	50	--	1050	--	146	ND	1390	1920	--	1170	--	125	1510	139	58.1	ND
	ug/L	03/30/09	50	--	215	--	115	ND	239	116	--	1640	--	108	390	81.7	3.6 J	ND
	ug/L	09/29/09	50	--	1130	--	185	6.27 J	2270	1350	--	1860	--	180	1070	145	121	ND
	ug/L	03/30/10	50	--	144	--	197	4.01 J	39.4 J	237	--	1430	--	74.2	553	92.4	229	ND
	ug/L	09/29/10	50	--	913	--	94.2	22.3 J	108	429	--	1090	--	72.9	480	468	29.5 J	1.12 J
	ug/L	09/29/10	50	--	--	--	--	--	--	--	--	--	--	--	--	68.9		ND
	ug/L	04/06/11	50	--	377	--	104	20.2 J	26.9 J	1190	--	1590	--	76.5	--	--	17.8 J	ND
	ug/L	09/28/11	50	--	1550	--	182	34.1 J	130	316	--	1710	--	72.4	--	--	13.3 J	ND
	ug/L	03/28/12	50	--	470	--	88.4	15.3 J	35.2 J	205	--	1650	--	37.2 J	--	--	14.7 J	ND
	ug/L	09/26/12	50	--	1430	--	81.1	55.8	44.0 J	103	--	1760	--	76.3	--	--	7.07 J	ND
	ug/L	04/01/13	50	--	255	--	110	32.2 J	11.9 J	57.9	--	1690	--	33.3 J	--	--	9.57 J	ND
Acetone	ug/L	03/21/07	100	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
NC 2L = 6000 ug/L	ug/L	09/28/07	100	--	ND	--	2.8 B	ND	ND	ND	--	ND	--	--	--	--	--	5.2 J
	ug/L	03/25/08	100	--	ND	--	ND	ND	3.0 J	3.2 J	--	ND	--	ND	--	ND	ND	ND
	ug/L	09/29/08	100	--	2.7 B	--	2.8 B	ND	ND	ND	--	4.4 B	--	ND	4.7 B	4.9 B	ND	3.5 J
	ug/L	03/30/09	100	--	ND	--	ND	ND	ND	ND	--	ND	--	4.2 J	ND	ND	ND	ND
	ug/L	09/29/09	100	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/10	100	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/10	100	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	04/06/11	100	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	100	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	100	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	100	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	100	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND

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Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Chloroform	ug/L	03/21/07	5	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
NC2L = 70 ug/L	ug/L	09/27/07	5	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	5	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/29/08	5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/09	5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	0.57 J	ND	ND	ND
	ug/L	09/29/09	5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/10	5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/10	5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	04/06/11	5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	5	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
Chloromethane	ug/L	03/21/07	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
NC 2L = 3 ug/L	ug/L	09/27/07	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/29/08	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/09	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/09	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/10	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/10	1	--	0.58 B	--	ND	ND	ND	ND	--	0.57 B	--	ND	0.50 B	ND	ND	0.44 J
	ug/L	04/06/11	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
Toluene	ug/L	03/21/07	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
NC2L = 600 ug/L	ug/L	09/27/07	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	03/25/08	1	--	ND	--	ND	ND	ND	ND	--	ND	--	--	--	--	--	ND
	ug/L	09/29/08	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	03/30/09	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/09	1	--	0.63 J	--	ND	0.51 J	ND	ND	--	0.81 J	--	0.94 J	0.56 J	ND	0.45 J	ND
	ug/L	03/30/10	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	09/29/10	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	ND	ND	ND	ND
	ug/L	04/06/11	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/28/11	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	03/28/12	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	09/26/12	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND
	ug/L	04/01/13	1	--	ND	--	ND	ND	ND	ND	--	ND	--	ND	--	--	ND	ND

TABLE 4

Summary of Groundwater Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Chloride	mg/L	03/21/07	--	--	1000	--	1500	2100	15	290	--	2000	--	--	--	--	--	ND
NC2L = 250 mg/L	mg/L	09/28/07	--	--	170	--	430	1600	14	210	--	1700	--	--	--	--	--	0.53 J
	mg/L	03/25/08	--	--	230	--	490	1500	3.5 J	330	--	1600	--	7.9	--	2.2 J	18	ND
	mg/L	09/29/08	--	--	320	--	530	1700	4.0 J	170	--	1700	--	11	1500	10	20	ND
	mg/L	03/30/09	--	--	ND	--	460	1600	6.5	400	--	1800	--	9.4	500	5.2	16	ND
	mg/L	09/29/09	--	--	330	--	490	1500	7.1	390	--	1900	--	10	1300	9.5	21	ND
	mg/L	03/30/10	--	--	480	--	510	1600	6.4	960	--	1900	--	11	880	13	21	ND
	mg/L	09/29/10	--	--	310	--	450	1600	7.3	360	--	1900	--	11	840	25	20	ND
	mg/L	04/06/11	--	--	340	--	470	1500	5.4 B	660	--	1900	--	11	--	--	22	1.9
	mg/L	09/28/11	--	--	460	--	490	1500	5.5 B	570	--	1900	--	10	--	--	24	1.6 J
	mg/L	03/28/12	--	--	330	--	520	1600	5.8 B	770	--	2100	--	11	--	--	28	1.2
	mg/L	09/26/12	--	--	480	--	500	1500	6.4 B	900	--	2100	--	11	--	--	30	1.5
	mg/L	04/01/13	--	--	330	--	480	1600	6.9 B	820	--	1900	--	11	--	--	36	1.6
Total Dissolved Solids	mg/L	03/21/07	--	--	860	--	1100	3400	64	590	--	3100	--	--	--	--	--	ND
NC2L = 1000 mg/L	mg/L	09/28/07	--	--	490	--	1200	3100	1400	480	--	3200	--	--	--	--	--	--
	mg/L	03/25/08	--	--	620	--	1200	3400	120	830	--	3400	--	510	--	94	340	ND
	mg/L	09/29/08	--	--	850	--	1300	3400	100	450	--	3500	--	380	2900	180	330	ND
	mg/L	03/30/09	--	--	910	--	1200	3300	90	930	--	3700	--	290	1000	54	260	ND
	mg/L	09/29/09	--	--	930	--	1300	3300	150	930	--	3900	--	360	2600	200	340	ND
	mg/L	03/30/10	--	--	1200	--	1300	3500	160	2100	--	4000	--	350	1800	150	320	ND
	mg/L	09/29/10	--	--	850	--	1300	3500	140	920	--	4000	--	340	1800	930	330	ND
	mg/L	04/06/11	--	--	870	--	1200	3300	120	1600	--	4100	--	320	--	--	310	ND
	mg/L	09/28/11	--	--	1200	--	1200	3300	120	1300	--	4000	--	320	--	--	300	ND
	mg/L	03/28/12	--	--	890	--	1200	3200	82	1600	--	3900	--	340	--	--	360	ND
	mg/L	09/26/12	--	--	1100	--	1200	3100	28	1900	--	4300	--	350	--	--	340	ND
	mg/L	04/01/13	--	--	1100	--	1200	3300	66	1800	--	4200	--	320	--	--	360	ND
Sulfate	mg/L	03/21/07	--	--	15	--	38	7.3 B	10	45	--	9.7	--	--	--	--	--	1.7 J
NC2L = 250 mg/L	mg/L	09/28/07	250	--	13 J	--	40 J	32 J	8.0 J	58 J	--	25 J	--	--	--	--	--	--
	mg/L	03/25/08	250	--	12 J	--	35 J	7.2 J	8.7 J	86 J	--	11 J	--	ND	--	15 J	12 J	ND
	mg/L	09/29/08	250	--	11 J	--	53 J	6.0 J	6.3 J	52 J	--	10 J	--	2.4 J	9.2 J	16 J	12 J	ND
	mg/L	03/30/09	250	--	14 J	--	43 J	5.9 J	8.1 J	58 J	--	10 J	--	2.6 J	16 J	15 J	12 J	ND
	mg/L	09/29/09	250	--	11 J	--	46 J	5.5 J	8.2 J	59 J	--	11 J	--	2.5 J	11 J	16 J	12 J	ND
	mg/L	03/30/10	250	--	16 J	--	45 J	5.0 J	7.4 J	86 J	--	13 J	--	2.7 J	20 J	18 J	12 J	ND
	mg/L	09/29/10	250	--	11 J	--	48 J	4.7 J	6.2 J	36 J	--	15 J	--	2.5 J	18 J	12 J	12 J	ND
	mg/L	04/06/11	250	--	9.9 J	--	51 J	4.7 J	7.0 J	140 J	--	16 J	--	3.4 J	--	--	12 J	ND
	mg/L	09/28/11	250	--	9.3 J	--	56 J	4.3 J	5.0 J	84 J	--	16 J	--	2.9 J	--	--	13 J	ND
	mg/L	03/28/12	250	--	12 J	--	58 J	4.1 J	6.9 J	90 J	--	16 J	--	3.8 J	--	--	13 J	ND
	mg/L	09/26/12	250	--	9.1 J	--	5.3 J	4.1 J	6.2 J	93 J	--	11 J	--	4.6 J	--	--	12 J	ND
	mg/L	04/01/13	250	--	13 J	--	51 J	4.2 J	8.4 J	110 J	--	18 J	--	5.1 J	--	--	12 J	ND

TABLE 4

Summary of Groundwater Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Total Alkalinity	mg/L	03/21/07	--	--	120	--	320	270	31	22	--	310	--	--	--	--	--	ND
No Standard	mg/L	09/28/07	--	--	180	--	340	350	ND	15	--	320	--	--	--	--	--	--
	mg/L	03/25/08	--	--	190	--	240	250	24	86	--	210	--	240	--	10 J	130	ND
	mg/L	09/29/08	--	--	140	--	240	230	40	25	--	220	--	240	78	17	130	ND
	mg/L	03/30/09	--	--	220	--	230	220	41	120	--	220	--	200	40	ND	110	ND
	mg/L	09/29/09	--	--	160	--	210	220	38	57	--	230	--	200	68	24	110	ND
	mg/L	03/30/10	--	--	290	--	210	220	32	140	--	220	--	210	36	13 J	110	ND
	mg/L	09/29/10	--	--	250	--	310	330	37	34	--	330	--	300	45	ND	220	ND
	mg/L	04/06/11	--	--	210	--	290	330	29	49	--	340	--	290	--	--	220	ND
	mg/L	09/28/11	--	--	270	--	320	310	32	73	--	320	--	280	--	--	220	ND
	mg/L	03/28/12	--	--	310	--	300	310	25	84	--	350	--	290	--	--	240	ND
	mg/L	09/26/12	--	--	270	--	290	310	38	140	--	350	--	300	--	--	230	ND
	mg/L	04/01/13	--	--	340	--	300	300	21	89	--	320	--	290	--	--	220	ND
pH (field)	S.U.	10/31/01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	S.U.	06/11/02	--	7.00	7.00	--	6.30	6.80	5.50	5.80	--	7.10	--	--	--	--	--	--
	S.U.	11/01/02	--	7.30	6.90	--	7.10	7.10	5.20	5.00	--	7.40	--	--	--	--	--	--
	S.U.	03/06/03	--	7.50	5.90	--	6.90	7.00	5.40	5.10	--	7.30	--	--	--	--	--	--
	S.U.	09/23/03	--	6.70	6.10	--	7.40	6.90	5.20	4.50	--	7.30	--	--	--	--	--	--
	S.U.	03/11/04	--	6.60	6.70	--	7.00	6.70	5.30	4.70	--	7.40	--	--	--	--	--	--
	S.U.	09/23/04	--	--	6.60	--	7.20	6.80	5.80	5.30	--	7.20	--	--	--	--	--	--
	S.U.	03/10/05	--	--	6.40	--	7.30	6.90	6.00	5.60	--	7.20	--	--	--	--	--	--
	S.U.	09/22/05	--	--	6.60	--	7.60	7.00	5.90	6.70	--	7.20	--	--	--	--	--	--
	S.U.	03/06/06	--	--	6.60	--	7.60	6.80	5.50	5.30	--	7.00	--	--	--	--	--	--
	S.U.	09/19/06	--	--	6.70	--	7.40	7.00	5.90	5.10	--	7.10	--	--	--	--	--	--
	S.U.	03/21/07	--	--	5.63	--	7.08	7.24	6.95	7.83	--	6.86	--	--	--	--	--	--
	S.U.	09/28/07	--	--	6.18	--	7.15	7.14	6.43	7.50	--	6.92	--	--	--	--	--	--
	S.U.	03/25/08	--	--	6.75	--	7.62	7.19	5.70	6.43	--	7.51	--	8.25	--	5.60	9.08	--
	S.U.	09/29/08	--	--	6.63	--	7.30	6.89	5.55	5.50	--	7.11	--	7.26	5.84	5.19	6.77	--
	S.U.	03/30/09	--	--	6.57	--	7.38	7.03	5.74	6.51	--	6.93	--	7.25	5.71	5.08	7.02	--
	S.U.	09/29/09	--	--	6.77	--	7.16	6.65	5.15	5.55	--	6.98	--	6.92	5.43	4.95	6.75	--
	S.U.	03/30/10	--	--	6.40	--	7.17	6.73	5.53	6.26	--	6.83	--	7.23	5.73	4.97	6.61	--
	S.U.	09/29/10	--	--	6.70	--	7.16	7.01	10.37	7.03	--	6.86	--	7.08	5.74	5.11	6.96	--
	S.U.	04/06/11	--	--	6.66	--	6.84	6.88	5.42	5.74	--	6.60	--	7.35	--	--	6.83	--
	S.U.	09/28/11	--	--	6.65	--	7.19	6.98	5.38	6.45	--	7.02	--	7.35	--	--	7.07	--
	S.U.	03/28/12	--	--	6.55	--	7.02	7.00	5.15	6.09	--	6.77	--	7.45	--	--	6.94	--
(Verification Event)	S.U.	05/23/12	--	--	--	--	--	--	--	6.28	--	--	--	--	--	--	--	--
	S.U.	09/26/12	--	--	6.75	--	7.52	7.21	5.19	6.50	--	7.01	--	7.66	--	--	6.90	--
	S.U.	04/01/13	--	--	6.65	--	6.91	7.10	5.70	6.53	--	6.83	--	7.50	--	--	7.07	--

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Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Specific Conductance	uS/cm	10/31/01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(lab prior to 9/19/06 event)	uS/cm	06/11/02	--	2300	620	--	2200	4300	270	810	--	3700	--	--	--	--	--	--
	uS/cm	11/01/02	--	2000	796	--	1820	4000	114	254	--	4000	--	--	--	--	--	--
	uS/cm	03/06/03	--	2240	253	--	1804	5170	141	458	--	3770	--	--	--	--	--	--
	uS/cm	09/23/03	--	4059	622	--	1692	3088	141	247	--	3015	--	--	--	--	--	--
	uS/cm	03/11/04	--	5078	1464	--	2250	5310	208	944	--	4050	--	--	--	--	--	--
	uS/cm	09/23/04	--	--	995	--	2410	5220	124	525	--	4050	--	--	--	--	--	--
	uS/cm	03/10/05	--	--	1382	--	1876	4073	184	938	--	3091	--	--	--	--	--	--
	uS/cm	09/22/05	--	--	997	--	1968	4040	190	2860	--	3850	--	--	--	--	--	--
	uS/cm	03/06/06	--	--	1170	--	1963	4610	140	894	--	4150	--	--	--	--	--	--
	uS/cm	09/19/06	--	--	1378	--	2170	4850	158	698	--	4700	--	--	--	--	--	--
	uS/cm	03/21/07	--	--	1870	--	2470	6480	101	1320	--	6320	--	--	--	--	--	--
	uS/cm	09/28/07	--	--	1080	--	2260	5760	175	1060	--	6080	--	--	--	--	--	--
	uS/cm	03/25/08	--	--	1191		2313	5786	113	1703	--	5892	--	652	--	86	552	--
	uS/cm	09/29/08	--	--	1700	--	2380	5450	129	920	--	5590	--	556	5140	125	462	--
	uS/cm	03/30/09	--	--	1950	--	2301	5369	146	1826	--	6126	--	557	1995	98	473	--
	uS/cm	09/29/09	--	--	1760	--	1989	4445	132	1451	--	6767	--	490	4113	113	432	--
	uS/cm	03/30/10	--	--	2284	--	2407	5599	122	3649	--	6633	--	580	3127	150	531	--
	uS/cm	09/29/10	--	--	1666	--	2227	5229	142	1761	--	6238	--	607	3661	173	564	--
	uS/cm	04/06/11	--	--	1696	--	2392	5602	115	2763	--	6716	--	580	--	--	533	--
	uS/cm	09/28/11	--	--	2020	--	2401	5404	101	4829	--	6644	--	564	--	--	538	--
	uS/cm	03/28/12	--	--	1455	--	2283	4757	91	2378	--	6275	--	525	--	--	486	--
(Verification Event)	uS/cm	05/23/12	--	--	--	--	--	--	--	4844	--	--	--	--	--	--	--	--
	uS/cm	09/26/12	--	--	1793	--	2148	4802	109	5341	--	6897	--	512	--	--	498	--
	uS/cm	04/01/13	--	--	1669	--	2031	4624	87	2463	--	5981	--	498	--	--	492	--
Temperature	Celsius	10/31/01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(lab prior to 9/19/06 event)	Celsius	06/11/02	--	17.0	16.0	--	16.0	15.0	16.0	15.0	--	19.0	--	--	--	--	--	--
	Celsius	11/01/02	--	16.0	17.0	--	17.0	17.0	15.0	15.0	--	17.0	--	--	--	--	--	--
	Celsius	03/06/03	--	16.0	12.0	--	16.0	13.0	12.0	11.0	--	16.0	--	--	--	--	--	--
	Celsius	09/23/03	--	22.0	19.0	--	17.0	19.0	21.0	20.0	--	20.0	--	--	--	--	--	--
	Celsius	03/11/04	--	12.0	13.0	--	16.0	12.0	11.0	10.0	--	14.0	--	--	--	--	--	--
	Celsius	09/23/04	--	--	19.0	--	18.0	19.0	20.0	20.0	--	21.0	--	--	--	--	--	--
	Celsius	03/10/05	--	--	12.0	--	16.0	12.0	9.0	10.0	--	13.0	--	--	--	--	--	--
	Celsius	09/22/05	--	--	20.0	--	20.0	19.0	20.0	20.0	--	22.0	--	--	--	--	--	--
	Celsius	03/06/06	--	--	14.0	--	17.0	14.0	13.0	13.0	--	15.0	--	--	--	--	--	--
	Celsius	09/19/06	--	--	19.0	--	18.0	19.0	19.0	21.0	--	20.0	--	--	--	--	--	--
	Celsius	03/21/07	--	--	12.8	--	15.9	13.2	11.9	11.2	--	12.7	--	--	--	--	--	--
	Celsius	09/28/07	--	--	21.98	--	21.32	20.78	20.61	22.75	--	26.35	--	--	--	--	--	--
	Celsius	03/25/08	--	--	14.64	--	17.46	13.42	12.30	12.14	--	16.00	--	16.06	--	13.46	14.76	--
	Celsius	09/29/08	--	--	18.30	--	19.84	17.88	19.18	20.38	--	21.48	--	20.60	18.94	22.97	19.91	--
	Celsius	03/30/09	--	--	15.41	--	16.99	14.13	10.85	10.89	--	16.73	--	15.64	15.65	14.15	15.57	--
	Celsius	09/29/09	--	--	16.92	--	16.69	15.82	18.90	19.31	--	22.71	--	20.81	19.18	21.91	18.08	--
	Celsius	03/30/10	--	--	16.46	--	15.89	14.05	14.70	13.32	--	18.05	--	14.24	17.66	15.87	16.38	--
	Celsius	09/29/10	--	--	17.37	--	18.19	18.66	20.65	20.00	--	18.70	--	17.45	18.15	20.60	17.92	--
	Celsius	04/06/11	--	--	14.67	--	17.24	16.85	13.54	12.63	--	14.99	--	17.21	--	--	15.40	--
	Celsius	09/28/11	--	--	18.17	--	20.98	18.99	19.91	19.73	--	19.71	--	18.97	--	--	18.77	--
	Celsius	03/28/12	--	--	14.85	--	18.91	15.44	15.12	14.27	--	17.95	--	17.62	--	--	16.05	--
(Verification Event)	Celsius	05/23/12	--	--	--	--	--	--	--	16.50	--	--	--	--	--	--	--	--
	Celsius	09/26/12	--	--	17.96	--	19.55	18.34	20.06	19.54	--	22.62	--	19.18	--	--	18.62	--
	Celsius	04/01/13	--	--	14.87	--	18.10	16.11	12.86	12.75	--	16.87	--	17.03	--	--	15.62	--

TABLE 4

Summary of Groundwater Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells												Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14	
Turbidity (field)	NTU	03/21/07	--	--	124	--	135	106	154	342	--	97	--	--	--	--	--	--
	NTU	09/28/07	--	--	0	--	0	0	>1000	0	--	189	--	--	--	--	--	--
	NTU	03/25/08	--	--	10.1	--	9.02	1.31	49.8	5.55	--	1.46	--	>1000	--	447	>1000	--
	NTU	09/29/08	--	--	6.21	--	62.2	5.09	50.5	12.6	--	3.6	--	26.7	31.9	65.9	6.86	--
	NTU	03/30/09	--	--	5.74	--	11.4	2.92	35.5	8.32	--	1.18	--	28.8	6.15	19.3	1.20	--
	NTU	09/29/09	--	--	36.5	--	14.4	32.7	98.1	20.1	--	57.2	--	139	55.4	146	92.0	--
	NTU	03/30/10	--	--	2.94	--	26.9	2.30	46.3	2.53	--	3.92	--	7.75	47.7	56.3	33.6	--
	NTU	09/29/10	--	--	1.84	--	4.50	0	58.8	3.58	--	3.91	--	8.65	34.7	669	2.20	--
	NTU	04/06/11	--	--	0.49	--	1.78	4.24	41.5	3.08	--	0.98	--	1.76	--	--	1.61	--
	NTU	09/28/11	--	--	3.37	--	7.98	44.5	61.5	3.34	--	10.7	--	8.95	--	--	6.99	--
	NTU	03/28/12	--	--	7.99	--	4.66	4.63	15.1	0.88	--	1.71	--	1.26	--	--	1.75	--
	NTU	05/23/12	--	--	--	--	--	--	--	10.2	--	--	--	--	--	--	--	--
	NTU	09/26/12	--	--	1.25	--	1.92	20.8	16.0	6.18	--	2.03	--	3.04	--	--	1.63	--
	NTU	04/01/13	--	--	2.70	--	1.43	8.87	15.2	1.09	--	1.32	--	1.65	--	--	2.03	--
ORP (field)	millivolts	03/21/07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	millivolts	09/28/07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	millivolts	03/25/08	--	--	73.8	--	72	145.2	164.4	152.4	--	97.2	--	--	--	--	--	--
	millivolts	09/29/08	--	--	85	--	-178	84	10	50	--	-5	--	-240	24	-77	78	--
	millivolts	03/30/09	--	--	124.9	--	-27.0	132.9	182.1	140.3	--	-30.1	--	-77.7	136.6	194.2	94.4	--
	millivolts	09/29/09	--	--	17.6	--	-14.2	62.0	44.1	28.3	--	-81.9	--	-92.7	25.7	-8.3	53.1	--
	millivolts	03/30/10	--	--	149.5	--	-69.5	138.6	119.5	86.2	--	-84.2	--	-89.3	93.2	148.1	64.2	--
	millivolts	09/29/10	--	--	83	--	-33.8	-323.1	-335.1	-288.3	--	-38.8	--	-48.4	104.2	185.0	49.5	--
	millivolts	04/06/11	--	--	82.6	--	-4.0	81.0	170.3	147.3	--	0.5	--	-23.7	--	--	87.6	--
	millivolts	09/28/11	--	--	31.4	--	-63.9	28.6	139.3	51.7	--	-79.2	--	-127.9	--	--	15.6	--
	millivolts	03/28/12	--	--	111.7	--	-72.7	57.1	97.7	73.2	--	-27.7	--	-156.6	--	--	-36.5	--
(Verification Event)	millivolts	05/23/12	--	--	--	--	--	--	--	31.1	--	--	--	--	--	--	--	--
	millivolts	09/26/12	--	--	119.9	--	-95.5	-87.3	-40.1	-55.2	--	-100.0	--	-160.7	--	--	-29.7	--
	millivolts	04/01/13	--	--	39.2	--	-37.4	7.5	59.4	8.0	--	-48.3	--	-85.3	--	--	5.1	--

TABLE 4

Summary of Groundwater Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upgradient Compliance Wells		Downgradient Compliance Wells													Blanks
				MW-1	MW-10	MW-2	MW-2T*	MW-3	MW-4	MW-5	MW-6	MW-6T*	MW-9	MW-11	MW-12	MW-13	MW-14		
Dissolved Oxygen (field)	mg/L	03/21/07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--
	mg/L	09/28/07	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--		--
	mg/L	03/25/08	--	--	0.79	--	7.24	8.32	1.99	3.09	--	4.62	--	--	--	--	--		--
	mg/L	09/29/08	--	--	0.89	--	0.69	6.03	3.12	1.10	--	1.02	--	0.62	1.61	5.05	4.45		--
	mg/L	03/30/09	--	--	0.71	--	1.22	4.89	2.79	2.60	--	0.59	--	0.56	3.04	1.39	4.09		--
	mg/L	09/29/09	--	--	1.87	--	1.70	2.18	1.53	1.60	--	2.57	--	1.35	1.10	2.49	4.01		--
	mg/L	03/30/10	--	--	1.39	--	0.84	4.00	2.09	2.72	--	2.07	--	0.99	2.44	2.44	4.03		--
	mg/L	09/29/10	--	--	0.60	--	0.39	1.90	0.75	3.03	--	1.13	--	0.22	0.96	1.33	4.18		--
	mg/L	04/06/11	--	--	1.62	--	0.75	5.35	2.79	3.62	--	1.77	--	0.47	--	--	4.37		--
	mg/L	09/28/11	--	--	2.08	--	0.67	1.52	0.86	2.13	--	4.38	--	1.12	--	--	3.09		--
	mg/L	03/28/12	--	--	1.00	--	0.32	3.71	0.79	2.61	--	1.30	--	0.21	--	--	3.85		--
(Verification Event)	mg/L	05/23/12	--	--	--	--	--	--	--	1.56	--	--	--	--	--	--	--		--
	mg/L	09/26/12	--	--	0.57	--	0.21	0.36	0.76	1.04	--	2.13	--	0.21	--	--	2.64		--
	mg/L	04/01/13	--	--	1.01	--	0.48	4.73	3.15	4.73	--	2.27	--	1.50	--	--	3.66		--

Notes:
mg/L = milligrams per liter
ug/L = micrograms per liter
S.U. = Standard Units
NTU = Nephelometric Turbidity Units
ND = Not detected at the stated reporting limit
uS/cm= microsiemens per cubic centimeter
J = Estimated value
-- = no data
Blanks = field, trip, and method blanks
Shaded = Concentrations above the current NC 2L Groundwater Standards or Solid Waste Section Groundwater Protection Standards (SWS GPS) have been shaded.
SWS Reporting Limit = NCPQL or lab-specific reporting limit prior to 2007 and NCSWSL starting on 01/18/07

1) MW-2T & MW-6T are replacement wells for MW-2 and MW-6 and have been included as part of the monitoring well network following the April 2001 sampling event.
2) MW-2T, MW-3, MW-4, MW-5, MW-6T and MW-10 have comprised the current monitoring well network since the Sept. 2004 event.
3) MW-10 is the facility's background well.
4) MW-1 was removed from the site for cell construction and was decomissioned following the March 2004 sampling event according to G.N. Richardson & Associates, Inc. WQMP Oct. 2003.
5) Non-compliance (pre-waste) data from upgradient wells MW-11, MW-12 and MW-14 were collected in March 2008 to supplement the background data pool for statistical analysis.
6) Monitoring wells MW-12 and MW-13 were not sampled beginning with the April 2011 event per NCDENR approval to decommission MW-13 and collect water levels only for MW-12.
7) The pH value for the sample from MW-4 for the September 2010 event is considered suspect based on historical data.
8) Re-analyses results are reported in parentheses.
9) The following dilutions were noted for the April 2013 event: Chloride at 10X (MW-2T, MW-10), 20X (MW-3), and 50X (MW-6T); Total Alkalinity at 2X (MW-2T, MW-3, MW-6T, MW-10, MW-11, MW-14).

TABLE 5

Summary of Surface Water Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upstream	Downstream		Blanks	
				SW-1	SW-2	SW-3		
Antimony	ug/L	03/21/07	6	ND	ND	ND	ND	
No SW Standard	ug/L	09/28/07	--	Dry	Dry	Dry	--	
	ug/L	03/26/08	6	Dry	ND	ND	ND	
	ug/L	09/29/08	6	--	ND	ND	ND	
	ug/L	03/30/09	6	--	0.70 J	ND	ND	
	ug/L	09/30/09	--	--	Dry	Dry	--	
	ug/L	03/30/10	6	--	ND	ND	ND	
	ug/L	09/29/10	6	--	ND	ND	ND	
	ug/L	04/06/11	6	--	0.266 J	ND	ND	
	ug/L	09/28/11	6	--	ND	ND	ND	
	ug/L	03/28/12	6	--	0.225 J	ND	ND	
	ug/L	09/26/12	6	--	ND	Dry	ND	
	ug/L	04/01/13	6	--	ND	ND	ND	
Arsenic	ug/L	06/11/02	10	Dry	ND	ND	ND	
SW Standard = 50 ug/L	ug/L	11/01/02	10	ND	ND	ND	ND	
	ug/L	03/06/03	10	ND	ND	ND	ND	
	ug/L	09/23/03	10	ND	ND	ND	ND	
	ug/L	03/11/04	10	Dry	ND	ND	ND	
	ug/L	09/23/04	10	--	ND	ND	ND	
	ug/L	03/10/05	10	--	ND	ND	ND	
	ug/L	09/22/05	10	--	ND	ND	ND	
	ug/L	03/06/06	10	--	ND	ND	ND	
	ug/L	09/19/06	10	--	ND	ND	ND	
	ug/L	03/21/07	10	ND	ND	ND	ND	
	ug/L	09/28/07	--	Dry	Dry	Dry	--	
	ug/L	03/26/08	10	--	ND	2.4 J	ND	
	ug/L	09/29/08	10	--	ND	ND	ND	
	ug/L	03/30/09	10	--	ND	ND	ND	
	ug/L	09/30/09	--	--	Dry	Dry	--	
	ug/L	03/30/10	10	--	4.16 J	ND	ND	
	ug/L	09/29/10	10	--	3.21 J	ND	ND	
	ug/L	04/06/11	10	--	ND	ND	ND	
	ug/L	09/28/11	10	--	7.58 B	4.80 B	4.13	J
	ug/L	03/28/12	10	--	2.81 J	ND	ND	
	ug/L	09/26/12	10	--	7.28 B	Dry	3.89	J
	ug/L	04/01/13	10	--	ND	ND	ND	

TABLE 5

Summary of Surface Water Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upstream		Downstream				Blanks	
				SW-1		SW-2		SW-3			
Barium	ug/L	06/11/02	500	Dry		ND		ND		ND	
No SW Standard	ug/L	11/01/02	500	ND		ND		ND		ND	
	ug/L	03/06/03	500	ND		ND		ND		ND	
	ug/L	09/23/03	500	ND		ND		ND		ND	
	ug/L	03/11/04	500	Dry		ND		ND		ND	
	ug/L	09/23/04	500	--		ND		ND		ND	
	ug/L	03/10/05	500	--		ND		ND		ND	
	ug/L	09/22/05	500	--		ND		ND		ND	
	ug/L	03/06/06	500	--		ND		ND		ND	
	ug/L	09/19/06	500	--		ND		ND		ND	
	ug/L	03/21/07	100	86.5	J	67.8	J	78.9	J	0.30	J
	ug/L	09/28/07	--	Dry		Dry		Dry		0.30	J
	ug/L	03/26/08	100	--		500		64.8	J	0.30	J
	ug/L	09/29/08	100	--		136		48.5	J	ND	
	ug/L	03/30/09	100	--		205		54.8	J	ND	
	ug/L	09/30/09	--	--		Dry		Dry		--	
	ug/L	03/30/10	100	--		147		32.9	J	ND	
	ug/L	09/29/10	100	--		107		69.9	J	ND	
	ug/L	04/06/11	100	--		113		84.4	J	ND	
	ug/L	09/28/11	100	--		146		118		ND	
	ug/L	03/28/12	100	--		133		87.0	J	ND	
	ug/L	09/26/12	100	--		169		Dry		ND	
	ug/L	04/01/13	100	--		74.1	J	75.7	J	1.16	J
Beryllium	ug/L	03/21/07	1	ND		ND		ND		ND	
SW Standard = 6.5 ug/L	ug/L	09/28/07	--	Dry		Dry		Dry		--	
	ug/L	03/26/08	1	Dry		ND		ND		ND	
	ug/L	09/29/08	1	--		ND		ND		0.1	J
	ug/L	03/30/09	1	--		0.28	J	0.08	J	ND	
	ug/L	09/30/09	--	--		Dry		Dry		--	
	ug/L	03/30/10	1	--		0.298	J	ND		ND	
	ug/L	09/29/10	1	--		0.278	J	0.131	J	ND	
	ug/L	04/06/11	1	--		0.212	J	0.140	J	ND	
	ug/L	09/28/11	1	--		0.227	J	ND		ND	
	ug/L	03/28/12	1	--		0.379	J	0.168	J	ND	
	ug/L	09/26/12	1	--		0.633	J	Dry		ND	
	ug/L	04/01/13	1	--		ND		ND		ND	

TABLE 5

Summary of Surface Water Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upstream	Downstream				Blanks
				SW-1	SW-2		SW-3		
Cadmium	ug/L	06/11/02	1	Dry	ND		ND		ND
SW Standard = 2 ug/L*	ug/L	11/01/02	1	ND	ND		ND		ND
	ug/L	03/06/03	1	ND	ND		ND		ND
	ug/L	09/23/03	1	ND	ND		ND		ND
	ug/L	03/11/04	1	Dry	ND		ND		ND
	ug/L	09/23/04	1	--	ND		ND		ND
	ug/L	03/10/05	1	--	ND		ND		ND
	ug/L	09/22/05	1	--	ND		ND		ND
	ug/L	03/06/06	1	--	ND		ND		ND
	ug/L	09/19/06	1	--	ND		ND		ND
	ug/L	03/21/07	1	ND	ND		ND		ND
	ug/L	09/28/07	--	Dry	Dry		Dry		--
	ug/L	03/26/08	1	Dry	ND		ND		ND
	ug/L	09/29/08	1	--	ND		ND		ND
	ug/L	03/30/09	1	--	0.51	J	0.13	J	ND
	ug/L	09/30/09	--	--	Dry		Dry		--
	ug/L	03/30/10	1	--	ND		ND		ND
	ug/L	09/29/10	1	--	ND		ND		ND
	ug/L	04/06/11	1	--	ND		ND		ND
	ug/L	09/28/11	1	--	ND		ND		ND
	ug/L	03/28/12	1	--	ND		ND		ND
	ug/L	09/26/12	1	--	ND		Dry		ND
	ug/L	04/01/13	1	--	ND		ND		ND
Chromium	ug/L	06/11/02	10	Dry	234		ND		ND
SW Standard = 50 ug/L	ug/L	11/01/02	10	ND	ND		ND		ND
	ug/L	03/06/03	10	ND	ND		ND		ND
	ug/L	09/23/03	10	ND	ND		ND		ND
	ug/L	03/11/04	10	Dry	ND		ND		ND
	ug/L	09/23/04	10	--	ND		ND		ND
	ug/L	03/10/05	10	--	ND		ND		ND
	ug/L	09/22/05	10	--	ND		ND		ND
	ug/L	03/06/06	10	--	ND		ND		ND
	ug/L	09/19/06	10	--	ND		ND		ND
	ug/L	03/21/07	10	ND	ND		ND		ND
	ug/L	09/28/07	--	Dry	Dry		Dry		--
	ug/L	03/26/08	10	--	10.0		ND		ND
	ug/L	09/29/08	10	--	ND		ND		ND
	ug/L	03/30/09	10	--	4.2	J	1.0	J	ND
	ug/L	09/30/09	--	--	Dry		Dry		--
	ug/L	03/30/10	10	--	2.97	J	ND		ND
	ug/L	09/29/10	10	--	2.64	J	1.47	J	ND
	ug/L	04/06/11	10	--	3.94	J	1.31	J	ND
	ug/L	09/28/11	10	--	5.15	J	4.32	J	ND
	ug/L	03/28/12	10	--	4.84	J	ND		ND
	ug/L	09/26/12	10	--	9.73	J	Dry		ND
	ug/L	04/01/13	10	--	1.48	J	ND		ND

TABLE 5

Summary of Surface Water Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upstream		Downstream				Blanks	
				SW-1		SW-2		SW-3			
Cobalt	ug/L	03/21/07	10	ND		ND		ND		ND	
No SW Standard	ug/L	09/28/07	--	Dry		Dry		Dry		--	
	ug/L	03/26/08	10	--		8.9	J	2.6	J	ND	
	ug/L	09/29/08	10	--		ND		ND		ND	
	ug/L	03/30/09	10	--		3.6	J	0.6	J	ND	
	ug/L	09/30/09	--	--		Dry		Dry		--	
	ug/L	03/30/10	10	--		2.37	J	ND		ND	
	ug/L	09/29/10	10	--		2.01	J	1.36	J	ND	
	ug/L	04/06/11	10	--		1.93	J	1.58	J	ND	
	ug/L	09/28/11	10	--		1.85	J	3.58	J	ND	
	ug/L	03/28/12	10	--		2.54	J	1.55	J	ND	
	ug/L	09/26/12	10	--		2.77	J	Dry		ND	
	ug/L	04/01/13	10	--		ND		ND		ND	
Copper	ug/L	03/21/07	10	ND		ND		ND		0.60	J
SW Standard = 7 ug/L*	ug/L	09/28/07	--	Dry		Dry		Dry		--	
	ug/L	03/26/08	10	--		ND		0.90	B	0.60	J
	ug/L	09/29/08	10	--		ND		ND		ND	
	ug/L	03/30/09	10	--		2.02	B	2.05	B	1.39	J
	ug/L	09/30/09	--	--		Dry		Dry		--	
	ug/L	03/30/10	10	--		2.05	J	ND		ND	
	ug/L	09/29/10	10	--		2.19	J	2.31	J	ND	
	ug/L	04/06/11	10	--		3.82	B	2.46	B	2.07	J
	ug/L	09/28/11	10	--		3.29	J	5.21	J	ND	
	ug/L	03/28/12	10	--		3.83	J	ND		ND	
	ug/L	09/26/12	10	--		7.86	J	Dry		ND	
	ug/L	04/01/13	10	--		2.90	J	2.25	J	ND	
Lead	ug/L	06/11/02	10	Dry		14		ND		ND	
SW Standard = 25 ug/L*	ug/L	11/01/02	10	ND		11		ND		ND	
	ug/L	03/06/03	10	ND		ND		ND		ND	
	ug/L	09/23/03	10	ND		15		ND		ND	
	ug/L	03/11/04	10	Dry		14		ND		ND	
	ug/L	09/23/04	10	--		ND		ND		ND	
	ug/L	03/10/05	10	--		ND		ND		ND	
	ug/L	09/22/05	10	--		ND		23		ND	
	ug/L	03/06/06	10	--		ND		ND		ND	
	ug/L	09/19/06	10	--		ND		ND		ND	
	ug/L	03/21/07	10	5.4	B	3.4	B	2.2	B	2.7	J
	ug/L	09/28/07	--	Dry		Dry		Dry		--	
	ug/L	03/26/08	10	--		29.4		ND		ND	
	ug/L	09/29/08	10	--		2.6	J	ND		ND	
	ug/L	03/30/09	10	--		8.0	J	3.5	J	ND	
	ug/L	09/30/09	--	--		Dry		Dry		--	
	ug/L	03/30/10	10	--		12.6		3.17	J	ND	
	ug/L	09/29/10	10	--		6.17	J	4.38	J	ND	
	ug/L	04/06/11	10	--		6.75	J	4.03	J	ND	
	ug/L	09/28/11	10	--		10.5		ND		ND	
	ug/L	03/28/12	10	--		9.18	J	3.44	J	ND	
	ug/L	09/26/12	10	--		15.5		Dry		ND	
	ug/L	04/01/13	10	--		ND		ND		ND	

TABLE 5

Summary of Surface Water Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upstream	Downstream		Blanks	
				SW-1	SW-2	SW-3		
Nickel	ug/L	03/21/07	50	ND	ND	ND	ND	
SW Standard = 88 ug/L*	ug/L	09/28/07	--	Dry	Dry	Dry	--	
	ug/L	03/26/08	50	Dry	ND	ND	ND	
	ug/L	09/29/08	50	--	1.8 J	ND	ND	
	ug/L	03/30/09	50	--	4.8 J	1.2 B	0.6	J
	ug/L	09/30/09	--	--	Dry	Dry	--	
	ug/L	03/30/10	50	--	ND	ND	ND	
	ug/L	09/29/10	50	--	ND	ND	ND	
	ug/L	04/06/11	50	--	ND	ND	ND	
	ug/L	09/28/11	50	--	1.91 J	2.75 J	ND	
	ug/L	03/28/12	50	--	ND	ND	ND	
	ug/L	09/26/12	50	--	2.36 J	Dry	ND	
	ug/L	04/01/13	50	--	ND	ND	ND	
Selenium	ug/L	06/11/02	20	Dry	ND	ND	ND	
SW Standard = 5 ug/L	ug/L	11/01/02	20	ND	ND	ND	ND	
	ug/L	03/06/03	20	ND	ND	ND	ND	
	ug/L	09/23/03	20	ND	ND	ND	ND	
	ug/L	03/11/04	20	Dry	ND	ND	ND	
	ug/L	09/23/04	20	--	ND	ND	ND	
	ug/L	03/10/05	20	--	ND	ND	ND	
	ug/L	09/22/05	20	--	ND	ND	ND	
	ug/L	03/06/06	20	--	ND	ND	ND	
	ug/L	09/19/06	20	--	ND	ND	ND	
	ug/L	03/21/07	10	ND	2.9 B	ND	2.5	J
	ug/L	09/28/07	--	Dry	Dry	Dry	--	
	ug/L	03/26/08	10	--	ND	ND	ND	
	ug/L	09/29/08	10	--	ND	ND	ND	
	ug/L	03/30/09	10	--	ND	ND	ND	
	ug/L	09/30/09	--	--	Dry	Dry	--	
	ug/L	03/30/10	10	--	ND	ND	ND	
	ug/L	09/29/10	10	--	ND	ND	ND	
	ug/L	04/06/11	10	--	ND	ND	ND	
	ug/L	09/28/11	10	--	ND	ND	ND	
	ug/L	03/28/12	10	--	ND	ND	3.32	J
	ug/L	09/26/12	10	--	ND	Dry	ND	
	ug/L	04/01/13	10	--	ND	ND	ND	

TABLE 5

Summary of Surface Water Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upstream	Downstream				Blanks	
				SW-1	SW-2		SW-3			
Silver	ug/L	06/11/02	10	Dry	ND		ND		ND	
SW Standard = 0.06 ug/L *	ug/L	11/01/02	10	ND	ND		ND		ND	
	ug/L	03/06/03	10	ND	ND		ND		ND	
	ug/L	09/23/03	10	ND	ND		ND		ND	
	ug/L	03/11/04	10	Dry	ND		ND		ND	
	ug/L	09/23/04	10	--	ND		ND		ND	
	ug/L	03/10/05	10	--	ND		ND		ND	
	ug/L	09/22/05	10	--	ND		ND		ND	
	ug/L	03/06/06	10	--	ND		ND		ND	
	ug/L	09/19/06	10	--	ND		ND		ND	
	ug/L	03/21/07	10	ND	ND		ND		ND	
	ug/L	09/28/07	--	Dry	Dry		Dry		--	
	ug/L	03/26/08	10	Dry	ND		ND		ND	
	ug/L	09/29/08	10	--	ND		ND		ND	
	ug/L	03/30/09	10	--	1.0	J	ND		ND	
	ug/L	09/30/09	--	--	Dry		Dry		--	
	ug/L	03/30/10	10	--	ND		ND		ND	
	ug/L	09/29/10	10	--	ND		ND		ND	
	ug/L	04/06/11	10	--	ND		ND		ND	
	ug/L	09/28/11	10	--	ND		ND		ND	
	ug/L	03/28/12	10	--	ND		ND		ND	
	ug/L	09/26/12	10	--	ND		Dry		ND	
	ug/L	04/01/13	10	--	ND		ND		ND	
Thallium	ug/L	03/21/07	5.5	ND	ND		ND		ND	
No SW Standard	ug/L	09/28/07	5.5	Dry	Dry		Dry		--	
	ug/L	03/26/08	5.5	--	0.159	J	0.046	J	ND	
	ug/L	09/29/08	5.5	--	0.050	B	ND		0.062	J
	ug/L	03/30/09	5.5	--	ND		ND		ND	
	ug/L	09/30/09	--	--	Dry		Dry		--	
	ug/L	03/30/10	5.5	--	ND		ND		ND	
	ug/L	09/29/10	5.5	--	ND		ND		ND	
	ug/L	04/06/11	5.5	--	ND		ND		ND	
	ug/L	09/28/11	5.5	--	ND		ND		ND	
	ug/L	03/28/12	5.5	--	ND		ND		ND	
	ug/L	09/26/12	5.5	--	ND		Dry		ND	
	ug/L	04/01/13	5.5	--	ND		ND		ND	
Vanadium	ug/L	03/21/07	25	ND	1.1	J	1.8	J	ND	
No SW Standard	ug/L	09/28/07	--	Dry	Dry		Dry		--	
	ug/L	03/26/08	25	--	44.9		1.4	J	ND	
	ug/L	09/29/08	25	--	ND		ND		ND	
	ug/L	03/30/09	25	--	12.7	J	3.9	J	ND	
	ug/L	09/30/09	--	--	Dry		Dry		--	
	ug/L	03/30/10	25	--	15.1	J	1.96	J	ND	
	ug/L	09/29/10	25	--	12.6	J	6.54	J	ND	
	ug/L	04/06/11	25	--	13.1	J	4.07	J	ND	
	ug/L	09/28/11	25	--	18.0	J	7.24	J	ND	
	ug/L	03/28/12	25	--	26.1		3.41	J	ND	
	ug/L	09/26/12	25	--	42.0		Dry		ND	
	ug/L	04/01/13	25	--	3.87	J	3.03	J	ND	

TABLE 5

Summary of Surface Water Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upstream		Downstream				Blanks	
				SW-1		SW-2		SW-3			
Zinc	ug/L	03/21/07	10	6.7	J	4.9	B	8.4	J	1.1	J
SW Standard = 50 ug/L*	ug/L	09/28/07	--	Dry		Dry		Dry		--	
	ug/L	03/26/08	10	--		73.2		15.1		2.8	J
	ug/L	09/29/08	10	--		36.3		11.8		ND	
	ug/L	03/30/09	10	--		236		9.0	J	ND	
	ug/L	09/30/09	--	--		Dry		Dry		--	
	ug/L	03/30/10	10	--		30.6		15.6		ND	
	ug/L	09/29/10	10	--		17.5		11.9		ND	
	ug/L	04/06/11	10	--		19.4		7.82	J	ND	
	ug/L	09/28/11	10	--		20.0		10.6		ND	
	ug/L	03/28/12	10	--		22.5		9.60	J	ND	
	ug/L	09/26/12	10	--		26.7		Dry		ND	
	ug/L	04/01/13	10	--		5.17	J	9.35	J	ND	
Acetone	ug/L	03/21/07	100	ND		ND		ND		ND	
SW Standard = 2000 ug/L	ug/L	03/26/08	100	--		9.2	J	6.7	J	ND	
	ug/L	09/29/08	100	--		11	J	ND		3.5	J
	ug/L	03/30/09	100	--		29	J	ND		ND	
	ug/L	09/30/09	--	--		Dry		Dry		--	
	ug/L	03/30/10	100	--		ND		ND		ND	
	ug/L	09/29/10	100	--		ND		ND		ND	
	ug/L	04/06/11	100	--		4.3	J	ND		ND	
	ug/L	09/28/11	100	--		ND		37	J	ND	
	ug/L	03/28/12	100	--		ND		8.7	J	ND	
	ug/L	09/26/12	100	--		ND		Dry		ND	
	ug/L	04/01/13	100	--		ND		ND		ND	
Chloromethane	ug/L	03/21/07	1	ND		ND		ND		ND	
No SW Standard	ug/L	03/26/08	1	Dry		ND		ND		ND	
	ug/L	09/29/08	1	--		ND		ND		ND	
	ug/L	03/30/09	1	--		ND		ND		ND	
	ug/L	03/30/10	1	--		ND		ND		ND	
	ug/L	09/29/10	1	--		0.56	B	0.76	B	0.44	J
	ug/L	04/06/11	1	--		ND		ND		ND	
	ug/L	09/28/11	1	--		ND		ND		ND	
	ug/L	03/28/12	1	--		ND		ND		ND	
	ug/L	09/26/12	1	--		ND		Dry		ND	
	ug/L	04/01/13	1	--		ND		ND		ND	
2-Butanone	ug/L	03/21/07	100	ND		ND		ND		ND	
SW Standard = 160,000 ug/L	ug/L	03/26/08	100	Dry		ND		ND		ND	
	ug/L	09/29/08	100	--		ND		ND		ND	
	ug/L	03/30/09	100	--		26	J	ND		ND	
	ug/L	09/30/09	--	--		Dry		Dry		--	
	ug/L	03/30/10	100	--		ND		ND		ND	
	ug/L	09/29/10	100	--		ND		ND		ND	
	ug/L	04/06/11	100	--		ND		ND		ND	
	ug/L	09/28/11	100	--		ND		4.9	J	ND	
	ug/L	03/28/12	100	--		ND		ND		ND	
	ug/L	09/26/12	100	--		ND		Dry		ND	
	ug/L	04/01/13	100	--		ND		ND		ND	

TABLE 5

Summary of Surface Water Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upstream	Downstream		Blanks
				SW-1	SW-2	SW-3	
pH (field)	S.U.	06/11/02	--	Dry	7.70	6.50	--
	S.U.	11/01/02	--	5.20	6.10	7.00	--
	S.U.	03/06/03	--	5.00	6.00	5.80	--
	S.U.	09/23/03	--	5.10	5.20	5.10	--
	S.U.	03/11/04	--	Dry	6.30	6.40	--
	S.U.	09/23/04	--	--	6.70	6.80	--
	S.U.	03/10/05	--	--	6.60	7.20	--
	S.U.	09/22/05	--	--	7.60	7.20	--
	S.U.	03/06/06	--	--	7.60	4.80	--
	S.U.	09/19/06	--	--	7.00	6.90	--
	S.U.	03/21/07	--	7.74	8.63	6.68	--
	S.U.	09/28/07	--	Dry	Dry	Dry	--
	S.U.	03/26/08	--	--	7.52	6.11	--
	S.U.	09/29/08	--	--	7.52	6.99	--
	S.U.	03/30/09	--	--	7.60	6.68	--
	S.U.	09/30/09	--	--	Dry	Dry	--
	S.U.	03/30/10	--	--	7.63	6.17	--
	S.U.	09/29/10	--	--	10.68	10.78	--
	S.U.	04/06/11	--	--	7.68	5.68	--
	S.U.	09/28/11	--	--	7.98	6.37	--
	S.U.	03/28/12	--	--	7.46	6.40	--
	S.U.	09/26/12	--	--	8.78	Dry	--
	S.U.	04/01/13	--	--	7.31	6.16	--
Specific Conductance (lab prior to 9/19/06 event)	uS/cm	06/11/02	--	Dry	140	120	--
	uS/cm	11/01/02	--	59	105	155	--
	uS/cm	03/06/03	--	35	82	90	--
	uS/cm	09/23/03	--	55	116	128	--
	uS/cm	03/11/04	--	Dry	16	114	--
	uS/cm	09/23/04	--	--	138	112	--
	uS/cm	03/10/05	--	--	108	222	--
	uS/cm	09/22/05	--	--	166	300	--
	uS/cm	03/06/06	--	--	162	295	--
	uS/cm	09/19/06	--	--	160	170	--
	uS/cm	03/21/07	--	85	153	285	--
	uS/cm	09/28/07	--	Dry	Dry	Dry	--
	uS/cm	03/26/08	--	--	779	195	--
	uS/cm	09/29/08	--	--	261	190	--
	uS/cm	03/30/09	--	--	585	127	--
	uS/cm	09/30/09	--	--	Dry	Dry	--
	uS/cm	03/30/10	--	--	235	222	--
	uS/cm	09/29/10	--	--	70	85	--
	uS/cm	04/06/11	--	--	478	219	--
	uS/cm	09/28/11	--	--	206	216	--
	uS/cm	03/28/12	--	--	162	208	--
	uS/cm	09/26/12	--	--	57	Dry	--
	uS/cm	04/01/13	--	--	200	210	--

TABLE 5

Summary of Surface Water Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upstream	Downstream		Blanks
				SW-1	SW-2	SW-3	
Temperature	Celsius	06/11/02	--	Dry	20.0	21.0	--
(lab prior to 9/19/06 event)	Celsius	11/01/02	--	13.0	11.0	11.0	--
	Celsius	03/06/03	--	14.0	13.0	13.0	--
	Celsius	09/23/03	--	22.0	22.0	21.0	--
	Celsius	03/11/04	--	Dry	8.0	8.0	--
	Celsius	09/23/04	--	--	20.0	18.0	--
	Celsius	03/10/05	--	--	7.0	6.0	--
	Celsius	09/22/05	--	--	24.0	23.0	--
	Celsius	03/06/06	--	--	13.0	11.0	--
	Celsius	09/19/06	--	--	23.0	21.0	--
	Celsius	03/21/07	--	13.4	11.7	12.4	--
	Celsius	09/28/07	--	Dry	Dry	Dry	--
	Celsius	03/26/08	--	--	7.42	10.5	--
	Celsius	09/29/08	--	--	21.66	19.59	--
	Celsius	03/30/09	--	--	17.30	11.04	--
	Celsius	09/30/09	--	--	Dry	Dry	--
	Celsius	03/30/10	--	--	14.44	17.35	--
	Celsius	09/29/10	--	--	21.30	21.41	--
	Celsius	04/06/11	--	--	13.61	9.56	--
	Celsius	09/28/11	--	--	22.77	24.10	--
	Celsius	03/28/12	--	--	15.66	21.20	--
	Celsius	09/26/12	--	--	17.94	Dry	--
	Celsius	04/01/13	--	--	13.71	19.26	--
Turbidity (field)	NTU	03/21/07	--	133	146	183	--
	NTU	09/28/07	--	Dry	Dry	Dry	--
	NTU	03/26/08	--	--	>1000	446	--
	NTU	09/29/08	--	--	151	22.7	--
	NTU	03/30/09	--	--	407	57.7	--
	NTU	09/30/09	--	--	Dry	Dry	--
	NTU	03/30/10	--	--	403	35.7	--
	NTU	09/29/10	--	--	225	291	--
	NTU	04/06/11	--	--	191	46.6	--
	NTU	09/28/11	--	--	484	115	--
	NTU	03/28/12	--	--	331	77.5	--
	NTU	09/26/12	--	--	682	Dry	--
	NTU	04/01/13	--	--	61.7	56.0	--
Oxidation Reduction Potential	millivolts	03/21/07	--	155	67	114	--
(field)	millivolts	09/28/07	--	Dry	Dry	Dry	--
	millivolts	03/26/08	--	--	118.7	132.8	--
	millivolts	09/29/08	--	--	76	29	--
	millivolts	03/30/09	--	--	53.4	81.6	--
	millivolts	09/30/09	--	--	Dry	Dry	--
	millivolts	03/30/10	--	--	74.8	115.3	--
	millivolts	09/29/10	--	--	-368.9	-356.4	--
	millivolts	04/06/11	--	--	87.0	150.2	--
	millivolts	09/28/11	--	--	43.7	102	--
	millivolts	03/28/12	--	--	28.3	58.1	--
	millivolts	09/26/12	--	--	-49.0	Dry	--
	millivolts	04/01/13	--	--	-17.4	48.4	--

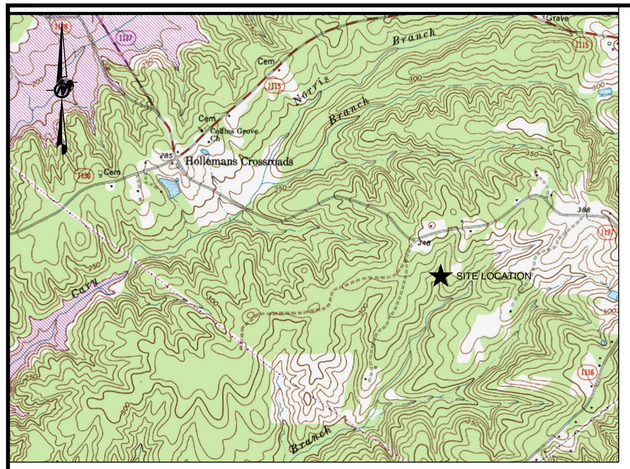
TABLE 5

Summary of Surface Water Monitoring Results
Detected Constituents
Red Rock Disposal, LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

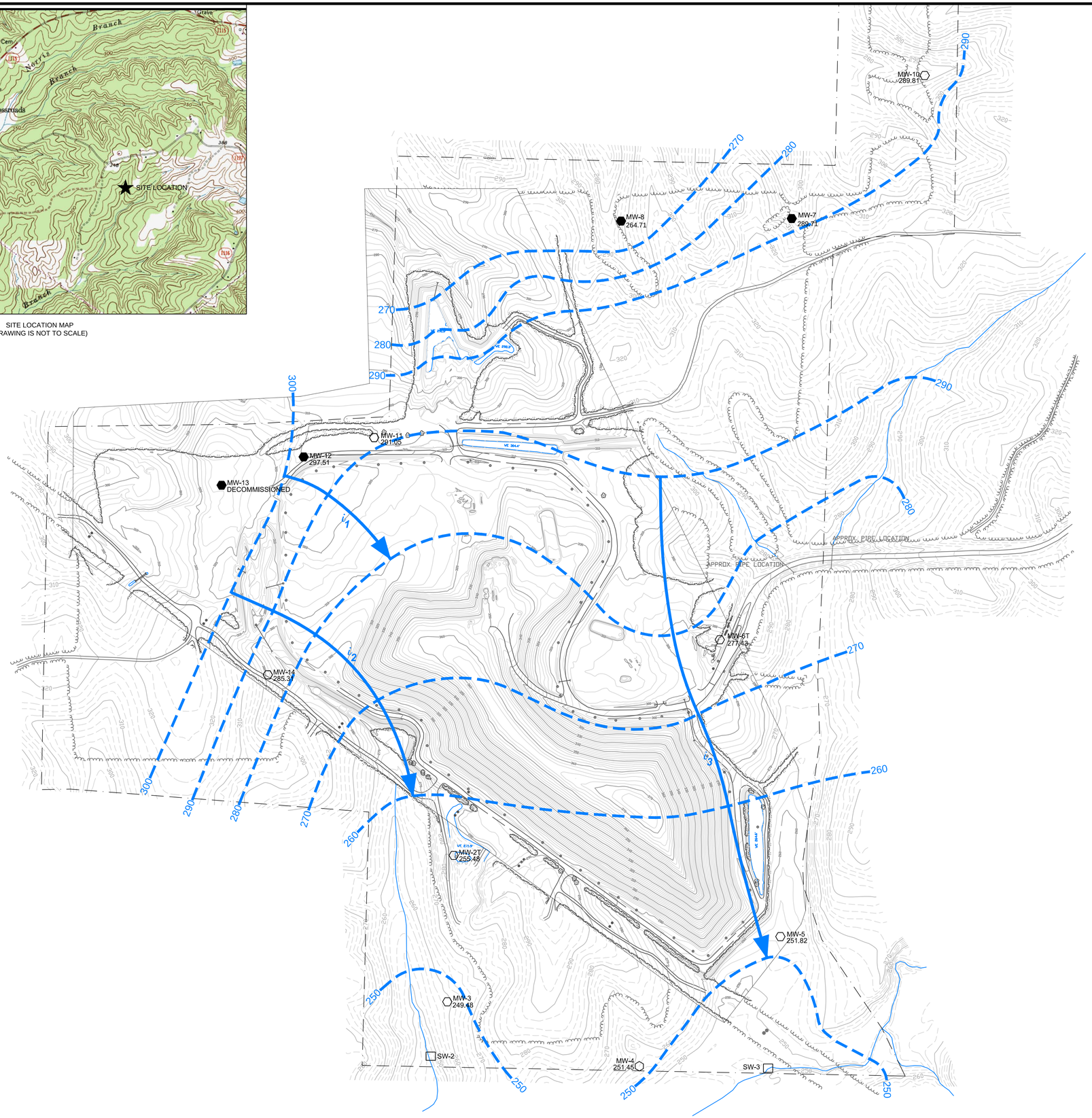
Detected Monitoring Constituent/Parameter	Reporting Units	Sample Date	SWS Reporting Limit	Upstream	Downstream		Blanks
				SW-1	SW-2	SW-3	
Dissolved Oxygen (field)	mg/L	03/21/07	--	9.5	10.3	9.9	--
	mg/L	09/28/07	--	Dry	Dry	Dry	--
	mg/L	03/26/08	--	--	10.36	5.16	--
	mg/L	09/29/08	--	--	9.09	6.79	--
	mg/L	03/30/09	--	--	7.98	10.30	--
	mg/L	09/30/09	--	--	Dry	Dry	--
	mg/L	03/30/10	--	--	8.93	9.71	--
	mg/L	09/29/10	--	--	8.93	8.77	--
	mg/L	04/06/11	--	--	10.17	7.25	--
	mg/L	09/28/11	--	--	4.36	3.62	--
	mg/L	03/28/12	--	--	8.82	5.52	--
	mg/L	09/26/12	--	--	6.71	Dry	--
	mg/L	04/01/13	--	--	7.54	8.67	--

Notes:
mg/L = milligrams per liter
ug/L = micrograms per liter
S.U. = Standard Units
NTU = Nephelometric Turbidity Units
ND = Not detected at the stated reporting limit
uS/cm= microsiemens per centimeter
mV = Millivolts
J = Estimated value
-- = no data
SW Standard = Surface Water Standard based on Class C Freshwater Aquatic Life Classification
Shaded = Concentrations above applicable Surface Water Standards
Blanks = field, trip and method blanks
1) The previous SW-1 location was in a wetland area that had been removed from the site for landfill expansion following the March 2004 sampling event. During the March 2007 sampling event, SW-1 was relocated. Due to construction activities prior to the March 2008 sampling event, no upstream surface monitoring point is available to sample.
2) Surface Water Standards based on Class C Freshwater Aquatic Life classification for the Jim Branch in the Cape Fear basin per 15A NCAC 2B.
*SW Standards for cadmium, lead, and nickel are Narrative Standards per 2B .0211
*SW Stanadards for copper, silver, and zinc are Action Level Standards per 2B .0211
SWS Reporting Limit = NCPQL or lab-specific reporting limit prior to 2007 and NCSWSL starting on 01/18/07

DRAWING



SITE LOCATION MAP
(DRAWING IS NOT TO SCALE)



LEGEND

10 FT. CONTOUR INTERVAL	
2 FT. CONTOUR INTERVAL	
FACILITY BOUNDARY	
TREELINE	
EXISTING ROAD	
STREAM	
GROUNDWATER SURFACE 10 FT. CONTOURS	250
APPROXIMATE GROUNDWATER FLOW SEGMENT USED TO CALCULATE GRADIENT	i_1
GROUNDWATER MONITORING WELL WITH GROUNDWATER ELEVATION	MW-2T 255.48
SURFACE WATER MONITORING POINT	SW-3
NON-COMPLIANCE WELL (WATER LEVELS ONLY)	MW-7
NOT MEASURED	NM

NOTES

1. TOPOGRAPHIC CONTOUR INTERVAL = 2 FEET
2. GROUNDWATER SURFACE CONTOUR INTERVAL = 10 FEET
3. GROUNDWATER ELEVATIONS MEASURED ON APRIL 1, 2013.
4. GROUNDWATER CONTOURS BASED ON LINEAR INTERPOLATION BETWEEN AND EXTRAPOLATION FROM KNOWN DATA, TOPOGRAPHIC CONTOURS, AND KNOWN FIELD CONDITIONS. THEREFORE, GROUNDWATER CONTOURS MAY NOT REFLECT ACTUAL GROUNDWATER CONDITIONS.
5. GROUNDWATER CONTOUR LINES SHOW THE WATER TABLE SHAPE AND ELEVATION. THESE CONTOURS ARE INFERRED LINES FOLLOWING THE GROUNDWATER SURFACE AT A CONSTANT ELEVATION ABOVE SEA LEVEL. THE GROUNDWATER FLOW DIRECTION IS GENERALLY PERPENDICULAR TO THE GROUNDWATER SURFACE CONTOURS, SIMILAR TO THE RELATIONSHIP BETWEEN SURFACE WATER FLOW AND TOPOGRAPHIC CONTOURS.
6. GRID COORDINATES REFERENCE NC STATE PLANE SYSTEM (NAD 1983)
7. ELEVATION REFERENCE U.S.G.S VERTICAL DATUM (MSL).
8. OVERALL SITE TOPOGRAPHY PREPARED BY GEODATA CORP., BASED ON AERIAL PHOTOGRAPHY DATED FEBRUARY 2, 2012.
9. THE FACILITY BOUNDARY SHOWN REFERENCES DRAWING TITLED, "BOUNDARY SURVEY FOR WASTE INDUSTRIES." PREPARED BY SURVEY SOLUTIONS, P.C. DATED 12/27/00, SCALE 1" = 400'. (G.N. RICHARDSON & ASSOCIATES, INC SEPTEMBER 2006)
10. GROUNDWATER CONTOURS IN THE VICINITY OF MW-7 AND MW-8 WERE CONSTRUCTED BASED ON HISTORICAL DATA.
11. WELL MW-13 WAS DECOMMISSIONED BY RSG ON MAY 2, 2011.

200 0 200 400
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
5	4/23/13	DAC	APRIL 2013 GROUNDWATER CONTOURS	BSD		
4	11/5/12	RPK	SEPTEMBER 2012 GROUNDWATER CONTOURS	LKB	DYR	RPK

PROJECT
RED ROCK DISPOSAL, LLC CONSTRUCTION
DEMOLITION LANDFIL, PERMIT NO. 92-28
WAKE COUNTY, NC

TITLE
GROUNDWATER CONTOUR MAP
APRIL 1, 2013

Golder Associates
GREENSBORO, NC

PROJECT No.	073-9603512		FILE No. 079603512 (04-24-13)	
DESIGN	BSD	04/16/07	SCALE AS SHOWN	REV. 5
CADD	LKB	04/16/07		
CHECK	BSD	04/16/07	DWG. 1	
REVIEW	RPK	04/16/07		

Y:\Projects\073-9603512 - WI - Red Rock\DWG\MAPS\FIG-NO\079603512 (04-24-13) dwg 4/24/2013 10:06 AM

APPENDIX A

GROUNDWATER, SURFACE WATER, AND LEACHATE SAMPLING LOGS

DATE: 4/1/13

Golder Associates

GROUNDWATER SAMPLING LOG

Project Name: *Red Rock*
Project No./Phase No.: *0739603513.100*
Well ID: MW-2T
Sampler(s): *B. Freyer, D. Childress*
Well Diameter: 2 inches
Initial Depth to Water: 25.71 feet
Depth to Bottom: 81.34 feet
Water Column Thickness: 55.63 feet
Pumping Rate: 150 mL/min.
System Volume: mL
Well Location: S side of LF next to seed. pond
Equipment: *YSI 556, Water Level Meter, dedicated Bladder pump*
Hach Turbidimeter

Time	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	Dis O_2 (mg/L)	Temp. (°C)	ORP (millivolts)	DTW (feet)
1347	7.34	2.107	6.21	4.67	18.28	-16.4	26.76
1351	7.04	2.160	7.82	1.08	18.16	-106.3	27.99
1355	7.14	2.215	5.65	0.56	18.17	-113.9	28.62
1359	7.16	2.194	2.07	0.52	18.15	-92.6	29.74
1403	7.12	2.156	1.54	0.50	18.13	-71.3	30.53
1407	7.01	2.088	1.36	0.50	18.16	-54.6	31.51
1411	6.91	2.038	1.52	0.49	18.05	-41.5	32.06
1415	6.91	2.031	1.43	0.48	18.10	-37.4	32.78
			Sampled @ 1415				

Comments (weather conditions, color, type of sample, purge-water management, etc.):
70's, clear

Signature: B. A. Freyer
Date: 4/1/13

QA/QC Sign Off: Paul S. Reedy
Date: 4-24-13

DATE: 4/1/13

Golder Associates

GROUNDWATER SAMPLING LOG

Project Name: *Red Rock*
Project No./Phase No.: *0739603513.100*
Well ID: MW-3
Sampler(s): *B. Freyer, D. Childress*
Well Diameter: 2 inches
Initial Depth to Water: 12.32 feet
Depth to Bottom: 31.50 feet
Water Column Thickness: 19.18 feet
Pumping Rate: 150 mL/min.
System Volume: mL
Well Location: off access trail near SW-2.
Equipment: *YSI 556, Water Level Meter, ~~dedicated Bladder pump~~ DC portable bladder pump Hach Turbidimeter*

Time	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	Dis O_2 (mg/L)	Temp. (°C)	ORP (millivolts)	DTW (feet)
1301	6.93	4.604	16.7	7.14	16.48	69.3	13.64
1305	7.03	4.594	10.9	5.22	15.94	19.5	14.33
1309	7.13	4.618	13.3	4.77	16.04	11.2	15.49
1313	7.13	4.618	8.84	4.73	16.06	9.3	16.08
1317	7.10	4.624	8.87	4.73	16.11	7.5	16.92
			Sampled @ 1317				

Comments (weather conditions, color, type of sample, purge-water management, etc.):
Weather: 69°F, mostly sunny

Signature: [signature] **Date:** 4/1/13

QA/QC Sign Off: [signature] **Date:** 4-24-13

DATE: 4/1/13

Golder Associates

GROUNDWATER SAMPLING LOG

Project Name: *Red Rock*
Project No./Phase No.: *0739603513.100*
Well ID: MW-4
Sampler(s): *B. Freyer, D. Childress*
Well Diameter: 2 inches
Initial Depth to Water: 2.65 feet
Depth to Bottom: 17.34 feet
Water Column Thickness: 14.69 feet
Pumping Rate: ~~100~~ 150 mL/min.
System Volume: mL
Well Location: 5 of LF along access trail
Equipment: *YSI 556, Water Level Meter, dedicated Bladder pump*
Hach Turbidimeter

Time	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	Dis O_2 (mg/L)	Temp. (°C)	ORP (millivolts)	DTW (feet)
1438	7.17	0.138	18.6	6.17	14.56	41.7	3.80
1442	6.68	0.117	25.3	4.37	13.88	45.8	4.12
1446	6.30	0.098	18.6	3.63	13.24	52.0	4.68
1450	5.99	0.090	17.8	3.38	13.29	58.8	4.72
1454	5.77	0.089	16.0	3.30	13.19	63.3	4.85
1458	5.71	0.088	16.3	3.29	12.91	61.7	5.01
1502	5.70	0.087	15.2	3.15	12.86	59.4	5.13
		Sampled @ 1502					

Comments (weather conditions, color, type of sample, purge-water management, etc.):
70's, clear, breeze

Signature: BJF
Date: 4/1/13

QA/QC Sign Off: [signature]
Date: 4-24-13

DATE: 4/1/13

Golder Associates

GROUNDWATER SAMPLING LOG

Project Name: *Red Rock* **Project No./Phase No.:** *0739603513.100*
Well ID: MW-5 **Sampler(s):** *B. Freyer, D. Childress*
Well Diameter: 2 inches **Initial Depth to Water:** 2.65 feet
Depth to Bottom: 16.35 feet **Water Column Thickness:** 13.70 feet
Pumping Rate: 200 mL/min. **System Volume:** mL
Well Location: E of closed LF, along perimeter road in woods ~50 yds
Equipment: *YSI 556, Water Level Meter, dedicated Bladder pump*
Hach Turbidimeter

Time	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	Dis O_2 (mg/L)	Temp. (°C)	ORP (millivolts)	DTW (feet)
1548	6.57	3.978	7.19	3.73	14.29	3.0	3.45
1551	6.57	3.773	1.58	2.74	13.44	-5.0	4.43
1554	6.63	3.062	1.83	4.13	13.13	-1.0	4.68
1557	6.61	2.619	1.68	5.12	12.63	6.5	4.82
1600	6.58	2.535	1.07	5.15	12.74	8.4	5.04
1603	6.55	2.484	1.23	4.97	12.84	8.3	5.15
1606	6.53	2.463	1.09	4.73	12.75	8.0	5.30
			Sampled	@ 1606			

Comments (weather conditions, color, type of sample, purge-water management, etc.):
weather: 74°F, scattered clouds, breezy

Signature: David Childress **Date:** 4/1/13

QA/QC Sign Off: [illegible] **Date:** 4-24-13

DATE: 4/1/13

Golder Associates

GROUNDWATER SAMPLING LOG

Project Name: *Red Rock*
Project No./Phase No.: *0739603513.100*
Well ID: MW-6T
Sampler(s): *B. Freyer, D. Childress*
Well Diameter: 2 inches
Initial Depth to Water: 11.78 feet
Depth to Bottom: 58.58 feet
Water Column Thickness: 46.80 feet
Pumping Rate: 200 mL/min.
System Volume: mL
Well Location: next to scalehouse
Equipment: *YSI 556, Water Level Meter, dedicated Bladder pump*
Hach Turbidimeter

Time	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	Dis O_2 (mg/L)	Temp. (°C)	ORP (millivolts)	DTW (feet)
1631	6.94	6.019	2.12	6.05	17.19	-29.9	12.33
1634	6.67	6.271	3.03	3.45	17.08	-49.3	12.66
1637	6.78	6.049	2.32	2.62	16.80	-47.9	13.29
1640	6.76	6.025	2.01	2.31	16.95	-47.7	13.58
1643	6.81	5.978	1.85	2.23	16.97	-48.1	13.78
1646	6.83	5.981	1.32	2.27	16.87	-48.3	13.97
		sampled @ 1646					

Comments (weather conditions, color, type of sample, purge-water management, etc.):
70's, clear, windy

Signature: B J Fry
Date: 4/1/13

QA/QC Sign Off: Phillip Reedy
Date: 4-24-13

DATE: 4/1/13

Golder Associates

GROUNDWATER SAMPLING LOG

Project Name: *Red Rock* **Project No./Phase No.:** *0739603513.100*
Well ID: MW-10 **Sampler(s):** *B. Freyer, D. Childress*
Well Diameter: 2 inches **Initial Depth to Water:** 11.35 feet
Depth to Bottom: 31.23 feet **Water Column Thickness:** 19.88 feet
Pumping Rate: 150 mL/min. **System Volume:** mL
Well Location: NE of LF along access trail
Equipment: *YSI 556, Water Level Meter, dedicated Bladder pump*
Hach Turbidimeter

Time	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	Dis O_2 (mg/L)	Temp. (°C)	ORP (millivolts)	DTW (feet)
1014	6.20	1.604	3.61	6.10	14.38	105.6	12.32
1018	6.42	1.655	3.21	2.91	14.79	75.8	12.79
1022	6.51	1.668	2.73	1.81	14.82	61.9	13.42
1026	6.58	1.666	1.99	1.29	14.78	51.6	14.08
1030	6.61	1.667	2.34	1.07	14.78	46.6	14.18
1034	6.64	1.667	2.17	0.98	14.77	42.2	14.30
1038	6.65	1.669	2.70	1.01	14.87	39.2	14.54
		sampled @ 1038					

Comments (weather conditions, color, type of sample, purge-water management, etc.):
50's, calm, humid

Signature: B. Freyer **Date:** 4/1/13

QA/QC Sign Off: Paul Reary **Date:** 4-24-13

DATE: 4/1/13

Golder Associates

GROUNDWATER SAMPLING LOG

Project Name: *Red Rock* **Project No./Phase No.:** *0739603513.100*
Well ID: MW-11 **Sampler(s):** *B. Freyer, D. Childress*
Well Diameter: 2 inches **Initial Depth to Water:** 19.72 feet
Depth to Bottom: 52.90 feet **Water Column Thickness:** 33.18 feet
Pumping Rate: 200 mL/min. **System Volume:** mL
Well Location: Along perimeter road N of landfill
Equipment: *YSI 556, Water Level Meter, dedicated Bladder pump*
Hach Turbidimeter

Time	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	Dis O_2 (mg/L)	Temp. (°C)	ORP (millivolts)	DTW (feet)
1109	8.11	0.529	4.28	6.05	17.08	-48.1	20.51
1112	7.51	0.507	3.39	2.62	17.08	-83.9	21.33
1115	7.48	0.504	2.89	2.04	17.03	-91.0	21.79
1118	7.47	0.502	1.77	1.77	17.01	-94.8	22.38
1121	7.48	0.501	2.34	1.49	16.95	-95.6	22.85
1124	7.47	0.499	1.88	1.43	16.91	-91.6	23.46
1127	7.50	0.498	1.65	1.50	17.03	-85.3	23.90
			Sampled @ 1127				

Comments (weather conditions, color, type of sample, purge-water management, etc.):
Weather: 63°F, partly cloudy

Signature: Daniel Childress **Date:** 4/1/13

QA/QC Sign Off: [illegible] **Date:** 4-24-13

DATE: 4/1/13

Golder Associates

GROUNDWATER SAMPLING LOG

Project Name: *Red Rock*
Project No./Phase No.: *0739603513.100*
Well ID: MW-14
Sampler(s): *B. Freyer, D. Childress*
Well Diameter: 2 inches
Initial Depth to Water: 15.89 feet
Depth to Bottom: 35.19 feet
Water Column Thickness: 19.30 feet
Pumping Rate: 200 mL/min.
System Volume: mL
Well Location: S of LF along perimeter road in treeline
Equipment: *YSI 556, Water Level Meter, dedicated Bladder pump*
Hach Turbidimeter

Time	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	Dis O_2 (mg/L)	Temp. (°C)	ORP (millivolts)	DTW (feet)
1155	7.50	0.476	1.63	8.80	15.84	2.9	16.63
1158	7.17	0.480	2.01	4.87	15.64	-0.8	17.04
1201	7.11	0.488	2.64	4.14	15.60	0.7	17.40
1204	7.07	0.491	3.26	3.70	15.61	2.9	17.92
1207	7.07	0.492	2.42	3.63	15.60	4.8	18.22
1210	7.07	0.492	2.03	3.66	15.62	5.1	18.48
		Sampled @ 1210					

Comments (weather conditions, color, type of sample, purge-water management, etc.):
60's, calm

Signature: [signature] **Date:** 4/1/13

QA/QC Sign Off: [signature] **Date:** 4-24-13

Golder Associates

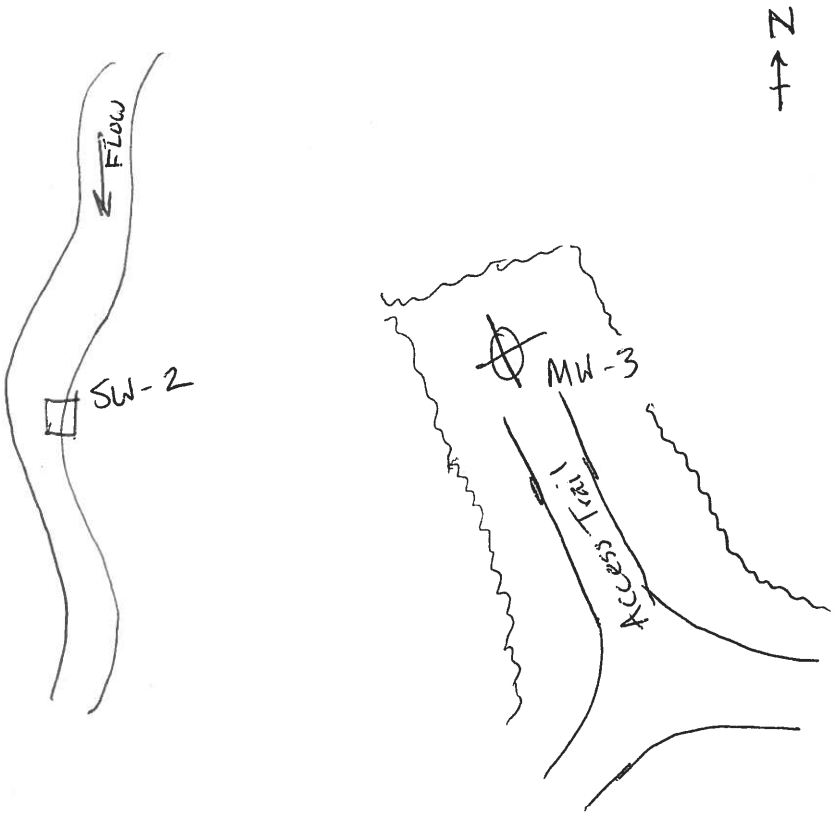
DATE: 4/1/13

SURFACE WATER SAMPLING LOG

Project Name: Red Rock **Project No./Phase No.:** 0739603513.100
Sample ID: SW-2 **Sampler(s):** B. Freyer, D. Childress
Sampling Location: In woods W of MW-3
Equipment: YSI 556, Hanna Turbidimeter

Time	1240
pH s.u.	7.31
Cond. mS/cm	0.200
Turb. ntu	61.7
Dis. O_2 mg/L	7.54
Temp. °C	13.71
ORP mv	-17.4

Surface Water Sampling Location Sketch



Comments (sample methodology, weather conditions, color, silt, etc.):
Weather: 69°F, mostly sunny

Signature: [signature] **Date:** 4/1/13

QA/QC Sign Off: [signature] **Date:** 4-24-13

DATE: 4/1/13

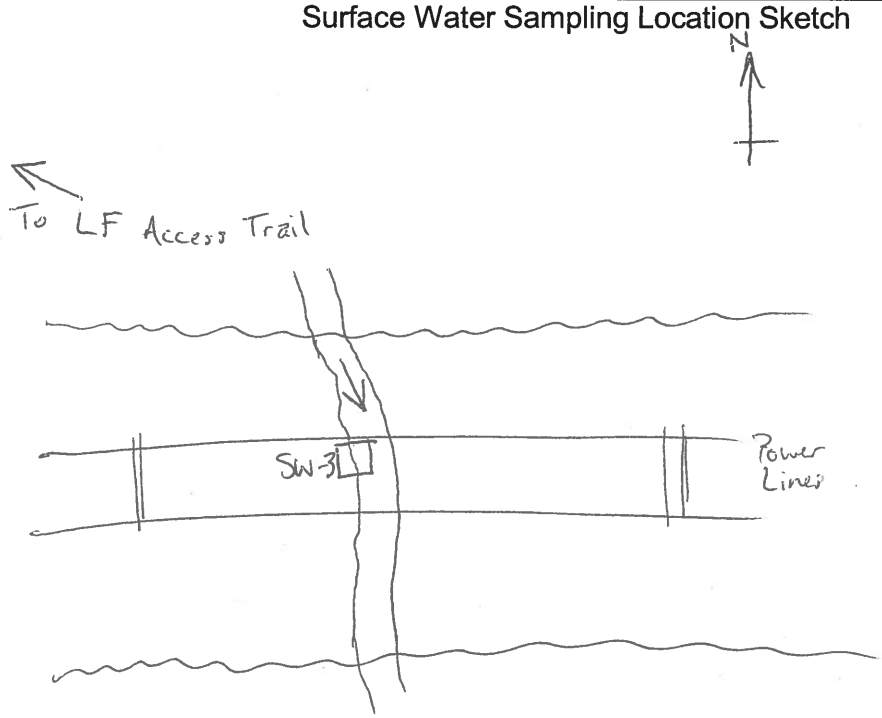
Golder Associates

SURFACE WATER SAMPLING LOG

Project Name: Red Rock **Project No./Phase No.:** 0739603513.100
Sample ID: SW-3 **Sampler(s):** B. Freyer, D. Childress
Sampling Location: Along power lines in S-E corner of LF property
Equipment: YSI 556, Hanna Turbidimeter

Time	1520
pH s.u.	6.16
Cond. mS/cm	0.210
Turb. ntu	56.0
Dis. O_2 mg/L	8.67
Temp. °C	19.26
ORP mv	48.4

Surface Water Sampling Location Sketch



Comments (sample methodology, weather conditions, color, silt, etc.):
Weather: 70s, mostly sunny

Signature: Daniel Childs **Date:** 4/1/13

QA/QC Sign Off: [illegible] **Date:** 4-24-13

APPENDIX B

APRIL 2013 GROUNDWATER AND SURFACE WATER CERTIFICATES-OF-ANALYSIS, CHAIN-OF-CUSTODY FORMS AND LABORATORY DATA REVIEWS

Environmental Conservation Laboratories, Inc.
102-A Woodwinds Industrial Court
Cary NC, 27511
Phone: 919.467.3090 FAX: 919.467.3515
www.encolabs.com

Tuesday, April 9, 2013

Golder Associates, Inc. (GO007)

Attn: Dusty Reedy

5B Oak Branch Drive

Greensboro, NC 27407

RE: Laboratory Results for
Project Number: 0739-603513.100, Project Name/Desc: WI- Red Rock
ENCO Workorder(s): C303330

Dear Dusty Reedy,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Tuesday, April 2, 2013.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Cary. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Stephanie Franz

Project Manager

Enclosure(s)

The total number of pages in this report, including this page is 70.

www.encolabs.com

PROJECT NARRATIVE

Date: 09 April 2013
Client: Golder Associates, Inc. (GO007)
Project: WI- Red Rock
Lab ID: C303330

Overview

Environmental Conservation Laboratories, Inc. (ENCO) analyzed all submitted samples in accordance with the methods referenced in the laboratory report. Any particular difficulties encountered during sample handling by ENCO are discussed in the QC Remarks section below.

Quality Control Samples

Chloride was detected in the Method Blank at a low-level concentration (less than half of the MRL). Detections of this analyte should be considered to have a possible high bias if the concentration in the associated sample is not greater than ten times that of the detection in the Method Blank. The spike recoveries of Chloride and Sulfate were outside of control limits for the MS and/or MSD samples. The QC batch was approved based on acceptable LCS recovery of these analytes.

Quality Control Remarks

No Comments

Other Comments

All samples received under this work order arrived in acceptable conditions. The samples were not checked for residual chlorine, as it is not required.

The analytical data presented in this report are consistent with the methods as referenced in the analytical report. Any exceptions or deviations are noted in the QC remarks section of this narrative or in the Flags/Notes and Definitions section of the report.

Released By:
Environmental Conservation Laboratories, Inc.

Stephanie Franz
Project Manager

www.encolabs.com

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: 9828-MW2T | **Lab ID: C303330-01** | **Sampled: 04/01/13 14:15** | **Received: 04/02/13 16:15**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 13:40	4/5/2013 13:40
EPA 310.2	04/15/13	04/05/13 13:16	4/5/2013 16:22
EPA 6010C	09/28/13	04/03/13 10:28	4/4/2013 11:27
EPA 6020A	09/28/13	04/03/13 10:30	4/5/2013 11:59
EPA 7470A	04/29/13	04/04/13 13:19	4/4/2013 17:07
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 18:19
SM 2540C-1997	04/08/13	04/04/13 15:06	4/4/2013 15:06

Client ID: 9828-MW2T | **Lab ID: C303330-01RE1** | **Sampled: 04/01/13 14:15** | **Received: 04/02/13 16:15**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 14:30	4/5/2013 14:30

Client ID: 9828-MW3 | **Lab ID: C303330-02** | **Sampled: 04/01/13 13:17** | **Received: 04/02/13 16:15**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 14:47	4/5/2013 14:47
EPA 310.2	04/15/13	04/05/13 13:16	4/5/2013 16:23
EPA 6010C	09/28/13	04/03/13 10:28	4/4/2013 11:35
EPA 6020A	09/28/13	04/03/13 10:30	4/5/2013 12:03
EPA 7470A	04/29/13	04/04/13 13:19	4/4/2013 17:09
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 18:49
SM 2540C-1997	04/08/13	04/04/13 15:06	4/4/2013 15:06

Client ID: 9828-MW3 | **Lab ID: C303330-02RE1** | **Sampled: 04/01/13 13:17** | **Received: 04/02/13 16:15**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 15:03	4/5/2013 15:03

Client ID: 9828-MW4 | **Lab ID: C303330-03** | **Sampled: 04/01/13 15:02** | **Received: 04/02/13 16:15**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 19:38	4/5/2013 19:38
EPA 310.2	04/15/13	04/05/13 13:16	4/5/2013 16:24
EPA 6010C	09/28/13	04/03/13 10:28	4/4/2013 11:33
EPA 6020A	09/28/13	04/03/13 10:30	4/5/2013 12:07
EPA 7470A	04/29/13	04/04/13 13:19	4/4/2013 17:11
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 19:18
SM 2540C-1997	04/08/13	04/04/13 15:06	4/4/2013 15:06

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Client ID: 9828-MW5 (ms/msd)	Lab ID: C303330-04	Sampled: 04/01/13 16:06	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 15:20	4/5/2013 15:20
EPA 310.2	04/15/13	04/05/13 13:16	4/5/2013 16:18
EPA 6010C	09/28/13	04/03/13 10:28	4/4/2013 11:14
EPA 6020A	09/28/13	04/03/13 10:30	4/5/2013 11:39
EPA 7470A	04/29/13	04/04/13 13:19	4/4/2013 16:56
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 17:50
SM 2540C-1997	04/08/13	04/04/13 15:06	4/4/2013 15:06

Client ID: 9828-MW5 (ms/msd)	Lab ID: C303330-04RE1	Sampled: 04/01/13 16:06	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 15:37	4/5/2013 15:37

Client ID: 9828-MW6T	Lab ID: C303330-05	Sampled: 04/01/13 16:46	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 15:54	4/5/2013 15:54
EPA 310.2	04/15/13	04/05/13 13:16	4/5/2013 16:25
EPA 6010C	09/28/13	04/03/13 10:28	4/4/2013 12:28
EPA 6020A	09/28/13	04/03/13 10:30	4/5/2013 12:24
EPA 7470A	04/29/13	04/04/13 13:19	4/4/2013 17:17
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 19:47
SM 2540C-1997	04/08/13	04/04/13 15:06	4/4/2013 15:06

Client ID: 9828-MW6T	Lab ID: C303330-05RE1	Sampled: 04/01/13 16:46	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 16:10	4/5/2013 16:10

Client ID: 9828-MW10	Lab ID: C303330-06	Sampled: 04/01/13 10:38	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 16:27	4/5/2013 16:27
EPA 310.2	04/15/13	04/05/13 13:16	4/5/2013 16:27
EPA 6010C	09/28/13	04/03/13 10:28	4/4/2013 12:25
EPA 6020A	09/28/13	04/03/13 10:30	4/5/2013 12:28
EPA 7470A	04/29/13	04/04/13 13:19	4/4/2013 17:19
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 20:17
SM 2540C-1997	04/08/13	04/04/13 15:06	4/4/2013 15:06

Client ID: 9828-MW10	Lab ID: C303330-06RE1	Sampled: 04/01/13 10:38	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 16:50	4/5/2013 16:50

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Client ID: 9828-MW11	Lab ID: C303330-07	Sampled: 04/01/13 11:27	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 19:55	4/5/2013 19:55
EPA 310.2	04/15/13	04/05/13 13:16	4/5/2013 16:28
EPA 6010C	09/28/13	04/03/13 10:28	4/4/2013 12:36
EPA 6020A	09/28/13	04/03/13 10:30	4/5/2013 12:32
EPA 7470A	04/29/13	04/04/13 13:19	4/4/2013 17:21
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 20:46
SM 2540C-1997	04/08/13	04/04/13 15:06	4/4/2013 15:06

Client ID: 9828-MW14	Lab ID: C303330-08	Sampled: 04/01/13 12:10	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	04/29/13	04/05/13 20:12	4/5/2013 20:12
EPA 310.2	04/15/13	04/05/13 13:16	4/5/2013 16:29
EPA 6010C	09/28/13	04/03/13 10:28	4/4/2013 12:33
EPA 6020A	09/28/13	04/03/13 10:30	4/5/2013 12:36
EPA 7470A	04/29/13	04/04/13 13:19	4/4/2013 17:23
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 21:15
SM 2540C-1997	04/08/13	04/04/13 15:06	4/4/2013 15:06

Client ID: 9828-SW2	Lab ID: C303330-09	Sampled: 04/01/13 12:40	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 6010C	09/28/13	04/03/13 10:28	4/4/2013 12:39
EPA 6020A	09/28/13	04/03/13 10:30	4/5/2013 12:40
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 21:45

Client ID: 9828-SW3	Lab ID: C303330-10	Sampled: 04/01/13 15:20	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 6010C	09/28/13	04/03/13 10:28	4/4/2013 12:42
EPA 6020A	09/28/13	04/03/13 10:30	4/5/2013 12:44
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 22:14

Client ID: 9828-Field Blank	Lab ID: C303330-11	Sampled: 04/01/13 16:55	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 6010C	09/28/13	04/03/13 10:28	4/4/2013 12:47
EPA 6020A	09/28/13	04/03/13 10:30	4/5/2013 12:48
EPA 7470A	04/29/13	04/04/13 13:19	4/4/2013 17:25
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 22:43

Client ID: 9828-Trip Blank	Lab ID: C303330-12	Sampled: 04/01/13 10:38	Received: 04/02/13 16:15

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	04/15/13	04/04/13 15:44	4/4/2013 23:13

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NORTH CAROLINA SWS SAMPLE DETECTION SUMMARY

Client ID: 9828-MW2T **Lab ID: C303330-01**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	41.8	J	1	1.00	10.0	100	ug/L	EPA 6010C	
Cadmium - Total	0.462	J	1	0.360	1.00	1	ug/L	EPA 6010C	
Chromium - Total	1.81	J	1	1.40	10.0	10	ug/L	EPA 6010C	
Copper - Total	3.19	J	1	1.60	10.0	10	ug/L	EPA 6010C	
Iron - Total	58.0	J	1	22.0	50.0	300	ug/L	EPA 6010C	
Lead - Total	2.59	J	1	1.90	10.0	10	ug/L	EPA 6010C	
Manganese - Total	110		1	1.10	10.0	50	ug/L	EPA 6010C	
Sulfate as SO4	51000	J	1	40	5000	250000	ug/L	EPA 300.0	
Total Alkalinity as CaCO3	300000	D	2	24000	30000	NE	ug/L	EPA 310.2	
Total Dissolved Solids	1200000		1	10000	10000	NE	ug/L	SM 2540C-1997	
Zinc - Total	8.82	J	1	3.80	10.0	10	ug/L	EPA 6010C	

Client ID: 9828-MW2T **Lab ID: C303330-01RE1**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Chloride	480000	BD	10	4300	50000	NE	ug/L	EPA 300.0	QB-01

Client ID: 9828-MW3 **Lab ID: C303330-02**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	2030		1	1.00	10.0	100	ug/L	EPA 6010C	
Chromium - Total	2.50	J	1	1.40	10.0	10	ug/L	EPA 6010C	
Iron - Total	376		1	22.0	50.0	300	ug/L	EPA 6010C	
Manganese - Total	32.2	J	1	1.10	10.0	50	ug/L	EPA 6010C	
Nickel - Total	3.66	J	1	1.80	10.0	50	ug/L	EPA 6010C	
Sulfate as SO4	4200	J	1	40	5000	250000	ug/L	EPA 300.0	
Total Alkalinity as CaCO3	300000	D	2	24000	30000	NE	ug/L	EPA 310.2	
Total Dissolved Solids	3300000		1	10000	10000	NE	ug/L	SM 2540C-1997	
Vanadium - Total	24.8	J	1	1.40	10.0	25	ug/L	EPA 6010C	
Zinc - Total	8.34	J	1	3.80	10.0	10	ug/L	EPA 6010C	

Client ID: 9828-MW3 **Lab ID: C303330-02RE1**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Chloride	1600000	BD	20	8600	100000	NE	ug/L	EPA 300.0	QB-01

Client ID: 9828-MW4 **Lab ID: C303330-03**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	19.8	J	1	1.00	10.0	100	ug/L	EPA 6010C	
Chloride	6900	B	1	430	5000	NE	ug/L	EPA 300.0	J-01
Iron - Total	677		1	22.0	50.0	300	ug/L	EPA 6010C	
Manganese - Total	11.9	J	1	1.10	10.0	50	ug/L	EPA 6010C	
Sulfate as SO4	8400	J	1	40	5000	250000	ug/L	EPA 300.0	
Total Alkalinity as CaCO3	21000		1	12000	15000	NE	ug/L	EPA 310.2	
Total Dissolved Solids	66000		1	10000	10000	NE	ug/L	SM 2540C-1997	
Vanadium - Total	2.09	J	1	1.40	10.0	25	ug/L	EPA 6010C	

Client ID: 9828-MW5 (ms/msd) **Lab ID: C303330-04**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Antimony - Total	0.740	J	1	0.220	2.00	6	ug/L	EPA 6020A	
Barium - Total	110		1	1.00	10.0	100	ug/L	EPA 6010C	

Client ID: 9828-MW5 (ms/msd) **Lab ID: C303330-04**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Beryllium - Total	0.294	J	1	0.100	1.00	1	ug/L	EPA 6010C	
Chloride	820000	B	1	8600	100000	NE	ug/L	EPA 300.0	QB-01
Chromium - Total	4.17	J	1	1.40	10.0	10	ug/L	EPA 6010C	
Copper - Total	3.25	J	1	1.60	10.0	10	ug/L	EPA 6010C	
Iron - Total	54.6	J	1	22.0	50.0	300	ug/L	EPA 6010C	
Manganese - Total	57.9		1	1.10	10.0	50	ug/L	EPA 6010C	
Nickel - Total	3.06	J	1	1.80	10.0	50	ug/L	EPA 6010C	
Total Alkalinity as CaCO3	89000		1	12000	15000	NE	ug/L	EPA 310.2	
Total Dissolved Solids	1800000		1	10000	10000	NE	ug/L	SM 2540C-1997	
Zinc - Total	5.34	J	1	3.80	10.0	10	ug/L	EPA 6010C	

Client ID: 9828-MW5 (ms/msd) **Lab ID: C303330-04RE1**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Sulfate as SO4	110000	J	1	80	10000	250000	ug/L	EPA 300.0	

Client ID: 9828-MW6T **Lab ID: C303330-05**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	2280		1	1.00	10.0	100	ug/L	EPA 6010C	
Chromium - Total	1.71	J	1	1.40	10.0	10	ug/L	EPA 6010C	
Iron - Total	1020		1	22.0	50.0	300	ug/L	EPA 6010C	
Manganese - Total	1690		1	1.10	10.0	50	ug/L	EPA 6010C	
Silver - Total	2.61	J	1	1.90	10.0	10	ug/L	EPA 6010C	
Sulfate as SO4	18000	J	1	40	5000	250000	ug/L	EPA 300.0	
Total Alkalinity as CaCO3	320000	D	2	24000	30000	NE	ug/L	EPA 310.2	
Total Dissolved Solids	4200000		1	10000	10000	NE	ug/L	SM 2540C-1997	

Client ID: 9828-MW6T **Lab ID: C303330-05RE1**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Chloride	1900000	BD	50	22000	250000	NE	ug/L	EPA 300.0	QB-01

Client ID: 9828-MW10 **Lab ID: C303330-06**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	1120		1	1.00	10.0	100	ug/L	EPA 6010C	
Iron - Total	64.5	J	1	22.0	50.0	300	ug/L	EPA 6010C	
Manganese - Total	255		1	1.10	10.0	50	ug/L	EPA 6010C	
Sulfate as SO4	13000	J	1	40	5000	250000	ug/L	EPA 300.0	
Total Alkalinity as CaCO3	340000	D	2	24000	30000	NE	ug/L	EPA 310.2	
Total Dissolved Solids	1100000		1	10000	10000	NE	ug/L	SM 2540C-1997	

Client ID: 9828-MW10 **Lab ID: C303330-06RE1**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Chloride	330000	BD	10	4300	50000	NE	ug/L	EPA 300.0	QB-01

Client ID: 9828-MW11 **Lab ID: C303330-07**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	15.1	J	1	1.00	10.0	100	ug/L	EPA 6010C	
Chloride	11000	B	1	430	5000	NE	ug/L	EPA 300.0	J-01
Iron - Total	41.7	J	1	22.0	50.0	300	ug/L	EPA 6010C	
Manganese - Total	33.3	J	1	1.10	10.0	50	ug/L	EPA 6010C	
Silver - Total	4.21	J	1	1.90	10.0	10	ug/L	EPA 6010C	
Sulfate as SO4	5100	J	1	40	5000	250000	ug/L	EPA 300.0	

Client ID: 9828-MW11 **Lab ID: C303330-07**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Total Alkalinity as CaCO3	290000	D	2	24000	30000	NE	ug/L	EPA 310.2	
Total Dissolved Solids	320000		1	10000	10000	NE	ug/L	SM 2540C-1997	

Client ID: 9828-MW14 **Lab ID: C303330-08**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	76.8	J	1	1.00	10.0	100	ug/L	EPA 6010C	
Chloride	36000	B	1	430	5000	NE	ug/L	EPA 300.0	QB-01
Iron - Total	51.4	J	1	22.0	50.0	300	ug/L	EPA 6010C	
Manganese - Total	9.57	J	1	1.10	10.0	50	ug/L	EPA 6010C	
Sulfate as SO4	12000	J	1	40	5000	250000	ug/L	EPA 300.0	
Total Alkalinity as CaCO3	220000	D	2	24000	30000	NE	ug/L	EPA 310.2	
Total Dissolved Solids	360000		1	10000	10000	NE	ug/L	SM 2540C-1997	
Vanadium - Total	9.99	J	1	1.40	10.0	25	ug/L	EPA 6010C	

Client ID: 9828-SW2 **Lab ID: C303330-09**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	74.1	J	1	1.00	10.0	100	ug/L	EPA 6010C	
Chromium - Total	1.48	J	1	1.40	10.0	10	ug/L	EPA 6010C	
Copper - Total	2.90	J	1	1.60	10.0	10	ug/L	EPA 6010C	
Vanadium - Total	3.87	J	1	1.40	10.0	25	ug/L	EPA 6010C	
Zinc - Total	5.17	J	1	3.80	10.0	10	ug/L	EPA 6010C	

Client ID: 9828-SW3 **Lab ID: C303330-10**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	75.7	J	1	1.00	10.0	100	ug/L	EPA 6010C	
Copper - Total	2.25	J	1	1.60	10.0	10	ug/L	EPA 6010C	
Vanadium - Total	3.03	J	1	1.40	10.0	25	ug/L	EPA 6010C	
Zinc - Total	9.35	J	1	3.80	10.0	10	ug/L	EPA 6010C	

Client ID: 9828-Field Blank **Lab ID: C303330-11**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	1.16	J	1	1.00	10.0	100	ug/L	EPA 6010C	

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ANALYTICAL RESULTS

Description: 9828-MW2T
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-01
Sampled: 04/01/13 14:15
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 18:19	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 18:19	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 18:19	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 18:19	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 18:19	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 18:19	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 18:19	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 18:19	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 18:19	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 18:19	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 18:19	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 18:19	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 18:19	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 18:19	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 18:19	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 18:19	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 18:19	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 18:19	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 18:19	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 18:19	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 18:19	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 18:19	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 18:19	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 18:19	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 18:19	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 18:19	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 18:19	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 18:19	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 18:19	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 18:19	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 18:19	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 18:19	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 18:19	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 18:19	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 18:19	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 18:19	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 18:19	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 18:19	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 18:19	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 18:19	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 18:19	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 18:19	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 18:19	REF	

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Description: 9828-MW2T
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-01
Sampled: 04/01/13 14:15
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 18:19	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 18:19	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 18:19	REF	
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 18:19	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 18:19	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*50*	*1*	*50.0*	*100 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 18:19*	*REF*	
Dibromofluoromethane	*53*	*1*	*50.0*	*105 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 18:19*	*REF*	
Toluene-d8	*54*	*1*	*50.0*	*107 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 18:19*	*REF*	

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Description: 9828-MW2T
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-01
Sampled: 04/01/13 14:15
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Mercury [7439-97-6] ^	0.170	U	ug/L	1	0.170	0.200	0.2	EPA 7470A	04/04/13 17:07	T1D	

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Description: 9828-MW2T
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-01
Sampled: 04/01/13 14:15
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	0.220	U	ug/L	1	0.220	2.00	6	EPA 6020A	04/05/13 11:59	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	04/04/13 11:27	JDH	
Barium [7440-39-3] ^	**41.8**	J	ug/L	1	1.00	10.0	100	EPA 6010C	04/04/13 11:27	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	04/04/13 11:27	JDH	
Cadmium [7440-43-9] ^	**0.462**	J	ug/L	1	0.360	1.00	1	EPA 6010C	04/04/13 11:27	JDH	
Chromium [7440-47-3] ^	**1.81**	J	ug/L	1	1.40	10.0	10	EPA 6010C	04/04/13 11:27	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	04/04/13 11:27	JDH	
Copper [7440-50-8] ^	**3.19**	J	ug/L	1	1.60	10.0	10	EPA 6010C	04/04/13 11:27	JDH	
Iron [7439-89-6] ^	**58.0**	J	ug/L	1	22.0	50.0	300	EPA 6010C	04/04/13 11:27	JDH	
Lead [7439-92-1] ^	**2.59**	J	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 11:27	JDH	
Manganese [7439-96-5] ^	**110**		ug/L	1	1.10	10.0	50	EPA 6010C	04/04/13 11:27	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	04/04/13 11:27	JDH	
Selenium [7782-49-2] ^	4.50	U	ug/L	1	4.50	10.0	10	EPA 6010C	04/04/13 11:27	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 11:27	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	04/05/13 11:59	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	04/04/13 11:27	JDH	
Zinc [7440-66-6] ^	**8.82**	J	ug/L	1	3.80	10.0	10	EPA 6010C	04/04/13 11:27	JDH	

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Description: 9828-MW2T
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-01
Sampled: 04/01/13 14:15
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Classical Chemistry Parameters

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Chloride [16887-00-6] ^	**480000**	BD	ug/L	10	4300	50000	NE	EPA 300.0	04/05/13 14:30	AJB	QB-01
Sulfate as SO4 [14808-79-8] ^	**51000**	J	ug/L	1	40	5000	250000	EPA 300.0	04/05/13 13:40	AJB	
Total Alkalinity as CaCO3 [471-34-1] ^	**300000**	D	ug/L	2	24000	30000	NE	EPA 310.2	04/05/13 16:22	AJB	
Total Dissolved Solids [ECL-0156] ^	**1200000**		ug/L	1	10000	10000	NE	SM 2540C-1997	04/04/13 15:06	MPL	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

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Description: 9828-MW3 | **Lab Sample ID:** C303330-02 | **Received:** 04/02/13 16:15

Matrix: Ground Water | **Sampled:** 04/01/13 13:17 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 18:49	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 18:49	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 18:49	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 18:49	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 18:49	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 18:49	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 18:49	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 18:49	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 18:49	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 18:49	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 18:49	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 18:49	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 18:49	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 18:49	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 18:49	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 18:49	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 18:49	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 18:49	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 18:49	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 18:49	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 18:49	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 18:49	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 18:49	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 18:49	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 18:49	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 18:49	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 18:49	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 18:49	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 18:49	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 18:49	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 18:49	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 18:49	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 18:49	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 18:49	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 18:49	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 18:49	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 18:49	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 18:49	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 18:49	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 18:49	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 18:49	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 18:49	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 18:49	REF	
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 18:49	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 18:49	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 18:49	REF	

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Description: 9828-MW3
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-02
Sampled: 04/01/13 13:17
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 18:49	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 18:49	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*106 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 18:49*	*REF*	
Dibromofluoromethane	*52*	*1*	*50.0*	*104 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 18:49*	*REF*	
Toluene-d8	*55*	*1*	*50.0*	*109 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 18:49*	*REF*	

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Description: 9828-MW3
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-02
Sampled: 04/01/13 13:17
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Mercury [7439-97-6] ^	0.170	U	ug/L	1	0.170	0.200	0.2	EPA 7470A	04/04/13 17:09	T1D	

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Description: 9828-MW3 | **Lab Sample ID:** C303330-02 | **Received:** 04/02/13 16:15

Matrix: Ground Water | **Sampled:** 04/01/13 13:17 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	0.220	U	ug/L	1	0.220	2.00	6	EPA 6020A	04/05/13 12:03	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	04/04/13 11:35	JDH	
Barium [7440-39-3] ^	**2030**		ug/L	1	1.00	10.0	100	EPA 6010C	04/04/13 11:35	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	04/04/13 11:35	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	04/04/13 11:35	JDH	
Chromium [7440-47-3] ^	**2.50**	J	ug/L	1	1.40	10.0	10	EPA 6010C	04/04/13 11:35	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	04/04/13 11:35	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	04/04/13 11:35	JDH	
Iron [7439-89-6] ^	**376**		ug/L	1	22.0	50.0	300	EPA 6010C	04/04/13 11:35	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 11:35	JDH	
Manganese [7439-96-5] ^	**32.2**	J	ug/L	1	1.10	10.0	50	EPA 6010C	04/04/13 11:35	JDH	
Nickel [7440-02-0] ^	**3.66**	J	ug/L	1	1.80	10.0	50	EPA 6010C	04/04/13 11:35	JDH	
Selenium [7782-49-2] ^	4.50	U	ug/L	1	4.50	10.0	10	EPA 6010C	04/04/13 11:35	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 11:35	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	04/05/13 12:03	VLO	
Vanadium [7440-62-2] ^	**24.8**	J	ug/L	1	1.40	10.0	25	EPA 6010C	04/04/13 11:35	JDH	
Zinc [7440-66-6] ^	**8.34**	J	ug/L	1	3.80	10.0	10	EPA 6010C	04/04/13 11:35	JDH	

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Description: 9828-MW3
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-02
Sampled: 04/01/13 13:17
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Classical Chemistry Parameters

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Chloride [16887-00-6] ^	**1600000**	BD	ug/L	20	8600	100000	NE	EPA 300.0	04/05/13 15:03	AJB	QB-01
Sulfate as SO4 [14808-79-8] ^	**4200**	J	ug/L	1	40	5000	250000	EPA 300.0	04/05/13 14:47	AJB	
Total Alkalinity as CaCO3 [471-34-1] ^	**300000**	D	ug/L	2	24000	30000	NE	EPA 310.2	04/05/13 16:23	AJB	
Total Dissolved Solids [ECL-0156] ^	**3300000**		ug/L	1	10000	10000	NE	SM 2540C-1997	04/04/13 15:06	MPL	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

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Description: 9828-MW4 | **Lab Sample ID:** C303330-03 | **Received:** 04/02/13 16:15
Matrix: Ground Water | **Sampled:** 04/01/13 15:02 | **Work Order:** C303330
Project: WI- Red Rock | **Sampled By:** Daniel Childress

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 19:18	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 19:18	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 19:18	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 19:18	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 19:18	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 19:18	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 19:18	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 19:18	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 19:18	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 19:18	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 19:18	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 19:18	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 19:18	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 19:18	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 19:18	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 19:18	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 19:18	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 19:18	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 19:18	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 19:18	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 19:18	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 19:18	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 19:18	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 19:18	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 19:18	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 19:18	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 19:18	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 19:18	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 19:18	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 19:18	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 19:18	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 19:18	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 19:18	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 19:18	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 19:18	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 19:18	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 19:18	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 19:18	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 19:18	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 19:18	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 19:18	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 19:18	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 19:18	REF	
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 19:18	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 19:18	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 19:18	REF	

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Description: 9828-MW4 | **Lab Sample ID:** C303330-03 | **Received:** 04/02/13 16:15

Matrix: Ground Water | **Sampled:** 04/01/13 15:02 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 19:18	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 19:18	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*106 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 19:18*	*REF*	
Dibromofluoromethane	*53*	*1*	*50.0*	*107 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 19:18*	*REF*	
Toluene-d8	*53*	*1*	*50.0*	*106 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 19:18*	*REF*	

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Description: 9828-MW4
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-03
Sampled: 04/01/13 15:02
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Mercury [7439-97-6] ^	0.170	U	ug/L	1	0.170	0.200	0.2	EPA 7470A	04/04/13 17:11	T1D	

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Description: 9828-MW4 | **Lab Sample ID:** C303330-03 | **Received:** 04/02/13 16:15

Matrix: Ground Water | **Sampled:** 04/01/13 15:02 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	0.220	U	ug/L	1	0.220	2.00	6	EPA 6020A	04/05/13 12:07	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	04/04/13 11:33	JDH	
Barium [7440-39-3] ^	**19.8**	J	ug/L	1	1.00	10.0	100	EPA 6010C	04/04/13 11:33	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	04/04/13 11:33	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	04/04/13 11:33	JDH	
Chromium [7440-47-3] ^	1.40	U	ug/L	1	1.40	10.0	10	EPA 6010C	04/04/13 11:33	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	04/04/13 11:33	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	04/04/13 11:33	JDH	
Iron [7439-89-6] ^	**677**		ug/L	1	22.0	50.0	300	EPA 6010C	04/04/13 11:33	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 11:33	JDH	
Manganese [7439-96-5] ^	**11.9**	J	ug/L	1	1.10	10.0	50	EPA 6010C	04/04/13 11:33	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	04/04/13 11:33	JDH	
Selenium [7782-49-2] ^	4.50	U	ug/L	1	4.50	10.0	10	EPA 6010C	04/04/13 11:33	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 11:33	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	04/05/13 12:07	VLO	
Vanadium [7440-62-2] ^	**2.09**	J	ug/L	1	1.40	10.0	25	EPA 6010C	04/04/13 11:33	JDH	
Zinc [7440-66-6] ^	3.80	U	ug/L	1	3.80	10.0	10	EPA 6010C	04/04/13 11:33	JDH	

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Description: 9828-MW4
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-03
Sampled: 04/01/13 15:02
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Classical Chemistry Parameters

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Chloride [16887-00-6] ^	**6900**	B	ug/L	1	430	5000	NE	EPA 300.0	04/05/13 19:38	AJB	J-01
Sulfate as SO4 [14808-79-8] ^	**8400**	J	ug/L	1	40	5000	250000	EPA 300.0	04/05/13 19:38	AJB	
Total Alkalinity as CaCO3 [471-34-1] ^	**21000**		ug/L	1	12000	15000	NE	EPA 310.2	04/05/13 16:24	AJB	
Total Dissolved Solids [ECL-0156] ^	**66000**		ug/L	1	10000	10000	NE	SM 2540C-1997	04/04/13 15:06	MPL	

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Description: 9828-MW5 (ms/msd) **Lab Sample ID:** C303330-04 **Received:** 04/02/13 16:15
Matrix: Ground Water **Sampled:** 04/01/13 16:06 **Work Order:** C303330
Project: WI- Red Rock **Sampled By:** Daniel Childress

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 17:50	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 17:50	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 17:50	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 17:50	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 17:50	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 17:50	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 17:50	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 17:50	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 17:50	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 17:50	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 17:50	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 17:50	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 17:50	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 17:50	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 17:50	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 17:50	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 17:50	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 17:50	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 17:50	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 17:50	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 17:50	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 17:50	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 17:50	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 17:50	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 17:50	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 17:50	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 17:50	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 17:50	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 17:50	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 17:50	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 17:50	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 17:50	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 17:50	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 17:50	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 17:50	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 17:50	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 17:50	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 17:50	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 17:50	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 17:50	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 17:50	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 17:50	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 17:50	REF	
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 17:50	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 17:50	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 17:50	REF	

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Description: 9828-MW5 (ms/msd) | **Lab Sample ID:** C303330-04 | **Received:** 04/02/13 16:15

Matrix: Ground Water | **Sampled:** 04/01/13 16:06 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 17:50	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 17:50	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*51*	*1*	*50.0*	*103 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 17:50*	*REF*	
Dibromofluoromethane	*55*	*1*	*50.0*	*109 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 17:50*	*REF*	
Toluene-d8	*52*	*1*	*50.0*	*105 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 17:50*	*REF*	

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Description: 9828-MW5 (ms/msd)
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-04
Sampled: 04/01/13 16:06
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Mercury [7439-97-6] ^	0.170	U	ug/L	1	0.170	0.200	0.2	EPA 7470A	04/04/13 16:56	T1D	

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Description: 9828-MW5 (ms/msd) | **Lab Sample ID:** C303330-04 | **Received:** 04/02/13 16:15

Matrix: Ground Water | **Sampled:** 04/01/13 16:06 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	**0.740**	J	ug/L	1	0.220	2.00	6	EPA 6020A	04/05/13 11:39	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	04/04/13 11:14	JDH	
Barium [7440-39-3] ^	**110**		ug/L	1	1.00	10.0	100	EPA 6010C	04/04/13 11:14	JDH	
Beryllium [7440-41-7] ^	**0.294**	J	ug/L	1	0.100	1.00	1	EPA 6010C	04/04/13 11:14	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	04/04/13 11:14	JDH	
Chromium [7440-47-3] ^	**4.17**	J	ug/L	1	1.40	10.0	10	EPA 6010C	04/04/13 11:14	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	04/04/13 11:14	JDH	
Copper [7440-50-8] ^	**3.25**	J	ug/L	1	1.60	10.0	10	EPA 6010C	04/04/13 11:14	JDH	
Iron [7439-89-6] ^	**54.6**	J	ug/L	1	22.0	50.0	300	EPA 6010C	04/04/13 11:14	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 11:14	JDH	
Manganese [7439-96-5] ^	**57.9**		ug/L	1	1.10	10.0	50	EPA 6010C	04/04/13 11:14	JDH	
Nickel [7440-02-0] ^	**3.06**	J	ug/L	1	1.80	10.0	50	EPA 6010C	04/04/13 11:14	JDH	
Selenium [7782-49-2] ^	4.50	U	ug/L	1	4.50	10.0	10	EPA 6010C	04/04/13 11:14	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 11:14	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	04/05/13 11:39	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	04/04/13 11:14	JDH	
Zinc [7440-66-6] ^	**5.34**	J	ug/L	1	3.80	10.0	10	EPA 6010C	04/04/13 11:14	JDH	

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Description: 9828-MW5 (ms/msd)
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-04
Sampled: 04/01/13 16:06
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Classical Chemistry Parameters

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Chloride [16887-00-6] ^	**820000**	B	ug/L	1	8600	100000	NE	EPA 300.0	04/05/13 15:20	AJB	QB-01
Sulfate as SO4 [14808-79-8] ^	**110000**	J	ug/L	1	80	10000	250000	EPA 300.0	04/05/13 15:37	AJB	
Total Alkalinity as CaCO3 [471-34-1] ^	**89000**		ug/L	1	12000	15000	NE	EPA 310.2	04/05/13 16:18	AJB	
Total Dissolved Solids [ECL-0156] ^	**1800000**		ug/L	1	10000	10000	NE	SM 2540C-1997	04/04/13 15:06	MPL	

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Description: 9828-MW6T
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-05
Sampled: 04/01/13 16:46
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 19:47	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 19:47	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 19:47	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 19:47	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 19:47	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 19:47	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 19:47	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 19:47	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 19:47	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 19:47	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 19:47	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 19:47	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 19:47	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 19:47	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 19:47	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 19:47	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 19:47	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 19:47	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 19:47	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 19:47	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 19:47	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 19:47	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 19:47	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 19:47	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 19:47	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 19:47	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 19:47	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 19:47	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 19:47	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 19:47	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 19:47	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 19:47	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 19:47	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 19:47	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 19:47	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 19:47	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 19:47	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 19:47	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 19:47	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 19:47	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 19:47	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 19:47	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 19:47	REF	
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 19:47	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 19:47	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 19:47	REF	

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Description: 9828-MW6T
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-05
Sampled: 04/01/13 16:46
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 19:47	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 19:47	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*55*	*1*	*50.0*	*109 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 19:47*	*REF*	
Dibromofluoromethane	*55*	*1*	*50.0*	*109 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 19:47*	*REF*	
Toluene-d8	*52*	*1*	*50.0*	*104 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 19:47*	*REF*	

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Description:	9828-MW6T	**Lab Sample ID:**	C303330-05	**Received:**	04/02/13 16:15
Matrix:	Ground Water	**Sampled:**	04/01/13 16:46	**Work Order:**	C303330
Project:	WI- Red Rock	**Sampled By:**	Daniel Childress		

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Mercury [7439-97-6] ^	0.170	U	ug/L	1	0.170	0.200	0.2	EPA 7470A	04/04/13 17:17	T1D	

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Description: 9828-MW6T
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-05
Sampled: 04/01/13 16:46
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	0.220	U	ug/L	1	0.220	2.00	6	EPA 6020A	04/05/13 12:24	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	04/04/13 12:28	JDH	
Barium [7440-39-3] ^	**2280**		ug/L	1	1.00	10.0	100	EPA 6010C	04/04/13 12:28	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	04/04/13 12:28	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	04/04/13 12:28	JDH	
Chromium [7440-47-3] ^	**1.71**	J	ug/L	1	1.40	10.0	10	EPA 6010C	04/04/13 12:28	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	04/04/13 12:28	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	04/04/13 12:28	JDH	
Iron [7439-89-6] ^	**1020**		ug/L	1	22.0	50.0	300	EPA 6010C	04/04/13 12:28	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:28	JDH	
Manganese [7439-96-5] ^	**1690**		ug/L	1	1.10	10.0	50	EPA 6010C	04/04/13 12:28	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	04/04/13 12:28	JDH	
Selenium [7782-49-2] ^	4.50	U	ug/L	1	4.50	10.0	10	EPA 6010C	04/04/13 12:28	JDH	
Silver [7440-22-4] ^	**2.61**	J	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:28	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	04/05/13 12:24	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	04/04/13 12:28	JDH	
Zinc [7440-66-6] ^	3.80	U	ug/L	1	3.80	10.0	10	EPA 6010C	04/04/13 12:28	JDH	

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Description: 9828-MW6T
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-05
Sampled: 04/01/13 16:46
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Classical Chemistry Parameters

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Chloride [16887-00-6] ^	**1900000**	BD	ug/L	50	22000	250000	NE	EPA 300.0	04/05/13 16:10	AJB	QB-01
Sulfate as SO4 [14808-79-8] ^	**18000**	J	ug/L	1	40	5000	250000	EPA 300.0	04/05/13 15:54	AJB	
Total Alkalinity as CaCO3 [471-34-1] ^	**320000**	D	ug/L	2	24000	30000	NE	EPA 310.2	04/05/13 16:25	AJB	
Total Dissolved Solids [ECL-0156] ^	**4200000**		ug/L	1	10000	10000	NE	SM 2540C-1997	04/04/13 15:06	MPL	

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Description: 9828-MW10 | **Lab Sample ID:** C303330-06 | **Received:** 04/02/13 16:15

Matrix: Ground Water | **Sampled:** 04/01/13 10:38 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 20:17	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 20:17	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 20:17	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 20:17	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 20:17	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 20:17	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 20:17	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 20:17	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 20:17	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 20:17	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 20:17	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 20:17	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 20:17	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 20:17	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 20:17	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 20:17	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 20:17	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 20:17	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 20:17	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 20:17	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 20:17	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 20:17	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 20:17	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 20:17	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 20:17	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 20:17	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 20:17	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 20:17	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 20:17	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 20:17	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 20:17	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 20:17	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 20:17	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 20:17	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 20:17	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 20:17	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 20:17	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 20:17	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 20:17	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 20:17	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 20:17	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 20:17	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 20:17	REF	
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 20:17	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 20:17	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 20:17	REF	

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Description: 9828-MW10
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-06
Sampled: 04/01/13 10:38
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 20:17	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 20:17	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*54*	*1*	*50.0*	*109 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 20:17*	*REF*	
Dibromofluoromethane	*52*	*1*	*50.0*	*105 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 20:17*	*REF*	
Toluene-d8	*53*	*1*	*50.0*	*106 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 20:17*	*REF*	

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Description: 9828-MW10
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-06
Sampled: 04/01/13 10:38
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Mercury [7439-97-6] ^	0.170	U	ug/L	1	0.170	0.200	0.2	EPA 7470A	04/04/13 17:19	T1D	

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Description: 9828-MW10 | **Lab Sample ID:** C303330-06 | **Received:** 04/02/13 16:15

Matrix: Ground Water | **Sampled:** 04/01/13 10:38 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	0.220	U	ug/L	1	0.220	2.00	6	EPA 6020A	04/05/13 12:28	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	04/04/13 12:25	JDH	
Barium [7440-39-3] ^	**1120**		ug/L	1	1.00	10.0	100	EPA 6010C	04/04/13 12:25	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	04/04/13 12:25	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	04/04/13 12:25	JDH	
Chromium [7440-47-3] ^	1.40	U	ug/L	1	1.40	10.0	10	EPA 6010C	04/04/13 12:25	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	04/04/13 12:25	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	04/04/13 12:25	JDH	
Iron [7439-89-6] ^	**64.5**	J	ug/L	1	22.0	50.0	300	EPA 6010C	04/04/13 12:25	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:25	JDH	
Manganese [7439-96-5] ^	**255**		ug/L	1	1.10	10.0	50	EPA 6010C	04/04/13 12:25	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	04/04/13 12:25	JDH	
Selenium [7782-49-2] ^	4.50	U	ug/L	1	4.50	10.0	10	EPA 6010C	04/04/13 12:25	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:25	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	04/05/13 12:28	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	04/04/13 12:25	JDH	
Zinc [7440-66-6] ^	3.80	U	ug/L	1	3.80	10.0	10	EPA 6010C	04/04/13 12:25	JDH	

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Description: 9828-MW10
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-06
Sampled: 04/01/13 10:38
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Classical Chemistry Parameters

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Chloride [16887-00-6] ^	**330000**	BD	ug/L	10	4300	50000	NE	EPA 300.0	04/05/13 16:50	AJB	QB-01
Sulfate as SO4 [14808-79-8] ^	**13000**	J	ug/L	1	40	5000	250000	EPA 300.0	04/05/13 16:27	AJB	
Total Alkalinity as CaCO3 [471-34-1] ^	**340000**	D	ug/L	2	24000	30000	NE	EPA 310.2	04/05/13 16:27	AJB	
Total Dissolved Solids [ECL-0156] ^	**1100000**		ug/L	1	10000	10000	NE	SM 2540C-1997	04/04/13 15:06	MPL	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

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Description: 9828-MW11 | **Lab Sample ID:** C303330-07 | **Received:** 04/02/13 16:15

Matrix: Ground Water | **Sampled:** 04/01/13 11:27 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 20:46	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 20:46	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 20:46	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 20:46	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 20:46	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 20:46	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 20:46	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 20:46	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 20:46	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 20:46	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 20:46	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 20:46	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 20:46	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 20:46	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 20:46	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 20:46	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 20:46	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 20:46	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 20:46	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 20:46	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 20:46	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 20:46	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 20:46	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 20:46	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 20:46	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 20:46	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 20:46	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 20:46	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 20:46	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 20:46	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 20:46	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 20:46	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 20:46	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 20:46	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 20:46	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 20:46	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 20:46	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 20:46	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 20:46	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 20:46	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 20:46	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 20:46	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 20:46	REF	
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 20:46	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 20:46	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 20:46	REF	

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Description: 9828-MW11
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-07
Sampled: 04/01/13 11:27
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 20:46	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 20:46	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*54*	*1*	*50.0*	*108 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 20:46*	*REF*	
Dibromofluoromethane	*55*	*1*	*50.0*	*110 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 20:46*	*REF*	
Toluene-d8	*53*	*1*	*50.0*	*105 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 20:46*	*REF*	

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Description:	9828-MW11	**Lab Sample ID:**	C303330-07	**Received:**	04/02/13 16:15
Matrix:	Ground Water	**Sampled:**	04/01/13 11:27	**Work Order:**	C303330
Project:	WI- Red Rock	**Sampled By:**	Daniel Childress		

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Mercury [7439-97-6] ^	0.170	U	ug/L	1	0.170	0.200	0.2	EPA 7470A	04/04/13 17:21	T1D	

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Description: 9828-MW11 | **Lab Sample ID:** C303330-07 | **Received:** 04/02/13 16:15

Matrix: Ground Water | **Sampled:** 04/01/13 11:27 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	0.220	U	ug/L	1	0.220	2.00	6	EPA 6020A	04/05/13 12:32	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	04/04/13 12:36	JDH	
Barium [7440-39-3] ^	**15.1**	J	ug/L	1	1.00	10.0	100	EPA 6010C	04/04/13 12:36	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	04/04/13 12:36	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	04/04/13 12:36	JDH	
Chromium [7440-47-3] ^	1.40	U	ug/L	1	1.40	10.0	10	EPA 6010C	04/04/13 12:36	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	04/04/13 12:36	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	04/04/13 12:36	JDH	
Iron [7439-89-6] ^	**41.7**	J	ug/L	1	22.0	50.0	300	EPA 6010C	04/04/13 12:36	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:36	JDH	
Manganese [7439-96-5] ^	**33.3**	J	ug/L	1	1.10	10.0	50	EPA 6010C	04/04/13 12:36	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	04/04/13 12:36	JDH	
Selenium [7782-49-2] ^	4.50	U	ug/L	1	4.50	10.0	10	EPA 6010C	04/04/13 12:36	JDH	
Silver [7440-22-4] ^	**4.21**	J	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:36	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	04/05/13 12:32	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	04/04/13 12:36	JDH	
Zinc [7440-66-6] ^	3.80	U	ug/L	1	3.80	10.0	10	EPA 6010C	04/04/13 12:36	JDH	

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Description: 9828-MW11
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-07
Sampled: 04/01/13 11:27
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Classical Chemistry Parameters

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Chloride [16887-00-6] ^	**11000**	B	ug/L	1	430	5000	NE	EPA 300.0	04/05/13 19:55	AJB	J-01
Sulfate as SO4 [14808-79-8] ^	**5100**	J	ug/L	1	40	5000	250000	EPA 300.0	04/05/13 19:55	AJB	
Total Alkalinity as CaCO3 [471-34-1] ^	**290000**	D	ug/L	2	24000	30000	NE	EPA 310.2	04/05/13 16:28	AJB	
Total Dissolved Solids [ECL-0156] ^	**320000**		ug/L	1	10000	10000	NE	SM 2540C-1997	04/04/13 15:06	MPL	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

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Description: 9828-MW14 | **Lab Sample ID:** C303330-08 | **Received:** 04/02/13 16:15

Matrix: Ground Water | **Sampled:** 04/01/13 12:10 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 21:15	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 21:15	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 21:15	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 21:15	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 21:15	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 21:15	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 21:15	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 21:15	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 21:15	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 21:15	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 21:15	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 21:15	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 21:15	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 21:15	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 21:15	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 21:15	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 21:15	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 21:15	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 21:15	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 21:15	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 21:15	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 21:15	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 21:15	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 21:15	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 21:15	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 21:15	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 21:15	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 21:15	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 21:15	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 21:15	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 21:15	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 21:15	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 21:15	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 21:15	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 21:15	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 21:15	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 21:15	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 21:15	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 21:15	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 21:15	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 21:15	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 21:15	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 21:15	REF	
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 21:15	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 21:15	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 21:15	REF	

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Description: 9828-MW14
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-08
Sampled: 04/01/13 12:10
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 21:15	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 21:15	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*52*	*1*	*50.0*	*104 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 21:15*	*REF*	
Dibromofluoromethane	*54*	*1*	*50.0*	*108 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 21:15*	*REF*	
Toluene-d8	*52*	*1*	*50.0*	*104 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 21:15*	*REF*	

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Description:	9828-MW14	**Lab Sample ID:**	C303330-08	**Received:**	04/02/13 16:15
Matrix:	Ground Water	**Sampled:**	04/01/13 12:10	**Work Order:**	C303330
Project:	WI- Red Rock	**Sampled By:**	Daniel Childress		

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Mercury [7439-97-6] ^	0.170	U	ug/L	1	0.170	0.200	0.2	EPA 7470A	04/04/13 17:23	T1D	

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Description: 9828-MW14
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-08
Sampled: 04/01/13 12:10
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	0.220	U	ug/L	1	0.220	2.00	6	EPA 6020A	04/05/13 12:36	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	04/04/13 12:33	JDH	
Barium [7440-39-3] ^	**76.8**	J	ug/L	1	1.00	10.0	100	EPA 6010C	04/04/13 12:33	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	04/04/13 12:33	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	04/04/13 12:33	JDH	
Chromium [7440-47-3] ^	1.40	U	ug/L	1	1.40	10.0	10	EPA 6010C	04/04/13 12:33	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	04/04/13 12:33	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	04/04/13 12:33	JDH	
Iron [7439-89-6] ^	**51.4**	J	ug/L	1	22.0	50.0	300	EPA 6010C	04/04/13 12:33	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:33	JDH	
Manganese [7439-96-5] ^	**9.57**	J	ug/L	1	1.10	10.0	50	EPA 6010C	04/04/13 12:33	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	04/04/13 12:33	JDH	
Selenium [7782-49-2] ^	4.50	U	ug/L	1	4.50	10.0	10	EPA 6010C	04/04/13 12:33	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:33	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	04/05/13 12:36	VLO	
Vanadium [7440-62-2] ^	**9.99**	J	ug/L	1	1.40	10.0	25	EPA 6010C	04/04/13 12:33	JDH	
Zinc [7440-66-6] ^	3.80	U	ug/L	1	3.80	10.0	10	EPA 6010C	04/04/13 12:33	JDH	

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Description: 9828-MW14
Matrix: Ground Water
Project: WI- Red Rock

Lab Sample ID: C303330-08
Sampled: 04/01/13 12:10
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Classical Chemistry Parameters

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Chloride [16887-00-6] ^	**36000**	B	ug/L	1	430	5000	NE	EPA 300.0	04/05/13 20:12	AJB	QB-01
Sulfate as SO4 [14808-79-8] ^	**12000**	J	ug/L	1	40	5000	250000	EPA 300.0	04/05/13 20:12	AJB	
Total Alkalinity as CaCO3 [471-34-1] ^	**220000**	D	ug/L	2	24000	30000	NE	EPA 310.2	04/05/13 16:29	AJB	
Total Dissolved Solids [ECL-0156] ^	**360000**		ug/L	1	10000	10000	NE	SM 2540C-1997	04/04/13 15:06	MPL	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

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Description: 9828-SW2 | **Lab Sample ID:** C303330-09 | **Received:** 04/02/13 16:15
Matrix: Surface Water | **Sampled:** 04/01/13 12:40 | **Work Order:** C303330
Project: WI- Red Rock | **Sampled By:** Daniel Childress

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 21:45	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 21:45	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 21:45	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 21:45	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 21:45	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 21:45	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 21:45	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 21:45	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 21:45	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 21:45	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 21:45	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 21:45	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 21:45	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 21:45	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 21:45	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 21:45	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 21:45	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 21:45	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 21:45	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 21:45	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 21:45	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 21:45	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 21:45	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 21:45	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 21:45	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 21:45	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 21:45	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 21:45	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 21:45	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 21:45	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 21:45	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 21:45	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 21:45	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 21:45	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 21:45	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 21:45	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 21:45	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 21:45	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 21:45	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 21:45	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 21:45	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 21:45	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 21:45	REF	
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 21:45	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 21:45	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 21:45	REF	

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Description: 9828-SW2
Matrix: Surface Water
Project: WI- Red Rock

Lab Sample ID: C303330-09
Sampled: 04/01/13 12:40
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 21:45	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 21:45	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*55*	*1*	*50.0*	*109 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 21:45*	*REF*	
Dibromofluoromethane	*56*	*1*	*50.0*	*111 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 21:45*	*REF*	
Toluene-d8	*51*	*1*	*50.0*	*102 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 21:45*	*REF*	

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Description: 9828-SW2 | **Lab Sample ID:** C303330-09 | **Received:** 04/02/13 16:15

Matrix: Surface Water | **Sampled:** 04/01/13 12:40 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	0.220	U	ug/L	1	0.220	2.00	6	EPA 6020A	04/05/13 12:40	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	04/04/13 12:39	JDH	
Barium [7440-39-3] ^	**74.1**	J	ug/L	1	1.00	10.0	100	EPA 6010C	04/04/13 12:39	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	04/04/13 12:39	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	04/04/13 12:39	JDH	
Chromium [7440-47-3] ^	**1.48**	J	ug/L	1	1.40	10.0	10	EPA 6010C	04/04/13 12:39	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	04/04/13 12:39	JDH	
Copper [7440-50-8] ^	**2.90**	J	ug/L	1	1.60	10.0	10	EPA 6010C	04/04/13 12:39	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:39	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	04/04/13 12:39	JDH	
Selenium [7782-49-2] ^	4.50	U	ug/L	1	4.50	10.0	10	EPA 6010C	04/04/13 12:39	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:39	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	04/05/13 12:40	VLO	
Vanadium [7440-62-2] ^	**3.87**	J	ug/L	1	1.40	10.0	25	EPA 6010C	04/04/13 12:39	JDH	
Zinc [7440-66-6] ^	**5.17**	J	ug/L	1	3.80	10.0	10	EPA 6010C	04/04/13 12:39	JDH	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

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Description: 9828-SW3 | **Lab Sample ID:** C303330-10 | **Received:** 04/02/13 16:15

Matrix: Surface Water | **Sampled:** 04/01/13 15:20 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 22:14	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 22:14	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 22:14	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 22:14	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 22:14	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 22:14	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 22:14	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 22:14	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 22:14	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 22:14	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 22:14	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 22:14	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 22:14	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 22:14	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 22:14	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 22:14	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 22:14	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 22:14	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 22:14	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 22:14	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 22:14	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 22:14	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 22:14	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 22:14	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 22:14	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 22:14	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 22:14	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 22:14	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 22:14	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 22:14	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 22:14	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 22:14	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 22:14	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 22:14	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 22:14	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 22:14	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 22:14	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 22:14	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 22:14	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 22:14	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 22:14	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 22:14	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 22:14	REF	
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 22:14	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 22:14	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 22:14	REF	

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Description: 9828-SW3
Matrix: Surface Water
Project: WI- Red Rock

Lab Sample ID: C303330-10
Sampled: 04/01/13 15:20
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 22:14	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 22:14	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*107 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 22:14*	*REF*	
Dibromofluoromethane	*54*	*1*	*50.0*	*109 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 22:14*	*REF*	
Toluene-d8	*52*	*1*	*50.0*	*104 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 22:14*	*REF*	

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Description: 9828-SW3 | **Lab Sample ID:** C303330-10 | **Received:** 04/02/13 16:15

Matrix: Surface Water | **Sampled:** 04/01/13 15:20 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** Daniel Childress

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	0.220	U	ug/L	1	0.220	2.00	6	EPA 6020A	04/05/13 12:44	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	04/04/13 12:42	JDH	
Barium [7440-39-3] ^	**75.7**	J	ug/L	1	1.00	10.0	100	EPA 6010C	04/04/13 12:42	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	04/04/13 12:42	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	04/04/13 12:42	JDH	
Chromium [7440-47-3] ^	1.40	U	ug/L	1	1.40	10.0	10	EPA 6010C	04/04/13 12:42	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	04/04/13 12:42	JDH	
Copper [7440-50-8] ^	**2.25**	J	ug/L	1	1.60	10.0	10	EPA 6010C	04/04/13 12:42	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:42	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	04/04/13 12:42	JDH	
Selenium [7782-49-2] ^	4.50	U	ug/L	1	4.50	10.0	10	EPA 6010C	04/04/13 12:42	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:42	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	04/05/13 12:44	VLO	
Vanadium [7440-62-2] ^	**3.03**	J	ug/L	1	1.40	10.0	25	EPA 6010C	04/04/13 12:42	JDH	
Zinc [7440-66-6] ^	**9.35**	J	ug/L	1	3.80	10.0	10	EPA 6010C	04/04/13 12:42	JDH	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

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Description: 9828-Field Blank
Matrix: Water
Project: WI- Red Rock

Lab Sample ID: C303330-11
Sampled: 04/01/13 16:55
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 22:43	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 22:43	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 22:43	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 22:43	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 22:43	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 22:43	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 22:43	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 22:43	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 22:43	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 22:43	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 22:43	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 22:43	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 22:43	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 22:43	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 22:43	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 22:43	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 22:43	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 22:43	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 22:43	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 22:43	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 22:43	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 22:43	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 22:43	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 22:43	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 22:43	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 22:43	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 22:43	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 22:43	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 22:43	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 22:43	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 22:43	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 22:43	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 22:43	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 22:43	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 22:43	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 22:43	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 22:43	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 22:43	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 22:43	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 22:43	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 22:43	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 22:43	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 22:43	REF	
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 22:43	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 22:43	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 22:43	REF	

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Description: 9828-Field Blank
Matrix: Water
Project: WI- Red Rock

Lab Sample ID: C303330-11
Sampled: 04/01/13 16:55
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 22:43	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 22:43	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*50*	*1*	*50.0*	*100 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 22:43*	*REF*	
Dibromofluoromethane	*55*	*1*	*50.0*	*109 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 22:43*	*REF*	
Toluene-d8	*53*	*1*	*50.0*	*107 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 22:43*	*REF*	

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Description:	9828-Field Blank	**Lab Sample ID:**	C303330-11	**Received:**	04/02/13 16:15
Matrix:	Water	**Sampled:**	04/01/13 16:55	**Work Order:**	C303330
Project:	WI- Red Rock	**Sampled By:**	Daniel Childress		

Metals by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Mercury [7439-97-6] ^	0.170	U	ug/L	1	0.170	0.200	0.2	EPA 7470A	04/04/13 17:25	T1D	

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Description: 9828-Field Blank
Matrix: Water
Project: WI- Red Rock

Lab Sample ID: C303330-11
Sampled: 04/01/13 16:55
Sampled By: Daniel Childress

Received: 04/02/13 16:15
Work Order: C303330

Metals (total recoverable) by EPA 6000/7000 Series Methods

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	0.220	U	ug/L	1	0.220	2.00	6	EPA 6020A	04/05/13 12:48	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	04/04/13 12:47	JDH	
Barium [7440-39-3] ^	**1.16**	J	ug/L	1	1.00	10.0	100	EPA 6010C	04/04/13 12:47	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	04/04/13 12:47	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	04/04/13 12:47	JDH	
Chromium [7440-47-3] ^	1.40	U	ug/L	1	1.40	10.0	10	EPA 6010C	04/04/13 12:47	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	04/04/13 12:47	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	04/04/13 12:47	JDH	
Iron [7439-89-6] ^	22.0	U	ug/L	1	22.0	50.0	300	EPA 6010C	04/04/13 12:47	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:47	JDH	
Manganese [7439-96-5] ^	1.10	U	ug/L	1	1.10	10.0	50	EPA 6010C	04/04/13 12:47	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	04/04/13 12:47	JDH	
Selenium [7782-49-2] ^	4.50	U	ug/L	1	4.50	10.0	10	EPA 6010C	04/04/13 12:47	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	04/04/13 12:47	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	04/05/13 12:48	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	04/04/13 12:47	JDH	
Zinc [7440-66-6] ^	3.80	U	ug/L	1	3.80	10.0	10	EPA 6010C	04/04/13 12:47	JDH	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

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Description: 9828-Trip Blank | **Lab Sample ID:** C303330-12 | **Received:** 04/02/13 16:15

Matrix: Water | **Sampled:** 04/01/13 10:38 | **Work Order:** C303330

Project: WI- Red Rock | **Sampled By:** ENCO

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.17	U	ug/L	1	0.17	1.0	5	EPA 8260B	04/04/13 23:13	REF	
1,1,1-Trichloroethane [71-55-6] ^	0.12	U	ug/L	1	0.12	1.0	1	EPA 8260B	04/04/13 23:13	REF	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.28	U	ug/L	1	0.28	1.0	3	EPA 8260B	04/04/13 23:13	REF	
1,1,2-Trichloroethane [79-00-5] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 23:13	REF	
1,1-Dichloroethane [75-34-3] ^	0.13	U	ug/L	1	0.13	1.0	5	EPA 8260B	04/04/13 23:13	REF	
1,1-Dichloroethene [75-35-4] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 23:13	REF	
1,2,3-Trichloropropane [96-18-4] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 23:13	REF	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	04/04/13 23:13	REF	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	04/04/13 23:13	REF	
1,2-Dichlorobenzene [95-50-1] ^	0.19	U	ug/L	1	0.19	1.0	5	EPA 8260B	04/04/13 23:13	REF	
1,2-Dichloroethane [107-06-2] ^	0.21	U	ug/L	1	0.21	1.0	1	EPA 8260B	04/04/13 23:13	REF	
1,2-Dichloropropane [78-87-5] ^	0.10	U	ug/L	1	0.10	1.0	1	EPA 8260B	04/04/13 23:13	REF	
1,4-Dichlorobenzene [106-46-7] ^	0.19	U	ug/L	1	0.19	1.0	1	EPA 8260B	04/04/13 23:13	REF	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	04/04/13 23:13	REF	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	04/04/13 23:13	REF	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	04/04/13 23:13	REF	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	04/04/13 23:13	REF	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	04/04/13 23:13	REF	
Benzene [71-43-2] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 23:13	REF	
Bromochloromethane [74-97-5] ^	0.48	U	ug/L	1	0.48	1.0	3	EPA 8260B	04/04/13 23:13	REF	
Bromodichloromethane [75-27-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 23:13	REF	
Bromoform [75-25-2] ^	0.22	U	ug/L	1	0.22	1.0	3	EPA 8260B	04/04/13 23:13	REF	
Bromomethane [74-83-9] ^	0.14	U	ug/L	1	0.14	1.0	10	EPA 8260B	04/04/13 23:13	REF	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	04/04/13 23:13	REF	
Carbon tetrachloride [56-23-5] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 23:13	REF	
Chlorobenzene [108-90-7] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 23:13	REF	
Chloroethane [75-00-3] ^	0.23	U	ug/L	1	0.23	1.0	10	EPA 8260B	04/04/13 23:13	REF	
Chloroform [67-66-3] ^	0.18	U	ug/L	1	0.18	1.0	5	EPA 8260B	04/04/13 23:13	REF	
Chloromethane [74-87-3] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 23:13	REF	
cis-1,2-Dichloroethene [156-59-2] ^	0.15	U	ug/L	1	0.15	1.0	5	EPA 8260B	04/04/13 23:13	REF	
cis-1,3-Dichloropropene [10061-01-5] ^	0.20	U	ug/L	1	0.20	1.0	1	EPA 8260B	04/04/13 23:13	REF	
Dibromochloromethane [124-48-1] ^	0.17	U	ug/L	1	0.17	1.0	3	EPA 8260B	04/04/13 23:13	REF	
Dibromomethane [74-95-3] ^	0.27	U	ug/L	1	0.27	1.0	10	EPA 8260B	04/04/13 23:13	REF	
Ethylbenzene [100-41-4] ^	0.13	U	ug/L	1	0.13	1.0	1	EPA 8260B	04/04/13 23:13	REF	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	04/04/13 23:13	REF	
Methylene chloride [75-09-2] ^	0.23	U	ug/L	1	0.23	1.0	1	EPA 8260B	04/04/13 23:13	REF	
Styrene [100-42-5] ^	0.11	U	ug/L	1	0.11	1.0	1	EPA 8260B	04/04/13 23:13	REF	
Tetrachloroethene [127-18-4] ^	0.17	U	ug/L	1	0.17	1.0	1	EPA 8260B	04/04/13 23:13	REF	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	04/04/13 23:13	REF	
Toluene [108-88-3] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	04/04/13 23:13	REF	
trans-1,2-Dichloroethene [156-60-5] ^	0.21	U	ug/L	1	0.21	1.0	5	EPA 8260B	04/04/13 23:13	REF	
trans-1,3-Dichloropropene [10061-02-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 23:13	REF	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	04/04/13 23:13	REF	
Trichloroethene [79-01-6] ^	0.15	U	ug/L	1	0.15	1.0	1	EPA 8260B	04/04/13 23:13	REF	
Trichlorofluoromethane [75-69-4] ^	0.24	U	ug/L	1	0.24	1.0	1	EPA 8260B	04/04/13 23:13	REF	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	04/04/13 23:13	REF	

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Description: 9828-Trip Blank
Matrix: Water
Project: WI- Red Rock

Lab Sample ID: C303330-12
Sampled: 04/01/13 10:38
Sampled By: ENCO

Received: 04/02/13 16:15
Work Order: C303330

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl chloride [75-01-4] ^	0.32	U	ug/L	1	0.32	1.0	1	EPA 8260B	04/04/13 23:13	REF	
Xylenes (Total) [1330-20-7] ^	0.45	U	ug/L	1	0.45	3.0	5	EPA 8260B	04/04/13 23:13	REF	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*55*	*1*	*50.0*	*110 %*	*51-122*	*3D04029*	*EPA 8260B*	*04/04/13 23:13*	*REF*	
Dibromofluoromethane	*53*	*1*	*50.0*	*106 %*	*68-117*	*3D04029*	*EPA 8260B*	*04/04/13 23:13*	*REF*	
Toluene-d8	*53*	*1*	*50.0*	*106 %*	*67-127*	*3D04029*	*EPA 8260B*	*04/04/13 23:13*	*REF*	

This report relates only to the sample as received by the laboratory, and may only be reproduced in full.

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 3D04029 - EPA 5030B_MS

Blank (3D04029-BLK1) Prepared: 04/04/2013 13:44 Analyzed: 04/04/2013 15:30

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	0.17	U	1.0	ug/L							
1,1,1-Trichloroethane	0.12	U	1.0	ug/L							
1,1,2,2-Tetrachloroethane	0.28	U	1.0	ug/L							
1,1,2-Trichloroethane	0.14	U	1.0	ug/L							
1,1-Dichloroethane	0.13	U	1.0	ug/L							
1,1-Dichloroethene	0.21	U	1.0	ug/L							
1,2,3-Trichloropropane	0.23	U	1.0	ug/L							
1,2-Dibromo-3-chloropropane	0.48	U	1.0	ug/L							
1,2-Dibromoethane	0.66	U	1.0	ug/L							
1,2-Dichlorobenzene	0.19	U	1.0	ug/L							
1,2-Dichloroethane	0.21	U	1.0	ug/L							
1,2-Dichloropropane	0.10	U	1.0	ug/L							
1,4-Dichlorobenzene	0.19	U	1.0	ug/L							
2-Butanone	1.3	U	5.0	ug/L							
2-Hexanone	0.88	U	5.0	ug/L							
4-Methyl-2-pentanone	1.1	U	5.0	ug/L							
Acetone	1.2	U	5.0	ug/L							
Acrylonitrile	3.5	U	10	ug/L							
Benzene	0.15	U	1.0	ug/L							
Bromochloromethane	0.48	U	1.0	ug/L							
Bromodichloromethane	0.17	U	1.0	ug/L							
Bromoform	0.22	U	1.0	ug/L							
Bromomethane	0.14	U	1.0	ug/L							
Carbon disulfide	1.5	U	5.0	ug/L							
Carbon tetrachloride	0.17	U	1.0	ug/L							
Chlorobenzene	0.17	U	1.0	ug/L							
Chloroethane	0.23	U	1.0	ug/L							
Chloroform	0.18	U	1.0	ug/L							
Chloromethane	0.13	U	1.0	ug/L							
cis-1,2-Dichloroethene	0.15	U	1.0	ug/L							
cis-1,3-Dichloropropene	0.20	U	1.0	ug/L							
Dibromochloromethane	0.17	U	1.0	ug/L							
Dibromomethane	0.27	U	1.0	ug/L							
Ethylbenzene	0.13	U	1.0	ug/L							
Iodomethane	1.7	U	5.0	ug/L							
Methylene chloride	0.23	U	1.0	ug/L							
Styrene	0.11	U	1.0	ug/L							
Tetrachloroethene	0.17	U	1.0	ug/L							
Tetrahydrofuran	0.80	U	1.0	ug/L							
Toluene	0.14	U	1.0	ug/L							
trans-1,2-Dichloroethene	0.21	U	1.0	ug/L							
trans-1,3-Dichloropropene	0.15	U	1.0	ug/L							
trans-1,4-Dichloro-2-butene	0.70	U	1.0	ug/L							
Trichloroethene	0.15	U	1.0	ug/L							
Trichlorofluoromethane	0.24	U	1.0	ug/L							
Vinyl acetate	0.95	U	5.0	ug/L							
Vinyl chloride	0.32	U	1.0	ug/L							
Xylenes (Total)	0.45	U	3.0	ug/L							

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 3D04029 - EPA 5030B_MS

Blank (3D04029-BLK1) Continued Prepared: 04/04/2013 13:44 Analyzed: 04/04/2013 15:30

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Surrogate: 4-Bromofluorobenzene	*51*			*ug/L*	*50.0*		*103*	*51-122*			
Surrogate: Dibromofluoromethane	*53*			*ug/L*	*50.0*		*105*	*68-117*			
Surrogate: Toluene-d8	*52*			*ug/L*	*50.0*		*104*	*67-127*			

LCS (3D04029-BS1) Prepared: 04/04/2013 14:44 Analyzed: 04/04/2013 16:01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	25		1.0	ug/L	20.0		126	75-133			
Benzene	22		1.0	ug/L	20.0		108	81-134			
Chlorobenzene	20		1.0	ug/L	20.0		99	83-117			
Toluene	20		1.0	ug/L	20.0		98	71-118			
Trichloroethene	19		1.0	ug/L	20.0		97	74-119			

Matrix Spike (3D04029-MS1) Prepared: 04/04/2013 15:44 Analyzed: 04/04/2013 16:51

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	26		1.0	ug/L	20.0	0.21 U	132	75-133			
Benzene	21		1.0	ug/L	20.0	0.15 U	105	81-134			
Chlorobenzene	21		1.0	ug/L	20.0	0.17 U	105	83-117			
Toluene	20		1.0	ug/L	20.0	0.14 U	102	71-118			
Trichloroethene	20		1.0	ug/L	20.0	0.15 U	99	74-119			

Matrix Spike Dup (3D04029-MSD1) Prepared: 04/04/2013 15:44 Analyzed: 04/04/2013 17:20

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	27		1.0	ug/L	20.0	0.21 U	133	75-133	0.8	20	
Benzene	20		1.0	ug/L	20.0	0.15 U	100	81-134	4	17	
Chlorobenzene	19		1.0	ug/L	20.0	0.17 U	95	83-117	10	16	
Toluene	20		1.0	ug/L	20.0	0.14 U	101	71-118	1	17	
Trichloroethene	20		1.0	ug/L	20.0	0.15 U	102	74-119	3	22	

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 3D04025 - EPA 7470A

Blank (3D04025-BLK1) Prepared: 04/04/2013 13:19 Analyzed: 04/04/2013 16:52

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	0.170	U	0.200	ug/L							

LCS (3D04025-BS1) Prepared: 04/04/2013 13:19 Analyzed: 04/04/2013 16:54

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.10		0.200	ug/L	5.00		102	80-120			

QUALITY CONTROL

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 3D04025 - EPA 7470A

Matrix Spike (3D04025-MS1) Prepared: 04/04/2013 13:19 Analyzed: 04/04/2013 16:58

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.03		0.200	ug/L	5.00	0.170 U	101	75-125			

Matrix Spike Dup (3D04025-MSD1) Prepared: 04/04/2013 13:19 Analyzed: 04/04/2013 17:00

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.10		0.200	ug/L	5.00	0.170 U	102	75-125	1	25	

Post Spike (3D04025-PS1) Prepared: 04/04/2013 13:19 Analyzed: 04/04/2013 17:02

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.29		0.200	ug/L	5.00	-0.186	110	75-125			

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 3D03017 - EPA 3005A

Blank (3D03017-BLK1) Prepared: 04/03/2013 10:28 Analyzed: 04/04/2013 11:08

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	2.80	U	10.0	ug/L							
Barium	1.00	U	10.0	ug/L							
Beryllium	0.100	U	1.00	ug/L							
Cadmium	0.360	U	1.00	ug/L							
Chromium	1.40	U	10.0	ug/L							
Cobalt	1.10	U	10.0	ug/L							
Copper	1.60	U	10.0	ug/L							
Iron	22.0	U	50.0	ug/L							
Lead	1.90	U	10.0	ug/L							
Manganese	1.10	U	10.0	ug/L							
Nickel	1.80	U	10.0	ug/L							
Selenium	4.50	U	10.0	ug/L							
Silver	1.90	U	10.0	ug/L							
Vanadium	1.40	U	10.0	ug/L							
Zinc	3.80	U	10.0	ug/L							

LCS (3D03017-BS1) Prepared: 04/03/2013 10:28 Analyzed: 04/04/2013 11:11

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	210		10.0	ug/L	200		105	80-120			
Barium	212		10.0	ug/L	200		106	80-120			
Beryllium	21.6		1.00	ug/L	20.0		108	80-120			
Cadmium	21.4		1.00	ug/L	20.0		107	80-120			
Chromium	215		10.0	ug/L	200		107	80-120			
Cobalt	214		10.0	ug/L	200		107	80-120			
Copper	212		10.0	ug/L	200		106	80-120			

QUALITY CONTROL

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 3D03017 - EPA 3005A

LCS (3D03017-BS1) Continued Prepared: 04/03/2013 10:28 Analyzed: 04/04/2013 11:11

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	1030		50.0	ug/L	1000		103	80-120			
Lead	212		10.0	ug/L	200		106	80-120			
Manganese	212		10.0	ug/L	200		106	80-120			
Nickel	212		10.0	ug/L	200		106	80-120			
Selenium	213		10.0	ug/L	200		107	80-120			
Silver	213		10.0	ug/L	200		106	80-120			
Vanadium	209		10.0	ug/L	200		105	80-120			
Zinc	210		10.0	ug/L	200		105	80-120			

Matrix Spike (3D03017-MS1) Prepared: 04/03/2013 10:28 Analyzed: 04/04/2013 11:17

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	207		10.0	ug/L	200	2.80 U	103	75-125			
Barium	321		10.0	ug/L	200	110	105	75-125			
Beryllium	20.7		1.00	ug/L	20.0	0.294	102	75-125			
Cadmium	21.2		1.00	ug/L	20.0	0.360 U	106	75-125			
Chromium	204		10.0	ug/L	200	4.17	100	75-125			
Cobalt	207		10.0	ug/L	200	1.10 U	103	75-125			
Copper	215		10.0	ug/L	200	3.25	106	75-125			
Iron	1090		50.0	ug/L	1000	54.6	103	75-125			
Lead	204		10.0	ug/L	200	1.90 U	102	75-125			
Manganese	262		10.0	ug/L	200	57.9	102	75-125			
Nickel	211		10.0	ug/L	200	3.06	104	75-125			
Selenium	219		10.0	ug/L	200	4.50 U	110	75-125			
Silver	207		10.0	ug/L	200	1.90 U	104	75-125			
Vanadium	201		10.0	ug/L	200	1.40 U	100	75-125			
Zinc	213		10.0	ug/L	200	5.34	104	75-125			

Matrix Spike Dup (3D03017-MSD1) Prepared: 04/03/2013 10:28 Analyzed: 04/04/2013 11:20

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	203		10.0	ug/L	200	2.80 U	101	75-125	2	20	
Barium	318		10.0	ug/L	200	110	104	75-125	1	20	
Beryllium	20.7		1.00	ug/L	20.0	0.294	102	75-125	0.4	20	
Cadmium	20.8		1.00	ug/L	20.0	0.360 U	104	75-125	2	20	
Chromium	202		10.0	ug/L	200	4.17	99	75-125	0.8	20	
Cobalt	204		10.0	ug/L	200	1.10 U	102	75-125	1	20	
Copper	212		10.0	ug/L	200	3.25	104	75-125	2	20	
Iron	1070		50.0	ug/L	1000	54.6	102	75-125	2	20	
Lead	200		10.0	ug/L	200	1.90 U	100	75-125	2	20	
Manganese	259		10.0	ug/L	200	57.9	100	75-125	1	20	
Nickel	207		10.0	ug/L	200	3.06	102	75-125	2	20	
Selenium	214		10.0	ug/L	200	4.50 U	107	75-125	3	20	
Silver	205		10.0	ug/L	200	1.90 U	103	75-125	1	20	
Vanadium	199		10.0	ug/L	200	1.40 U	100	75-125	0.8	20	
Zinc	211		10.0	ug/L	200	5.34	103	75-125	1	20	

QUALITY CONTROL

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 3D03017 - EPA 3005A

Post Spike (3D03017-PS1) Prepared: 04/03/2013 10:28 Analyzed: 04/04/2013 11:22

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	0.202		0.0100	mg/L	0.200	-0.00460	103	80-120			
Barium	0.313		0.0100	mg/L	0.200	0.110	101	80-120			
Beryllium	0.0205		0.00100	mg/L	0.0200	0.000294	101	80-120			
Cadmium	0.0205		0.00100	mg/L	0.0200	0.000207	101	80-120			
Chromium	0.203		0.0100	mg/L	0.200	0.00417	99	80-120			
Cobalt	0.203		0.0100	mg/L	0.200	0.000135	101	80-120			
Copper	0.213		0.0100	mg/L	0.200	0.00325	105	80-120			
Iron	1.07		0.0500	mg/L	1.00	0.0546	102	80-120			
Lead	0.198		0.0100	mg/L	0.200	-0.00125	99	80-120			
Manganese	0.256		0.0100	mg/L	0.200	0.0579	99	80-120			
Nickel	0.206		0.0100	mg/L	0.200	0.00306	102	80-120			
Selenium	0.213		0.0100	mg/L	0.200	-0.00314	108	80-120			
Silver	0.203		0.0100	mg/L	0.200	0.00140	101	80-120			
Vanadium	0.197		0.0100	mg/L	0.200	0.000221	98	80-120			
Zinc	0.211		0.0100	mg/L	0.200	0.00534	103	80-120			

Batch 3D03018 - EPA 3005A

Blank (3D03018-BLK1) Prepared: 04/03/2013 10:30 Analyzed: 04/05/2013 11:31

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	0.220	U	2.00	ug/L							
Thallium	0.110	U	1.00	ug/L							

LCS (3D03018-BS1) Prepared: 04/03/2013 10:30 Analyzed: 04/05/2013 11:35

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	216		2.00	ug/L	200		108	80-120			
Thallium	216		1.00	ug/L	200		108	80-120			

Matrix Spike (3D03018-MS1) Prepared: 04/03/2013 10:30 Analyzed: 04/05/2013 11:43

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	222		2.00	ug/L	200	0.740	110	75-125			
Thallium	173		1.00	ug/L	200	0.110 U	86	75-125			

Matrix Spike Dup (3D03018-MSD1) Prepared: 04/03/2013 10:30 Analyzed: 04/05/2013 11:47

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	226		2.00	ug/L	200	0.740	113	75-125	2	20	
Thallium	174		1.00	ug/L	200	0.110 U	87	75-125	0.5	20	

Post Spike (3D03018-PS1) Prepared: 04/03/2013 10:30 Analyzed: 04/05/2013 11:51

QUALITY CONTROL

Metals (total recoverable) by EPA 6000/7000 Series Methods - Quality Control

Batch 3D03018 - EPA 3005A

Post Spike (3D03018-PS1) Continued Prepared: 04/03/2013 10:30 Analyzed: 04/05/2013 11:51

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	223		2.00	ug/L	200	0.740	111	80-120			
Thallium	175		1.00	ug/L	200	0.0458	88	80-120			

Classical Chemistry Parameters - Quality Control

Batch 3D04003 - NO PREP

Blank (3D04003-BLK1) Prepared & Analyzed: 04/04/2013 15:06

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	10000	U	10000	ug/L							

LCS (3D04003-BS1) Prepared & Analyzed: 04/04/2013 15:06

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	1000		10	mg/L	1000		100	90-110			

Duplicate (3D04003-DUP1) Prepared & Analyzed: 04/04/2013 15:06

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	1800000		10000	ug/L		1800000			0.2	10	

Batch 3D05009 - NO PREP

Blank (3D05009-BLK1) Prepared & Analyzed: 04/05/2013 10:27

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	**1600**	**J**	5000	ug/L							
Sulfate as SO4	40	U	5000	ug/L							

LCS (3D05009-BS1) Prepared & Analyzed: 04/05/2013 09:53

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	49000	B	5000	ug/L	50000		98	90-110			
Sulfate as SO4	47000		5000	ug/L	50000		94	90-110			

Matrix Spike (3D05009-MS1) Prepared & Analyzed: 04/05/2013 11:25

Source: C303330-04RE1

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate as SO4	150000		10000	ug/L	40000	110000	107	90-110			

Matrix Spike (3D05009-MS2) Prepared & Analyzed: 04/05/2013 11:59

Source: C303330-04

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 3D05009 - NO PREP

Matrix Spike (3D05009-MS2) Continued Prepared & Analyzed: 04/05/2013 11:59

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	1200000	B	100000	ug/L	400000	820000	102	90-110			

Matrix Spike (3D05009-MS3) Prepared & Analyzed: 04/05/2013 12:32

Source: C300455-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	21000	B	5000	ug/L	20000	4400	84	90-110			QM-05
Sulfate as SO4	30000		5000	ug/L	20000	12000	91	90-110			

Matrix Spike Dup (3D05009-MSD1) Prepared & Analyzed: 04/05/2013 11:42

Source: C303330-04RE1

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate as SO4	160000		10000	ug/L	40000	110000	112	90-110	1	10	QM-05

Matrix Spike Dup (3D05009-MSD2) Prepared & Analyzed: 04/05/2013 12:16

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	1200000	B	100000	ug/L	400000	820000	100	90-110	0.5	10	

Matrix Spike Dup (3D05009-MSD3) Prepared & Analyzed: 04/05/2013 12:49

Source: C300455-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	22000	B	5000	ug/L	20000	4400	86	90-110	3	10	QM-05
Sulfate as SO4	31000		5000	ug/L	20000	12000	94	90-110	2	10	

Batch 3D05033 - NO PREP

Blank (3D05033-BLK1) Prepared: 04/05/2013 13:16 Analyzed: 04/05/2013 16:16

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Alkalinity as CaCO3	12000	U	15000	ug/L							

LCS (3D05033-BS1) Prepared: 04/05/2013 13:16 Analyzed: 04/05/2013 16:17

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Alkalinity as CaCO3	97		15	mg/L	100		97	80-120			

Matrix Spike (3D05033-MS1) Prepared: 04/05/2013 13:16 Analyzed: 04/05/2013 16:19

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Alkalinity as CaCO3	130000		15000	ug/L	37800	89000	98	80-120			

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 3D05033 - NO PREP

Matrix Spike Dup (3D05033-MSD1) Prepared: 04/05/2013 13:16 Analyzed: 04/05/2013 16:20

Source: C303330-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Alkalinity as CaCO3	130000		15000	ug/L	37800	89000	97	80-120	0.4	25	

FLAGS/NOTES AND DEFINITIONS

B	The analyte was detected in the associated method blank.
D	The sample was analyzed at dilution.
J	The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content, where applicable.
U	The analyte was analyzed for but not detected to the level shown, adjusted for actual sample preparation data and moisture content, where applicable.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
MRL	Method Reporting Limit. The MRL is roughly equivalent to the practical quantitation limit (PQL) and is based on the low point of the calibration curve, when applicable, sample preparation factor, dilution factor, and, in the case of soil samples, moisture content.
J-01	Result is estimated due to positive results in the associated method blank.
QB-01	The method blank had a positive result for the analyte; however, the concentration in the method blank is less than 10% of the sample result, which minimizes the impact of the deviation.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

ENVIRONMENTAL CONSERVATION LABORATORIES CHAIN-OF-CUSTODY RECORD

10775 Central Port Dr. Orlando, FL 32824 (407) 826-5314 Fax (407) 850-6945
4810 Executive Park Court, Suite 111 Jacksonville, FL 32216-6069 (904) 296-3007 Fax (904) 296-6210
102-A Woodwinds Industrial Ct. Cary, NC 27511 (919) 467-3090 Fax (919) 467-3515
www.encolabs.com

Page 1 of 1

Client Name: Golder Associates, Inc. (GO007)	Project Number: 0739-603513.100
Address: 5B Oak Branch Drive	Project Name/Desc: WI- Red Rock
City/ST/Zip: Greensboro, NC 27407	PO # / Billing Info: 2013:
Tel: (336) 852-4903 Fax: (336) 852-4904	Reporting Contact: Dusty Reedy
Sampler(s) Name, Affiliation (Print): Daniel Childress, Golder	Billing Contact: Don Plessinger
Sampler(s) Signature: Daniel Childress	Site Location / Time Zone: Holly Springs, NC / EST

Requested Analyses

Requested Turnaround Times

Note : Rush requests subject to acceptance by the facility

X Standard

___ Expedited

Due ___/___/___

Lab Workorder: C303330

Preservation (See Codes) (Combine as necessary)

Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers	8260B Appendix 1, 8260B Extended	Ag,As,Ba,Be,Cd,Co,Cr,Cu,Fe,Mn,Ni,Pb,Sb,Se,Sn,Tl,V,Zn	Ag,As,Ba,Be,Cd,Co,Cr,Cu,Ni,Pb,Sb,Se,Sn,Tl,V,Zn	Alkalinity 310.2, Chloride 300, TDS SM2540C	Hg	Sulfate 300					Sample Comments
	9828-MW2T	4/1/13	1415	G	GW	5	X	X		X	X	X					
	9828-MW3	4/1/13	1317	G	GW	5	X	X		X	X	X					
	9828-MW4	4/1/13	1502	G	GW	5	X	X		X	X	X					
	9828-MW5 (ms/msd)	4/1/13	1606	G	GW	8	X	X		X	X	X					
	9828-MW6T	4/1/13	1646	G	GW	5	X	X		X	X	X					
	9828-MW10	4/1/13	1038	G	GW	5	X	X		X	X	X					
	9828-MW11	4/1/13	1127	G	GW	5	X	X		X	X	X					
	9828-MW14	4/1/13	1210	G	GW	5	X	X		X	X	X					
	9828-SW2	4/1/13	1240	G	SW	4	X		X								
	9828-SW3	4/1/13	1520	G	SW	4	X		X								
	9828-Field Blank	4/1/13	1655	G	WA	4	X	X			X						
	9828-Trip Blank				WA	2	X										

<-- Total # of Containers

Sample Kit Prepared By: RAY	Date/Time: 3/18	Relinquished By: Daniel Childress	Date/Time: 4/2/13 0900
Received By: [signature]	Date/Time: 4/2/13 320	Relinquished By	Date/Time
Received By	Date/Time	Relinquished By	Date/Time
Received By: [signature]	Date/Time: 4/2/13 415	Cooler #'s & Temps on Receipt: C-791 2.0°C	Condition Upon Receipt: X Acceptable ___ Unacceptable

Comments/Special Reporting Requirements
1) Please provide a "Level 2" data report.
2) Direct bill to Waste Industries (report sent to Golder).

Matrix : GW-Groundwater SO-Soil DW-Drinking Water SE-Sediment SW-Surface Water WW-Wastewater A-Air O-Other (detail in comments) Preservation: I-Ice H-HCl N-HNO3 S-H2SO4 NO-NaOH O-Other (detail in comments)

Note : All samples submitted to ENCO Labs are in accordance with the terms and conditions listed on the reverse of this form, unless prior written agreements exist

WORK ORDER

Printed: 4/9/2013 12:02:18PM

C303330

ENCO Cary

Sample Receipt Conditions

Client:	**Golder Associates, Inc. (GO007)**	**Lab Project Mgr:**	**Stephanie Franz**
Project:	**WI- Red Rock**	**Project Number:**	**0739-603513.100**
PO #:	**2013:**		

Report To:

Golder Associates, Inc. (GO007)
Dusty Reedy
5B Oak Branch Drive
Greensboro, NC 27407
Phone: (336) 852-4903
Fax: (336) 852-4904

Invoice To:

Waste Industries - Red Rock Disposal (WA023)
Don Plessinger
7130 New Landfill Drive
Holly Springs, NC 27540
Phone :919/557-9583
Fax: (919) 557-9523

Received By:	Chris Brand	Date Received:	02-Apr-13 16:15
Logged In By:	Miranda E Stamper	Date Logged In:	02-Apr-13 16:34

Work Order Comments:

C-791 received at 2.0°C

Containers Intact	Y	Containers Properly Preserved	Y	Proper Containers Received	Y	All Samples in PreLog Received	Y	COC/Labels Agree	Y
Custody Seals Intact	Y	Volatile Containers Preserved	Y	Volatile Containers Headspace Free	Y	Aqueous Samples Checked for Residual Cl	N	Received On Ice	Y

GOLDER ASSOCIATES INC.
QUALITY ASSURANCE & QUALITY CONTROL
LABORATORY DATA REVIEW

Project Name: Waste Industries – Red Rock C&D Landfill

Project Reference Number: 0739603513.100

Sampling Event Date: April 1, 2013

Review Date: April 17, 2013 *Initials:* DC

Report #: C303330

Person(s) performing the review are to initial each item on this form as acknowledgement of data acceptance, or as acknowledgement of a review issue. In the case of the latter, a brief explanation should follow the applicable item.

Golder Associates Inc. has reviewed the laboratory certificates of analysis, chain-of-custody form, and laboratory provided sample group quality assurance and quality control data for the above referenced sample group to identify potential bias or inaccuracy, in general accordance with the following United States Environmental Protection Agency documents:

- Region III Modifications to Functional Guidelines for Organic Data Review Multi-Media, Multi-Concentration, September 1994;
- Region III Modifications to the Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, April 1993; and
- Laboratory Data Validation Functional Guidelines for Evaluating Inorganic Analyses, July 1998.

COMPLIANCE ANALYTE LIST(S) (check all that apply)

X NC C & D List (*MWs*)

X NC Appendix I (*SWs*)

___ NC Appendix I + Detects

___ NC Appendix II

___ NC Subtitle D Leachate List

___ NC Surface Water Compliance List

Other: _____

1.0 CHAIN OF CUSTODY (COC) REVIEW

DC COC was properly signed by all parties.

DC Correct project name and number are on the form.

DC Sample receipt condition at laboratory was acceptable.

DC Each sample and blank submitted for analysis appears in the report.

Notes: _____

2.0 SAMPLE HOLDING TIMES

DC Holding times for extraction and/or analysis were met for each analytical Method (see below for reference).

Notes: _____

Review Criteria		
Method	**Analytes**	**Holding Time**
SW-846 Method 8260	VOCs	14 days
SW-846 Methods 8270, 8080, 8081, 8082, and 8151	SVOCs, PCBs, pesticides and herbicides	7 days for extraction, 40 days from extraction for analysis
SW-846 Methods 6000 and 7000 Series	Metals except mercury	6 months (no temperature requirements)
SW-846 Method 7470	Mercury	28 days
SW-846 Method 376.1	Sulfide	7 days
EPA Method 335.2	Cyanide	14 days
EPA Method 300	Chloride	28 days
EPA Method 300	Nitrate/Sulfate	48 hours/28 days
EPA Method 405.1	BOD	48 hours
EPA Method 410.4	COD	28 days
EPA Method 365.4	Phosphorous	28 days

3.0 LABORATORY QUALITY CONTROL REVIEW

DC Laboratory analyzed at least one internal blank for each method, where applicable.

DC Laboratory blank is interference-free.

- ***Chloride was detected in the Method Blank at a low-level concentration (less than half of the MRL). Detections of this analyte should be considered to have a possible high bias if the concentration in the associated samples is not greater than ten times that of the detection in the Method Blank.***

DC Surrogate recoveries are provided for each analytical method, where applicable.

DC Surrogate recoveries for each method are within the acceptable limits (i.e., at least 50% of the surrogates were within range).

DC MS/MSD/LCS data results are provided for each analytical method.

DC MS/MSD/LCS recoveries for each method are within the acceptable limits (i.e., at least 1 of the 3 were within range).

- ***The spike recoveries of Chloride and Sulfate were outside of control limits for the MS and/or MSD samples. The QC batch was approved based on acceptable LCS recovery of these analytes.***

4.0 ANALYTE LISTS/METHODS

DC The proper number of constituents are present for each analyte list as identified above (including detects where applicable).

DC Proper EPA SW-846 analytical methods were used for analysis.

Notes: _____

5.0 DATA REPORTING

DC All analytical reporting associated with the event was performed by the contracted lab.

DC Trip, field and/or equipment, and laboratory blank results have all been reported. All detects for blanks are listed below by constituent. All laboratory method blanks, if any, have been 'flagged' with a 'B' where detected in other samples as appropriate and a laboratory narrative was provided. If the sample was flagged by the laboratory and is not within 5X of the concentration in the blank (or 10X for commonly detected laboratory contaminants-acetone, methylene chloride and phthalates), list below with explanation if flags should be removed. If flags need to be added for samples, also list below.

- **Field Blank**
  - ***Barium @ 1.16 ug/L (J)***
- **Method Blank**
  - ***Chloride @ 1600 ug/L*** ****B-flag: MW-4***

DC It is clear from the laboratory report that samples have or have not been diluted during analysis, and if the samples have been diluted, the result is reported as a multiple of the dilution (e.g., a sample diluted 10x resulting in an analytical detection of 1.0 should be reported as 10). Those that have been diluted are listed below with the dilution factor.

- **Total Alkalinity**
  - ***MW-2T, MW-3, MW-6T, MW-10, MW-11, MW-14*** ***(2x)***

- **Chloride**
  - ***MW-2T, MW-10*** ***(10x)***
  - ***MW -3*** ***(20x)***
  - ***MW -6T*** ***(50x)***

DC The report provides the reporting limit for each constituent.

DC The results were reported at or below their proper reporting limits (e.g., NC Solid Waste Section approved PQLs). Those that are not reported correctly are listed below (by constituent) with the proper reporting limit listed beside them. State if the reporting limit error is due to dilutions.

DC No inorganic or organic constituents were reported above their respective NC 2L Drinking Water Standards or SWS Groundwater Protection Standards in wells or field/equipment/trip blanks, or above applicable surface water standards in surface water monitoring points.

- **Barium** ***(NC 2L = 700 ug/L)***
  - ***MW-3 = 2030 ug/L***
  - ***MW-6T = 2280 ug/L***
  - ***MW-10 = 1120 ug/L***
- **Vanadium** ***(GPS = 0.3 ug/L)***
  - ***MW-3 = 24.8 ug/L***
  - ***MW-14 = 9.99 ug/L (J)***
- **Iron** ***(NC 2L = 300 ug/L)***
  - ***MW-3 = 376 ug/L***
  - ***MW-4 = 677 ug/L***
  - ***MW-6T = 1020 ug/L***
- **Manganese** ***(NC 2L = 50 ug/L)***
  - ***MW-2T = 110 ug/L***
  - ***MW-5 = 57.9 ug/L***
  - ***MW-6T = 1690 ug/L***
  - ***MW-10 = 255 ug/L***
- **Chloride** ***(NC 2L = 250 mg/L)***
  - ***MW-2T = 480 mg/L***
  - ***MW-3 = 1600 mg/L***
  - ***MW-5 = 820 mg/L***
  - ***MW-6T = 1900 mg/L***
  - ***MW-10 = 330 mg/L***
- **TDS** ***(NC 2L = 1000 mg/L)***
  - ***MW-2T = 1200 mg/L***
  - ***MW-3 = 3300 mg/L***
  - ***MW-5 = 1800 mg/L***
  - ***MW-6T = 4200 mg/L***
  - ***MW-10 = 1100 mg/L***

DC No inorganic or organic constituents were detected in a well or surface water point at quantifiable concentrations outside of their historical range (more than 5X previous concentrations or first-time detections).

n/a Other report issues/Communications with laboratory/etc.:

Notes:

APPENDIX C

STATISTICAL EVALUATION WORKSHEETS & SUMMARY TABLE

Summary of Statistical Analysis
Red Rock Disposal. LLC C&D Landfill, Permit No. 92-28
Wake County, North Carolina

April 2013												
Detected Monitoring Constituent/Analytes	**Reporting Units**	**Statistical Evaluation Method**		**Prediction Interval**	**Downgradient Monitoring Wells and Concentrations**						
					MW-2T	**MW-3**	**MW-4**	**MW-5**	**MW-6T**	**MW-11**	**MW-14**
Barium	ug/L	Interwell	Upper Prediction Interval	1876	41.8 J	2030	19.8 J	110	2280	15.1 J	76.8 J
		MW-3 Intrawell	Upper Tolerance Interval	2300							
		MW-6T Intrawell	Upper Tolerance Interval	2780							

Notes:
1. Shaded values represent apparent statistically significant increases (SSIs) over background concentrations.
2. Statistical worksheets are provided as Appendix C.
3. ug/L = micrograms per liter
4. ND = Not Detected
5. J = estimated concentration below the Solid Waste Section Limit

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Analyte: Barium

Sample No.	Sample Date	Location	Concentration (ug/L)	Quantitation Limit (ug/L)
1	10/31/01	MW-1	909	500
2	06/11/02	MW-1	ND	500
3	11/01/02	MW-1	ND	500
4	03/06/03	MW-1	ND	500
5	09/23/03	MW-1	1046	500
6	03/11/04	MW-1	752	500
7	06/11/02	MW-10	ND	500
8	11/01/02	MW-10	ND	500
9	03/06/03	MW-10	ND	500
10	09/23/03	MW-10	ND	500
11	03/11/04	MW-10	707	500
12	09/23/04	MW-10	ND	500
13	03/10/05	MW-10	872	500
14	09/22/05	MW-10	ND	500
15	03/06/06	MW-10	590	500
16	09/19/06	MW-10	ND	500
17	03/21/07	MW-10	901	100
18	09/28/07	MW-10	488	100
19	03/25/08	MW-10	710	100
20	09/29/08	MW-10	1040	100
21	03/30/09	MW-10	999	100
22	09/29/09	MW-10	1100	100
23	03/30/10	MW-10	1120	100
24	09/29/10	MW-10	892	100
25	04/06/11	MW-10	1080	100
26	09/28/11	MW-10	1410	100
27	03/28/12	MW-10	974	100
28	09/26/12	MW-10	1350	100
29	04/01/13	MW-10	1120	100

Number of Data	29
Number of Truncated Data	10
Percentage of Truncated Data	34%

Upper Prediction Limit: **1876 ug/L**

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Probability Plots to determine the distribution of Barium

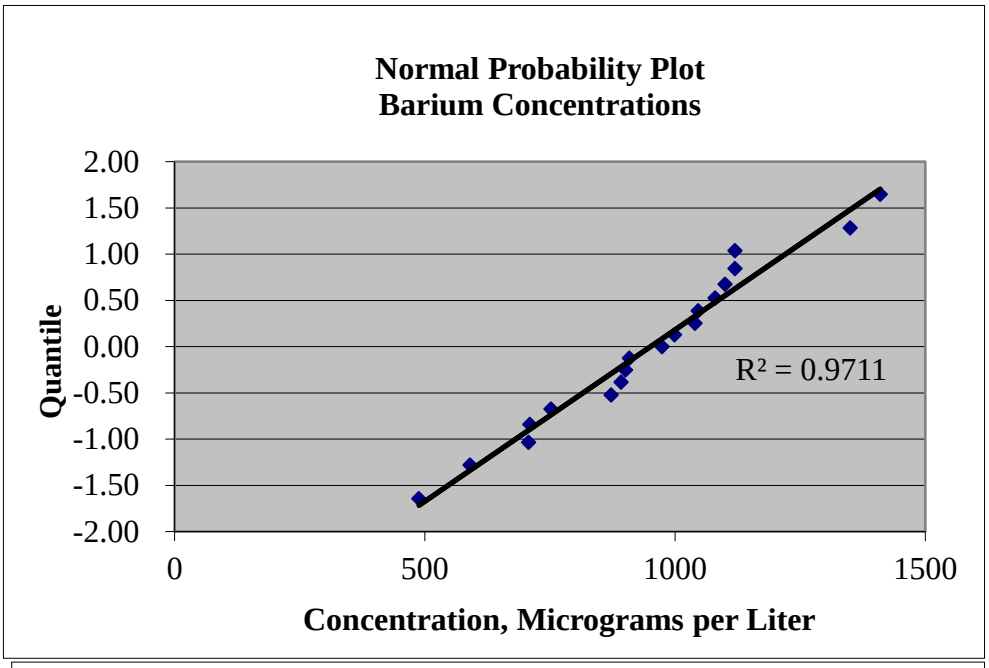
Complete the following table where:

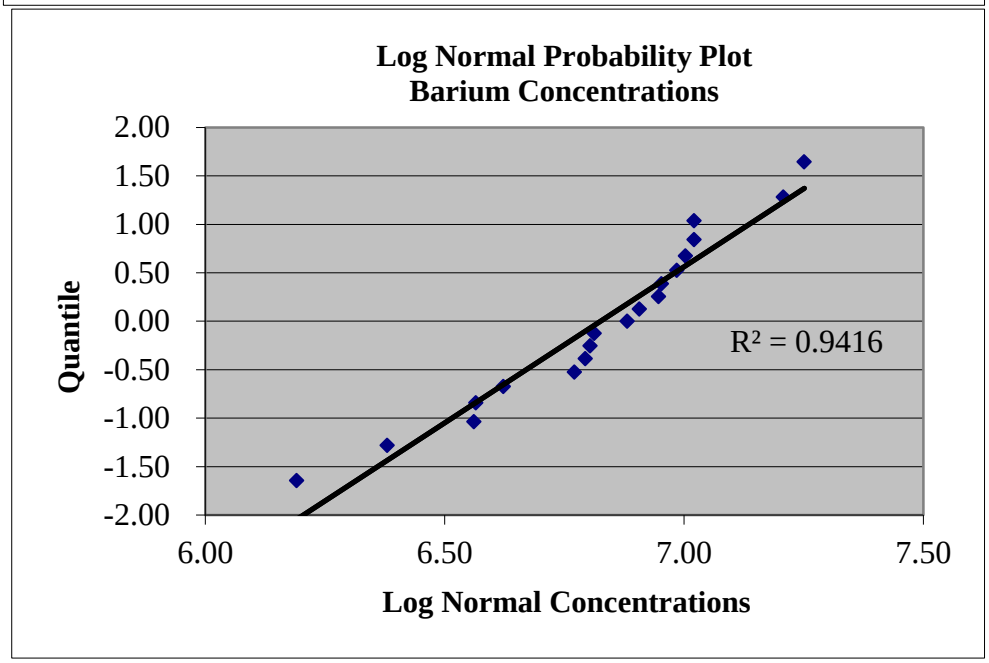
i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
LN[X(i)] = Natural Log Value of sample concentrations arranged from smallest to largest
[i/(n+1)] = Cumulative probability
n = number of samples = 19

X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
488	6.19	1	1	0.050	-1.64
590	6.38	2	2	0.100	-1.28
707	6.56	3	3	0.150	-1.04
710	6.57	4	4	0.200	-0.84
752	6.62	5	5	0.250	-0.67
872	6.77	6	6	0.300	-0.52
892	6.79	7	7	0.350	-0.39
901	6.80	8	8	0.400	-0.25
909	6.81	9	9	0.450	-0.13
974	6.88	10	10	0.500	0.00
999	6.91	11	11	0.550	0.13
1040	6.95	12	12	0.600	0.25
1046	6.95	13	13	0.650	0.39
1080	6.98	14	14	0.700	0.52
1100	7.00	15	15	0.750	0.67
1120	7.02	16	16	0.800	0.84
1120	7.02	17	17	0.850	1.04
1350	7.21	18	18	0.900	1.28
1410	7.25	19	19	0.950	1.64

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 04/22/13

Probability Plots to determine the distribution of Barium





Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Determination of reported background value as an outlier

Analyte: Barium

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	10/31/01	MW-1	909	500
2	6/11/02	MW-1	ND	500
3	11/1/02	MW-1	ND	500
4	3/6/03	MW-1	ND	500
5	9/23/03	MW-1	1046	500
6	3/11/04	MW-1	752	500
7	6/11/02	MW-10	ND	500
8	11/1/02	MW-10	ND	500
9	3/6/03	MW-10	ND	500
10	9/23/03	MW-10	ND	500
11	3/11/04	MW-10	707	500
12	9/23/04	MW-10	ND	500
13	3/10/05	MW-10	872	500
14	9/22/05	MW-10	ND	500
15	3/6/06	MW-10	590	500
16	9/19/06	MW-10	ND	500
17	3/21/07	MW-10	901	100
18	9/28/07	MW-10	488	100
19	3/25/08	MW-10	710	100
20	9/29/08	MW-10	1040	100
21	3/30/09	MW-10	999	100
22	9/29/09	MW-10	1100	100
23	3/30/10	MW-10	1120	100
24	9/29/10	MW-10	892	100
25	4/6/11	MW-10	1080	100
26	9/28/11	MW-10	1410	100
27	3/28/12	MW-10	974	100
28	9/26/12	MW-10	1350	100
29	4/1/13	MW-10	1120	100
		mean =	950.5	
		STD =	235.9	

Note: All concentrations are micrograms per liter

Using the data listed above, form the statisitc Tn:

Tn = (Xn - mean) / STD

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

For Xn = 1410

mean =	950.5
STD =	235.9
Tn =	**1.948**

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

Number of samples =	19
Tc =	**2.532**

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

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

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

Complete the following table where

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

i	X(i)	X(n-i+1)	X(n-i+1) - X(i)	A(n-i+1)	B(i)
1	488	1410	922	0.4808	443.30
2	590	1350	760	0.3232	245.63
3	707	1120	413	0.2561	105.77
4	710	1120	410	0.2059	84.42
5	752	1100	348	0.1641	57.11
6	872	1080	208	0.1271	26.44
7	892	1046	154	0.0932	14.35
8	901	1040	139	0.0612	8.51
9	909	999	90	0.0303	2.73
10	974	974	0	0	0
11	999	909			
12	1040	901			
13	1046	892			
14	1080	872			
15	1100	752			
16	1120	710			
17	1120	707			
18	1350	590			
19	1410	488			

The test statistic W can be found using:

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

where:
B = summation of (X(n-i+1)-X(i))A(n-i+1) = 988.25
SD = standard deviation of the data group = 235.88
n = number of samples = 19

W = 0.975

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

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

W(crit) = 0.901
and the calculated W = 0.975

Therefore the data set is Normal

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Aitchison's Adjustment for Barium

Background Values (positive detects only)

Sample No.	Sample Date	Location	Concentration (ug/l)
1	10/31/01	MW-1	909
2	6/11/02	MW-1	ND
3	11/1/02	MW-1	ND
4	3/6/03	MW-1	ND
5	9/23/03	MW-1	1046
6	3/11/04	MW-1	752
7	6/11/02	MW-10	ND
8	11/1/02	MW-10	ND
9	3/6/03	MW-10	ND
10	9/23/03	MW-10	ND
11	3/11/04	MW-10	707
12	9/23/04	MW-10	ND
13	3/10/05	MW-10	872
14	9/22/05	MW-10	ND
15	3/6/06	MW-10	590
16	9/19/06	MW-10	ND
17	3/21/07	MW-10	901
18	9/28/07	MW-10	488
19	3/25/08	MW-10	710
20	9/29/08	MW-10	1040
21	3/30/09	MW-10	999
22	9/29/09	MW-10	1100
23	3/30/10	MW-10	1120
24	9/29/10	MW-10	892
25	4/6/11	MW-10	1080
26	9/28/11	MW-10	1410
27	3/28/12	MW-10	974
28	9/26/12	MW-10	1350
29	4/1/13	MW-10	1120

Mean of detected values = 950.5
Standard Deviation of detected values = 235.9

The adjusted mean can be found using

$$M(a) = (1-d/n) \times M$$

where:	d =	number non- detected values	=	10
	n =	total number samples	=	29
	M =	mean detected values	=	950.53
		M(a)	**=**	**622.76**

The adjusted standard deviation squared may be found using

STD(a) = (n-(d+1)S)/n-1) + d(n-d)MM/n(n-1)

where:	n =	total number samples	=	29
	d =	number non-detected values	=	10
	S =	std deviation of detected values squared	=	55639.71
	MM =	mean of detected values squared	=	903500.28
		STD(a)	=	247178.55

and the adjusted standard deviation is then

S(a) = SQRT(STD(a)) = 497.2

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Parametric Prediction Interval for Aitchison's adjusted data

Analyte: Barium

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	10/31/01	MW-1	909	500
2	6/11/02	MW-1	ND	500
3	11/1/02	MW-1	ND	500
4	3/6/03	MW-1	ND	500
5	9/23/03	MW-1	1046	500
6	3/11/04	MW-1	752	500
7	6/11/02	MW-10	ND	500
8	11/1/02	MW-10	ND	500
9	3/6/03	MW-10	ND	500
10	9/23/03	MW-10	ND	500
11	3/11/04	MW-10	707	500
12	9/23/04	MW-10	ND	500
13	3/10/05	MW-10	872	500
14	9/22/05	MW-10	ND	500
15	3/6/06	MW-10	590	500
16	9/19/06	MW-10	ND	500
17	3/21/07	MW-10	901	100
18	9/28/07	MW-10	488	100
19	3/25/08	MW-10	710	100
20	9/29/08	MW-10	1040	100
21	3/30/09	MW-10	999	100
22	9/29/09	MW-10	1100	100
23	3/30/10	MW-10	1120	100
24	9/29/10	MW-10	892	100
25	4/6/11	MW-10	1080	100
26	9/28/11	MW-10	1410	100
27	3/28/12	MW-10	974	100
28	9/26/12	MW-10	1350	100
29	4/1/13	MW-10	1120	100

Note: All sample concentrations are micrograms per liter

The background mean and standard deviation were modified using Aitchison's Adjustment.
The adjusted mean and standard deviation are as follows:

the adjusted mean and standard deviation are

adjusted mean = 622.8
adjusted standard deviation = 497.2

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

Upper Prediction Limit = (Mean Conc) + t(n-1,k,.95) x (Std Dev) x SQRT(1/m+1/n)

where:	Mean Conc =	mean concentration background samples
	t(n-1k,.95) =	Bonferroni t-statistic from table 1, with
	n-1 =	degrees of freedom (number of samples - 1)
	k =	number of downgradient samples per event
	.95 =	confidence interval
	Std Dev =	standard deviation of background samples
	m =	number independent samples from each sampling point
	n =	number of background samples

For:	Mean Conc =	622.8	
	Std Dev =	497.2	
	t(n-1,k,.95)*sqrt(1/m+1/n) =	2.520	
	k =	7	
	m =	1	
	n =	29	
	UPL =	**1876**	ug/L

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Parametric Tolerance Interval for Aitchison's adjusted data

Analyte: Barium

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	10/31/01	MW-1	909	500
2	6/11/02	MW-1	ND	500
3	11/1/02	MW-1	ND	500
4	3/6/03	MW-1	ND	500
5	9/23/03	MW-1	1046	500
6	3/11/04	MW-1	752	500
7	6/11/02	MW-10	ND	500
8	11/1/02	MW-10	ND	500
9	3/6/03	MW-10	ND	500
10	9/23/03	MW-10	ND	500
11	3/11/04	MW-10	707	500
12	9/23/04	MW-10	ND	500
13	3/10/05	MW-10	872	500
14	9/22/05	MW-10	ND	500
15	3/6/06	MW-10	590	500
16	9/19/06	MW-10	ND	500
17	3/21/07	MW-10	901	100
18	9/28/07	MW-10	488	100
19	3/25/08	MW-10	710	100
20	9/29/08	MW-10	1040	100
21	3/30/09	MW-10	999	100
22	9/29/09	MW-10	1100	100
23	3/30/10	MW-10	1120	100
24	9/29/10	MW-10	892	100
25	4/6/11	MW-10	1080	100
26	9/28/11	MW-10	1410	100
27	3/28/12	MW-10	974	100
28	9/26/12	MW-10	1350	100
29	4/1/13	MW-10	1120	100

Note: All sample concentrations are micrograms per liter

The background mean and standard deviation were modified using Aitchison's Adjustment.
The adjusted mean and standard deviation are as follows:

The adjusted mean and standard deviation are

adjusted mean =	622.8
adjusted standard deviation =	497.2

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

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

where: K = factor for constructing one sided normal tolerance limit taken from table 4-2, page 87, Statistical Methods for Groun Monitoring, Gibbons, 1994

n = number of background samples

For: K = 2.234

n = 29

UTL = 1733 ug/L

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Analyte: Barium (MW-3 Intrawell)

Sample No.	Sample Date	Location	Concentration (ug/L)	Quantitation Limit (ug/L)
1	10/31/01	MW-3	1650	500
2	06/11/02	MW-3	1547	500
3	11/01/02	MW-3	1733	500
4	03/06/03	MW-3	1939	500
5	09/23/03	MW-3	2090	500
6	03/11/04	MW-3	1881	500
7	09/23/04	MW-3	1830	500
8	03/10/05	MW-3	2129	500
9	09/22/05	MW-3	1871	500
10	03/06/06	MW-3	1838	500
11	09/19/06	MW-3	2090	500
12	03/21/07	MW-3	2080	100
13	09/28/07	MW-3	1930	100
14	03/25/08	MW-3	2010	100
15	09/29/08	MW-3	2090	100
16	03/30/09	MW-3	1950	100
17	09/29/09	MW-3	1920	100
18	03/30/10	MW-3	1810	100
19	09/29/10	MW-3	1770	100
20	04/06/11	MW-3	2020	100
21	09/28/11	MW-3	2060	100
22	03/28/12	MW-3	2100	100
23	09/26/12	MW-3	2080	100

Number of Data	23
Number of Truncated Data	0
Percentage of Truncated Data	0%

Upper Tolerance Limit: **2300** ug/L

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Probability Plots to determine the distribution of Barium (MW-3 Intrawell)

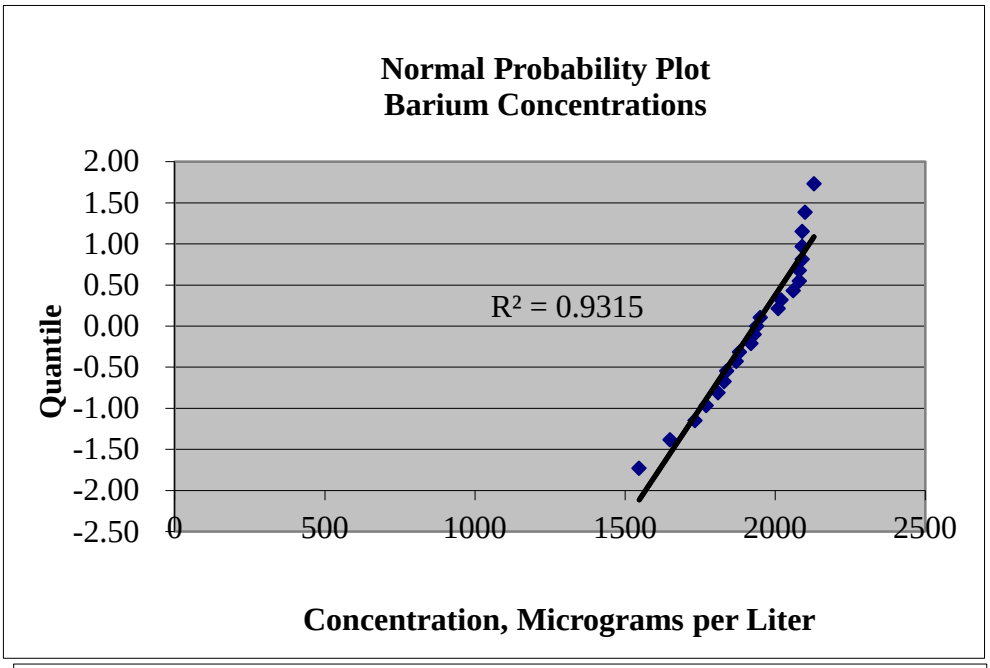
Complete the following table where:

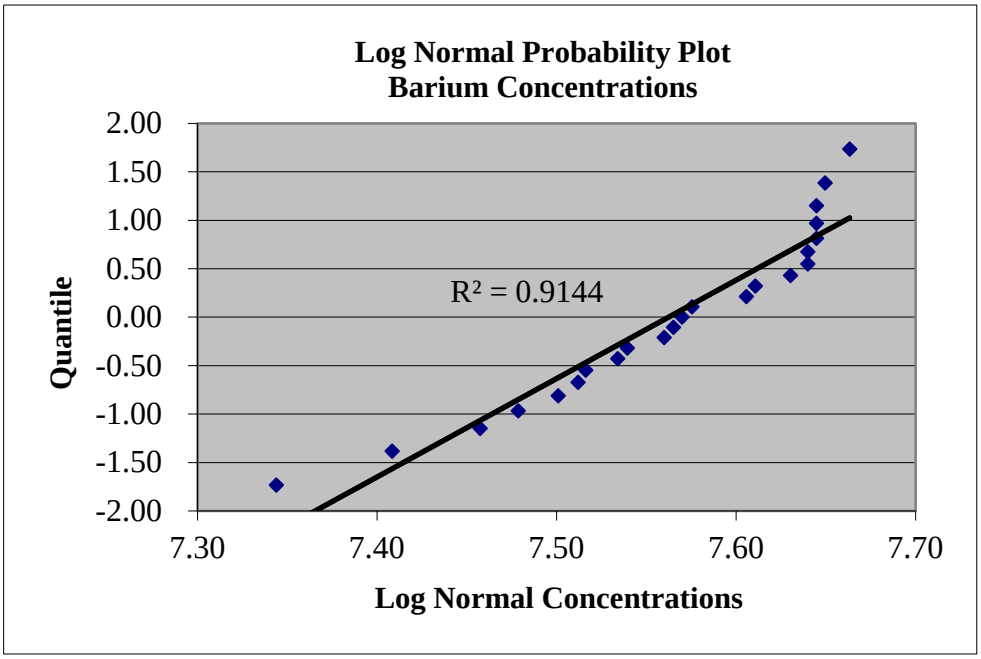
i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
LN[X(i)] = Natural Log Value of sample concentrations arranged from smallest to largest
[i/(n+1)] = Cumulative probability
n = number of samples = 23

X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
1547	7.34	1	1	0.042	-1.73
1650	7.41	2	2	0.083	-1.38
1733	7.46	3	3	0.125	-1.15
1770	7.48	4	4	0.167	-0.97
1810	7.50	5	5	0.208	-0.81
1830	7.51	6	6	0.250	-0.67
1838	7.52	7	7	0.292	-0.55
1871	7.53	8	8	0.333	-0.43
1881	7.54	9	9	0.375	-0.32
1920	7.56	10	10	0.417	-0.21
1930	7.57	11	11	0.458	-0.10
1939	7.57	12	12	0.500	0.00
1950	7.58	13	13	0.542	0.10
2010	7.61	14	14	0.583	0.21
2020	7.61	15	15	0.625	0.32
2060	7.63	16	16	0.667	0.43
2080	7.64	17	17	0.708	0.55
2080	7.64	18	18	0.750	0.67
2090	7.64	19	19	0.792	0.81
2090	7.64	20	20	0.833	0.97
2090	7.64	21	21	0.875	1.15
2100	7.65	22	22	0.917	1.38
2129	7.66	23	23	0.958	1.73

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 04/22/13

Probability Plots to determine the distribution of Barium (MW-3 Intrawell)





Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Determination of reported background value as an outlier

Analyte: Barium (MW-3 Intrawell)

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	10/31/01	MW-3	1650	500
2	6/11/02	MW-3	1547	500
3	11/1/02	MW-3	1733	500
4	3/6/03	MW-3	1939	500
5	9/23/03	MW-3	2090	500
6	3/11/04	MW-3	1881	500
7	9/23/04	MW-3	1830	500
8	3/10/05	MW-3	2129	500
9	9/22/05	MW-3	1871	500
10	3/6/06	MW-3	1838	500
11	9/19/06	MW-3	2090	500
12	3/21/07	MW-3	2080	100
13	9/28/07	MW-3	1930	100
14	3/25/08	MW-3	2010	100
15	9/29/08	MW-3	2090	100
16	3/30/09	MW-3	1950	100
17	9/29/09	MW-3	1920	100
18	3/30/10	MW-3	1810	100
19	9/29/10	MW-3	1770	100
20	4/6/11	MW-3	2020	100
21	9/28/11	MW-3	2060	100
22	3/28/12	MW-3	2100	100
23	9/26/12	MW-3	2080	100
		mean =	1931	
		STD =	158.2	

Note: All concentrations are micrograms per liter

Using the data listed above, form the statisitc Tn:

Tn = (Xn - mean) / STD

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

For Xn = 2129
mean = 1931
STD = 158.2

Tn = 1.250

From Table 8 included in the Staistical Analysis of Groundwater Monitoring Data at

RCRA Facilities - Interim Final Guidance, the critical value for the given sample group is

Number of samples =	23
Tc =	**2.624**

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

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Shapiro Wilk Test Statistic (W) for normality of total Barium (MW-3 Intrawell)

Complete the following table where

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

i	X(i)	X(n-i+1)	X(n-i+1) - X(i)	A(n-i+1)	B(i)
1	1547.00	2129.00	582	0.4542	264.34
2	1650.00	2100.00	450	0.3126	140.67
3	1733.00	2090.00	357	0.2563	91.50
4	1770.00	2090.00	320	0.2139	68.45
5	1810.00	2090.00	280	0.1787	50.04
6	1830.00	2080.00	250	0.148	37.00
7	1838.00	2080.00	242	0.1201	29.06
8	1871.00	2060.00	189	0.0941	17.78
9	1881.00	2020.00	139	0.0696	9.67
10	1920.00	2010.00	90	0.0459	4.13
11	1930.00	1950.00	20	0.0228	0.46
12	1939.00	1939.00	0	0	0
13	1950.00	1930.00			
14	2010.00	1920.00			
15	2020.00	1881.00			
16	2060.00	1871.00			
17	2080.00	1838.00			
18	2080.00	1830.00			
19	2090.00	1810.00			
20	2090.00	1770.00			
21	2090.00	1733.00			
22	2100.00	1650.00			
23	2129.00	1547.00			

The test statistic W can be found using:

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

where:

B =	summation of (X(n-i+1)-X(i))A(n-i+1)	=	713.11
SD =	standard deviation of the data group	=	158.18
n =	number of samples	=	23

W = 0.924

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

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

W(crit) = 0.914
and the calculated W = 0.924

Therefore the data set is Normal

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Parametric Prediction Interval for normally distributed data

Analyte: Barium (MW-3 Intrawell)

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	10/31/01	MW-3	1650	500
2	6/11/02	MW-3	1547	500
3	11/1/02	MW-3	1733	500
4	3/6/03	MW-3	1939	500
5	9/23/03	MW-3	2090	500
6	3/11/04	MW-3	1881	500
7	9/23/04	MW-3	1830	500
8	3/10/05	MW-3	2129	500
9	9/22/05	MW-3	1871	500
10	3/6/06	MW-3	1838	500
11	9/19/06	MW-3	2090	500
12	3/21/07	MW-3	2080	100
13	9/28/07	MW-3	1930	100
14	3/25/08	MW-3	2010	100
15	9/29/08	MW-3	2090	100
16	3/30/09	MW-3	1950	100
17	9/29/09	MW-3	1920	100
18	3/30/10	MW-3	1810	100
19	9/29/10	MW-3	1770	100
20	4/6/11	MW-3	2020	100
21	9/28/11	MW-3	2060	100
22	3/28/12	MW-3	2100	100
23	9/26/12	MW-3	2080	100

Note: All sample concentrations are micrograms per liter

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

Upper Prediction Limit = (Mean Conc) + t(n-1,k,.95) x (Std Dev) x SQRT(1/m+1/n)

where:
Mean Conc = mean concentration background samples
t(n-1k,.95) = Bonferroni t-statistic with
n-1 = degrees of freedom (number of samples - 1)
k = number of downgradient samples per event
.95 = confidence interval
Std Dev = standard deviation of background samples
m = number independent samples from each sampling point
n = number of background samples

For:
Mean Conc = 1931
Std Dev = 158.2
t(n-1,k,.95)*sqrt(1/m+1/n) = 1.760
k = 1
m = 1

n = 23

UPL = 2210 ug/L

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Parametric Tolerance Interval for normally distributed data

Analyte: Barium (MW-3 Intrawell)

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	10/31/01	MW-3	1650	500
2	6/11/02	MW-3	1547	500
3	11/1/02	MW-3	1733	500
4	3/6/03	MW-3	1939	500
5	9/23/03	MW-3	2090	500
6	3/11/04	MW-3	1881	500
7	9/23/04	MW-3	1830	500
8	3/10/05	MW-3	2129	500
9	9/22/05	MW-3	1871	500
10	3/6/06	MW-3	1838	500
11	9/19/06	MW-3	2090	500
12	3/21/07	MW-3	2080	100
13	9/28/07	MW-3	1930	100
14	3/25/08	MW-3	2010	100
15	9/29/08	MW-3	2090	100
16	3/30/09	MW-3	1950	100
17	9/29/09	MW-3	1920	100
18	3/30/10	MW-3	1810	100
19	9/29/10	MW-3	1770	100
20	4/6/11	MW-3	2020	100
21	9/28/11	MW-3	2060	100
22	3/28/12	MW-3	2100	100
23	9/26/12	MW-3	2080	100

Note: All sample concentrations are micrograms per liter

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

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

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

For:
n = 23
K = 2.329
Mean Conc = 1931
STDS = 158.2

UTL = 2300

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Analyte:	Barium Intrawell MW-6T			Quantitation Limit
Sample No.	Sample Date	Location	Concentration (ug/L)	(ug/L)
1	06/11/02	MW-6T	837	500
2	11/01/02	MW-6T	787	500
3	03/06/03	MW-6T	936	500
4	09/23/03	MW-6T	1066	500
5	03/11/04	MW-6T	966	500
6	09/23/04	MW-6T	977	500
7	03/10/05	MW-6T	1164	500
8	09/22/05	MW-6T	1018	500
9	03/06/06	MW-6T	1458	500
10	09/19/06	MW-6T	1787	500
11	03/21/07	MW-6T	1700	100
12	09/28/07	MW-6T	1800	100
13	03/25/08	MW-6T	1470	100
14	09/29/08	MW-6T	1880	100
15	03/30/09	MW-6T	1950	100
16	09/29/09	MW-6T	2180	100
17	03/30/10	MW-6T	1880	100
18	09/29/10	MW-6T	1420	100
19	04/06/11	MW-6T	2040	100
20	09/28/11	MW-6T	2230	100
21	03/28/12	MW-6T	2250	100
22	09/26/12	MW-6T	2420	100

Number of Data	22
Number of Truncated Data	0
Percentage of Truncated Data	0%

Upper Tolerance Limit: **2780** ug/L

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Probability Plots to de Barium Intrawell MW-6T Barium Intrawell MW-6T

Complete the following table where:

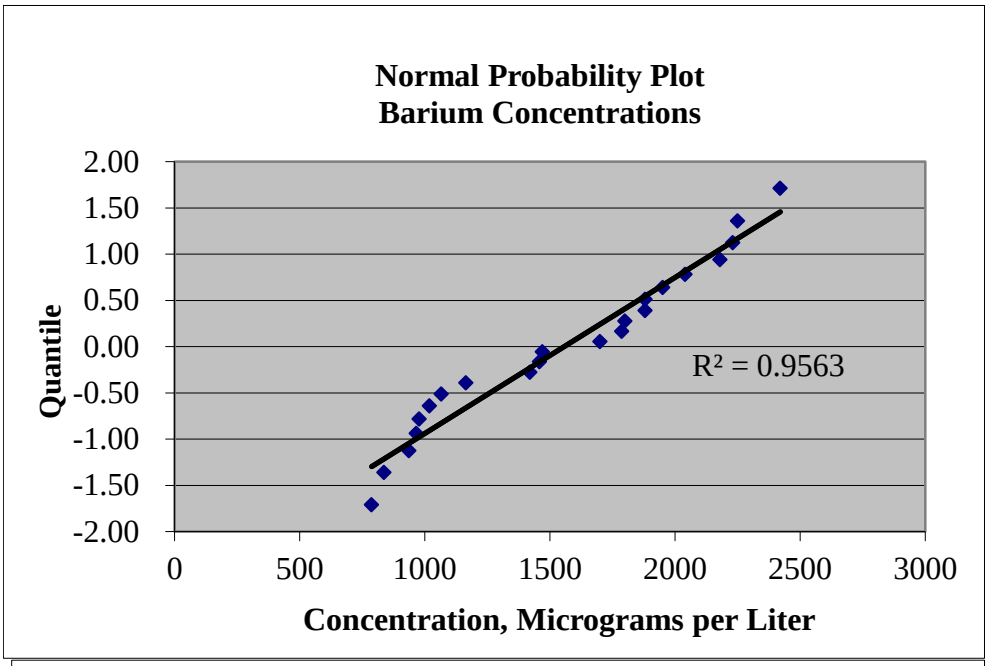
MW-6T

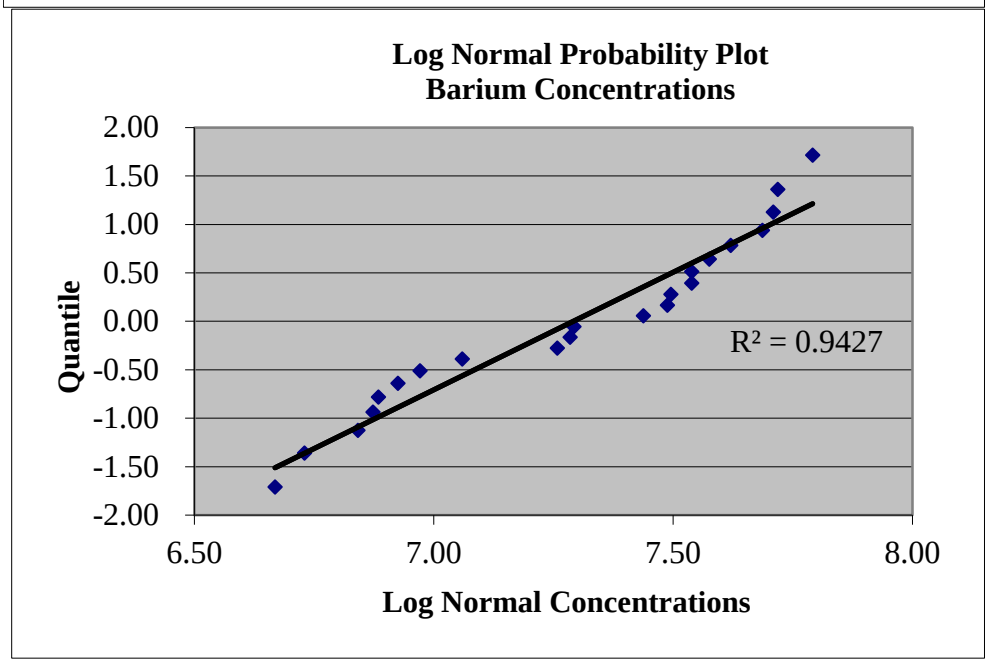
i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
LN[X(i)] = Natural Log Value of sample concentrations arranged from smallest to largest
[i/(n+1)] = Cumulative probability
n = number of samples = 22

X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
787	6.67	1	1	0.043	-1.71
837	6.73	2	2	0.087	-1.36
936	6.84	3	3	0.130	-1.12
966	6.87	4	4	0.174	-0.94
977	6.88	5	5	0.217	-0.78
1018	6.93	6	6	0.261	-0.64
1066	6.97	7	7	0.304	-0.51
1164	7.06	8	8	0.348	-0.39
1420	7.26	9	9	0.391	-0.28
1458	7.28	10	10	0.435	-0.16
1470	7.29	11	11	0.478	-0.05
1700	7.44	12	12	0.522	0.05
1787	7.49	13	13	0.565	0.16
1800	7.50	14	14	0.609	0.28
1880	7.54	15	15	0.652	0.39
1880	7.54	16	16	0.696	0.51
1950	7.58	17	17	0.739	0.64
2040	7.62	18	18	0.783	0.78
2180	7.69	19	19	0.826	0.94
2230	7.71	20	20	0.870	1.12
2250	7.72	21	21	0.913	1.36
2420	7.79	22	22	0.957	1.71

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 04/22/13

Barium Intrawell MW-6T
Probability Plots to determine the distribution of Barium Intrawell MW-6T





Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Determination of Barium Intrawell MW-6T

Analyte: Barium Intrawell MW-6T

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	6/11/02	MW-6T	837	500
2	11/1/02	MW-6T	787	500
3	3/6/03	MW-6T	936	500
4	9/23/03	MW-6T	1066	500
5	3/11/04	MW-6T	966	500
6	9/23/04	MW-6T	977	500
7	3/10/05	MW-6T	1164	500
8	9/22/05	MW-6T	1018	500
9	3/6/06	MW-6T	1458	500
10	9/19/06	MW-6T	1787	500
11	3/21/07	MW-6T	1700	100
12	9/28/07	MW-6T	1800	100
13	3/25/08	MW-6T	1470	100
14	9/29/08	MW-6T	1880	100
15	3/30/09	MW-6T	1950	100
16	9/29/09	MW-6T	2180	100
17	3/30/10	MW-6T	1880	100
18	9/29/10	MW-6T	1420	100
19	4/6/11	MW-6T	2040	100
20	9/28/11	MW-6T	2230	100
21	3/28/12	MW-6T	2250	100
22	9/26/12	MW-6T	2420	100
		mean =	1555	
		STD =	521.0	

Note: All concentrations are micrograms per liter

Using the data listed above, form the statisitc Tn:

Tn = (Xn - mean) / STD

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

For Xn = 2420
mean = 1555
STD = 521.0

Tn = 1.660

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

Number of samples =	22
Tc =	**2.603**

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

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Shapiro Wilk Tes Barium Intrawell MW-6T Barium Intrawell MW-6T

Complete the following table where

MW-6T

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

i	X(i)	X(n-i+1)	X(n-i+1) - X(i)	A(n-i+1)	B(i)
1	787.00	2420.00	1633	0.459	749.55
2	837.00	2250.00	1413	0.3156	445.94
3	936.00	2230.00	1294	0.2571	332.69
4	966.00	2180.00	1214	0.2131	258.70
5	977.00	2040.00	1063	0.1764	187.51
6	1018.00	1950.00	932	0.1443	134.49
7	1066.00	1880.00	814	0.115	93.61
8	1164.00	1880.00	716	0.0878	62.86
9	1420.00	1800.00	380	0.0618	23.48
10	1458.00	1787.00	329	0.0368	12.11
11	1470.00	1700.00	230	0.0122	2.81
12	1700.00	1470.00			
13	1787.00	1458.00			
14	1800.00	1420.00			
15	1880.00	1164.00			
16	1880.00	1066.00			
17	1950.00	1018.00			
18	2040.00	977.00			
19	2180.00	966.00			
20	2230.00	936.00			
21	2250.00	837.00			
22	2420.00	787.00			

The test statistic W can be found using:

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

where:

B =	summation of (X(n-i+1)-X(i))A(n-i+1)	=	2304
SD =	standard deviation of the data group	=	521.0
n =	number of samples	=	22

W = 0.931

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

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

W(crit) = 0.911
and the calculated W = 0.931

Therefore the data set is Normal

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Parametric Prediction Barium Intrawell MW-6T

Analyte: Barium Intrawell MW-6T

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	6/11/02	MW-6T	837	500
2	11/1/02	MW-6T	787	500
3	3/6/03	MW-6T	936	500
4	9/23/03	MW-6T	1066	500
5	3/11/04	MW-6T	966	500
6	9/23/04	MW-6T	977	500
7	3/10/05	MW-6T	1164	500
8	9/22/05	MW-6T	1018	500
9	3/6/06	MW-6T	1458	500
10	9/19/06	MW-6T	1787	500
11	3/21/07	MW-6T	1700	100
12	9/28/07	MW-6T	1800	100
13	3/25/08	MW-6T	1470	100
14	9/29/08	MW-6T	1880	100
15	3/30/09	MW-6T	1950	100
16	9/29/09	MW-6T	2180	100
17	3/30/10	MW-6T	1880	100
18	9/29/10	MW-6T	1420	100
19	4/6/11	MW-6T	2040	100
20	9/28/11	MW-6T	2230	100
21	3/28/12	MW-6T	2250	100
22	9/26/12	MW-6T	2420	100

Note: All sample concentrations are micrograms per liter

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

Upper Prediction Limit = (Mean Conc) + t(n-1,k,.95) x (Std Dev) x SQRT(1/m+1/n)

where:
Mean Conc = mean concentration background samples
t(n-1k,.95) = Bonferroni t-statistic with
n-1 = degrees of freedom (number of samples - 1)
k = number of downgradient samples per event
.95 = confidence interval
Std Dev = standard deviation of background samples
m = number independent samples from each sampling point
n = number of background samples

For:
Mean Conc = 1555
Std Dev = 521.0
t(n-1,k,.95)*sqrt(1/m+1/n) = 1.770
k = 1
m = 1
n = 22

UPL = **2477** ug/L

Project Name: WI - Red Rock
Project No: 073-9603513
Date: 4/22/13

Parametric Tole Barium Intrawell MW-6T

Analyte: Barium Intrawell MW-6T
MW-6T

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	6/11/02	MW-6T	837	500
2	11/1/02	MW-6T	787	500
3	3/6/03	MW-6T	936	500
4	9/23/03	MW-6T	1066	500
5	3/11/04	MW-6T	966	500
6	9/23/04	MW-6T	977	500
7	3/10/05	MW-6T	1164	500
8	9/22/05	MW-6T	1018	500
9	3/6/06	MW-6T	1458	500
10	9/19/06	MW-6T	1787	500
11	3/21/07	MW-6T	1700	100
12	9/28/07	MW-6T	1800	100
13	3/25/08	MW-6T	1470	100
14	9/29/08	MW-6T	1880	100
15	3/30/09	MW-6T	1950	100
16	9/29/09	MW-6T	2180	100
17	3/30/10	MW-6T	1880	100
18	9/29/10	MW-6T	1420	100
19	4/6/11	MW-6T	2040	100
20	9/28/11	MW-6T	2230	100
21	3/28/12	MW-6T	2250	100
22	9/26/12	MW-6T	2420	100

Note: All sample concentrations are micrograms per liter

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

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

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

For:
n = 22
K = 2.35
Mean Conc = 1555
STDS = 521.0

UTL = 2780 ug/L

At Golder Associates we strive to be the most respected global group of companies specializing in ground engineering and environmental services. Employee owned since our formation in 1960, we have created a unique culture with pride in ownership, resulting in long-term organizational stability. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees now operating from offices located throughout Africa, Asia, Australasia, Europe, North America and South America.

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