WCA Waste Corporation

January 30, 2012

Department of Environment and Natural Resources
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699
919-707-8294

Attention: Ms. Jackie Drummond
Hydrogeologist

Re: Water Quality Monitoring Report, Second Semi-Annual 2012 Sampling Event
Material Recovery, LLC Construction & Demolition Landfill
Permit No. 92-31
Wake County, North Carolina

Dear Ms. Drummond:

Material Recovery, LLC, a subsidiary of WCA Waste Corporation, is submitting the enclosed *Water Quality Monitoring Report,* which documents the results of the December 6, 2011, compliance monitoring event at the above-referenced facility. If you have any questions, please contact Dusty Reedy with Golder Associates NC, Inc. at 336-852-4903 or me at 954-415-7230.

Sincerely,
WCA WASTE CORPORATION

Nick Marotta
Regional Engineer

Enclosure

C: Vernon Smith, Regional Vice President, WCA of North Carolina, 40 Estes Plant Road, Piedmont, South Carolina 29763, 864-845-8355. (letter only)
Dennis Gehle, General Manager, Material Recovery, LLC, 2600 Brown-Field Road, Raleigh, North Carolina 27610, 919-838-6973. (letter only)
Rachel P. Kirkman, P.G., Associate and Senior Geologist, 5B Oak Branch Drive, Greensboro, North Carolina, 27407. rkirkman@golder.com. 336-852-4903. (letter only)

WATER QUALITY MONITORING REPORT

SECOND SEMI-ANNUAL 2011 SAMPLING EVENT

Material Recovery, LLC Construction and Demolition Landfill, Permit No. 92-31

Wake County, North Carolina

Submitted To:

WCA Waste Corporation
Material Recovery, LLC
2600 Brown-Field Road
Raleigh, NC. 27610 USA

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

January 2012 **0739-602411.100**

A world of capabilities delivered locally

Golder Associates

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

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

Notice: This form and any information attached to it are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Instructions:

- **Prepare one form for each individually monitored unit.**
- **Please type or print legibly.**
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i).
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner):

Golder Associates NC, Inc. on behalf of Material Recovery, 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)
Material Recovery,LLC C&D Landfill	2600 Brown-Field Rd, Raleigh, NC 27610	92-31	.0500	December 6, 2011

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 or explosive methane gas limits 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 II, P.G.	Senior Project Hydrogeologist	(336) 852-4903
Facility Representative Name (Print)	Title	(Area Code) Telephone Number

Signature: David Y. Reedy II Date: 1-30-12

Affix NC Licensed/ Professional Geologist Seal

Revised 10/2006

January 30, 2012 0739-602411.100

Mr. Nick Marotta, Regional Engineer
WCA Waste Corporation
Material Recovery, LLC
2600 Brown-Field Road
Raleigh, NC. 27610 USA

RE: WATER QUALITY MONITORING REPORT, SECOND SEMI-ANNUAL 2011 SAMPLING EVENT
MATERIAL RECOVERY CONSTRUCTION AND DEMOLITION LANDFILL, PERMIT NO. 92-31
WAKE COUNTY, NORTH CAROLINA

Dear Nick:

Golder Associates NC, Inc. (Golder) is submitting the enclosed *Water Quality Monitoring Report,* which documents the results of the December 6, 2011, compliance monitoring event at the Material Recovery, LLC Construction and Demolition Landfill.

WCA Waste Corporation currently monitors groundwater at the facility for parameters listed in Title 15A NCAC 13B.0544 of the North Carolina Solid Waste Management Rules (NCSWMR). Three NC Appendix I inorganic constituents (barium, beryllium, and mercury) were detected at concentrations above the Solid Waste Section Limits (SWSLs) in samples from one or more downgradient monitoring wells during the December 2011 monitoring event. The concentrations of barium and mercury in the sample from MW-3 were above the NC 2L Drinking Water Standards (NC 2L Standards) and the concentration of beryllium in the sample from MW-5 was above the Solid Waste Section Groundwater Protection Standard (GPS).

The concentrations of barium, beryllium, and mercury were statistically evaluated as allowed by the North Carolina Solid Waste Management Rules. The concentrations of barium and mercury were not determined to be statistically significant. After the statistical evaluation, the beryllium concentration in the sample from MW-5 was determined to be above background. Dissolved beryllium was analyzed for the sample from MW-5, and was detected at a concentration below the SWSL and GPS. The elevated beryllium concentration is believed to be due to entrained sediment in the sample as reflected in the field turbidity value and the dissolved concentration, and is not reflective of a groundwater quality issue. Well MW-5 will be redeveloped before the next sampling event in order to lower turbidity. Cobalt, thallium, and vanadium were also detected at estimated concentrations in samples from downgradient wells below their SWSLs, but above their respective GPS; therefore, no further action is required.

Indicator parameters, iron and manganese, were detected at concentrations above their respective NC 2L Standards in samples from the upgradient and/or downgradient monitoring wells. Concentrations of these inorganic constituents are interpreted to represent background conditions based on available data and no further action is recommended. Barium was detected above the SWSL in downstream surface water monitoring point SW-3, as it has been during previous events. Zinc was also detected above its SWSL, but below the applicable surface water standard in downstream surface water monitoring point SW-2. No additional NC Appendix I constituents were detected at concentrations above the SWSLs or applicable surface water standards during this event.

Golder Associates NC, Inc.
5B Oak Branch Drive
Greensboro, NC. 27407 USA
Tel: (336) 852-4903 Fax: (336) 852-4904 www.golder.com

Methylene chloride, trichlorofluoromethane, tetrachloroethene, trichloroethene, and tetrahydrofuran were detected in the sample from MW-3 above the SWSLs during this event. The concentrations of tetrachloroethene and trichloroethene were above their respective NC 2L Standards, as they have been during previous events. A voluntary Alternate Source Demonstration (ASD) was submitted to the NC Department of Environment and Natural Resources (DENR), Division of Waste Management, Solid Waste Section on November 5, 2007, which evaluated the source of the trichlorofluoromethane. Based on the findings of the ASD, the most likely source for trichlorofluoromethane is landfill gas, rather than leachate. The ASD was approved by NC DENR on May 15, 2008. Subsequently, WCA Waste Corporation submitted a Landfill Gas Remediation Plan (LGRP) to address methane migration in the vicinity of MW-3, which was approved by NC DENR on July 1, 2010. The LGRP included the installation of a cut-off trench in the area near MW-3. The cut-off trench was installed prior to the December 2010 monitoring event. Trichlorofluoromethane concentrations in samples from MW-3 have been on a declining trend over the past six events, but the concentrations of tetrachloroethene and trichloroethene have increased over the last three events. Tetrahydrofuran was detected for the first time during the June 2011 and was detected again during the December 2011 event. The detection of methylene chloride in MW-3 during this event is at the current SWSL of 1.0 micrograms per liter (µg/L) and is a first time detection, and is below the NC 2L of 5.0 µg/L. VOC concentrations in MW-3 will continue to be evaluated to determine the effectiveness of the corrective measures.

Based on the December 2011 sampling results and the approved ASD and LGRP, WCA Waste Corporation will continue to monitor water quality at the facility in accordance with the requirements of the Detection Monitoring Program for C&D Landfills. The next event is tentatively scheduled for June 2012. If you have any questions, please contact the undersigned at 336-852-4903.

Sincerely,
GOLDER ASSOCIATES NC, INC.

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

Rachel P. Kirkman, P.G.
Associate and Senior Geologist

C: Dennis Gehle, General Manager, Material Recovery, LLC, 2600 Brown-Field Road, Raleigh, North Carolina, 27610, 919-838-6973.

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1.0 INTRODUCTION

This report summarizes the monitoring results from December 6, 2011, groundwater and surface water sampling, and analysis event at the Material Recovery, LLC (Material Recovery) Construction & Demolition (C&D) Landfill in Wake County, North Carolina (NC) in accordance with Title 15A of the North Carolina Administrative Code (NCAC) Subchapter 13B.0544. The Material Recovery Landfill, an active C&D landfill, is owned and operated by Material Recovery, a subsidiary of WCA Waste Corporation (WCA) under Permit No. 92-31 issued by the 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. As presented, the Material Recovery C&D Landfill is located along Brown-Field Road near the town of Garner in Wake County, NC. The site consists of approximately 210 acres, of which, approximately 19 acres are currently permitted as the Phase 1 waste unit.

There are three small northwest-trending unnamed streams that traverse the site to intersect a north-trending unnamed stream that parallels the western facility property line. Two of the smaller drainages originate at 2- to 4-acre man-made ponds. The larger stream along the property line coincides with the location of a regional-scale diabase dike. A small storm water basin was constructed along the western boundary of Phase 1.

Topographic surface elevations at the facility range from elevations of approximately 180 to 290 feet above mean sea level. The northern portion of the site was previously used by the City of Raleigh for land application of wastewater sludge for approximately eleven years. Some of the parcels surrounding the site are still used for this purpose. The remainder of the facility consists of wooded areas, grass, and heavy brush.

1.2 Compliance Monitoring History

Groundwater monitoring at the facility was initiated in May 2002 after approval of the Groundwater Monitoring Plan by the NC DENR. Waste was first accepted at the site in October 2003. Currently the facility's monitoring network is comprised of five monitoring wells (MW-1, MW-2, MW-3, MW-4, and MW-5) which monitor the uppermost aquifer beneath the facility. In addition to the groundwater monitoring points, the facility's monitoring network includes three surface water sampling points, SW-1, which is upstream of the waste area along the major tributary, and SW-2 and SW-3, which are downstream monitoring points relative to the waste area. These points are sampled in conjunction with the groundwater monitoring wells in accordance with the facility's permit.

A voluntary Alternate Source Demonstration (ASD) was submitted to the NC DENR Division of Waste Management, Solid Waste Section on November 5, 2007, which evaluated the source of

trichlorofluoromethane in samples from MW-3. Based on the findings of the ASD, the most likely source for trichlorofluoromethane detected in samples from MW-3 is landfill gas, rather than leachate. The ASD was approved by NC DENR on May 15, 2008. Subsequently, WCA Waste Corporation submitted a Landfill Gas Remediation Plan (LGRP) to address methane migration in the vicinity of MW-3, which was approved by NC DENR on July 1, 2010. As proposed in the LGRP, a cut-off trench was installed prior to the December 2010 monitoring event. VOC concentrations in MW-3 will be evaluated for up to two years to determine the effectiveness of the corrective measures.

Four groundwater monitoring wells (MW-6As, MW-6Ad, MW-7As, and MW-7Ad) were installed in May and June 2011 related to the phase 2A expansion of the landfill. Background sampling of the new wells took place during the June 2011 water quality monitoring event and was documented in the *Summary of Piezometer Decommissioning, Monitoring Well and Gas Probe Installation, Monitoring Well Development, Pump Installations, and Background Sampling for Phase 2A Landfill Expansion* dated September 22, 2011. The wells will be sampled as part of the monitoring network in June 2012.

1.3 Hydrogeologic Setting

Geologically, the facility is located within the southern portion of the Raleigh Belt, which is near the eastern boundary of the Piedmont Physiographic Province. The bedrock at the facility consists of the granite of the Rolesville Batholith. The granite observed at the site is predominantly a medium-grained biotite granite and biotite-muscovite granite with garnets. Northwest trending Mesozoic diabase dikes are also common in this region (Stoddard et al. 1991). A magnetometer survey was performed during the initial site investigation and revealed a regional-scale diabase dike, which is shown on the NC State Geologic Map (NCGS 1985) and coincides with the stream along the western property boundary. Smaller anomalies were also identified across the site and were interpreted to represent smaller dikes (JEI 2001).

The uppermost groundwater beneath the facility is present in a shallow, unconfined aquifer comprised of saprolite, partially weathered rock, and granitic bedrock (JEI 2001). Groundwater occurs at depths of approximately 25 feet below grade along the upgradient side of the waste disposal area, and at depths of approximately 10 feet below grade along the perimeter downgradient boundary. Groundwater elevations obtained during the December 2011 monitoring event and summarized in Table 1 were used to prepare a groundwater surface contour map presented as Drawing 1.

Surface water and groundwater at the site generally flows west and northwest and discharges to the surrounding tributaries that flow into the Neuse River. Groundwater beneath the site flows in three distinguishable and vertically interconnected hydrogeologic units: saprolite, partially weathered rock, and bedrock.

Based on the December 6, 2011, groundwater contour map, the average 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 0.025 feet per foot. Groundwater velocities were calculated using a

hydraulic conductivity of 1.20E-04 centimeters per second, which is the geometric mean of the hydraulic conductivities for each of the hydrogeologic units present at the facility (JEI 2001). The estimated effective porosity of the shallow aquifer is 0.20 (Heath 1982).

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 per year), K = hydraulic conductivity (feet per year), i = horizontal hydraulic gradient, and n_e = effective porosity.

The average estimated linear groundwater flow velocity under the waste management unit is approximately 15.7 feet per year, which is 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 for the December 2011 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 possible time, the visual inspection program is used by the sampling crews at the Material Recovery C&D Landfill. This program includes physical indicators such as potential water table mounding beneath the waste management unit, physical examination of any stresses in biological communities, visible signs of leachate migration (i.e., leachate seeps), unexplained changes in soil characteristics, and any other change to the environment due to the waste management unit. During the December 2011 compliance monitoring event, no physical indicators of a potential release were observed in the vicinity of the waste management area.

2.2 Well Network and Groundwater Elevation Measurements

The approved network of groundwater monitoring wells at the facility consists of wells MW-1, MW-2, MW-3, MW-4, and MW-5. Monitoring well construction information 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. One upstream (SW-1) and two downstream (SW-2 and SW-3) surface water monitoring points are also monitored.

Monitoring well MW-1 is the facility's background well and is located hydraulically upgradient of the waste disposal area. Monitoring wells MW-2, MW-3, MW-4, and MW-5 are located downgradient of the waste disposal area and represent the facility's downgradient compliance wells.

Depth to water measurements were recorded to the nearest 0.01 foot prior to initiating 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, the data 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 feet (plus or minus). As expected, the range in fluctuation appears to be greater in the upgradient well MW-1, as this well is located in a groundwater recharge area. The range in fluctuation in compliance wells MW-2, MW-3, MW-4, and MW-5, which are located near groundwater discharge areas, is less, presumably due to the stabilizing effect of the hydraulic discharge boundary.

2.3 December 2011 Groundwater and Surface Water Monitoring Event

Personnel from Golder visited the facility on December 6, 2011, to purge and sample monitoring wells MW-1, MW-2, MW-3, MW-4, and MW-5, and to sample surface water monitoring points SW-1, SW-2, and SW-3. Monitoring wells were purged and sampled using low-flow sampling techniques from dedicated bladder pumps. Measurements of temperature, pH, specific conductivity, dissolved oxygen, oxidation-reduction potential, and turbidity were recorded on approximately 3- to 4-minute intervals during the purge, depending on the purge rate. In general, the purge rate was matched to the yield of the monitoring well, as determined by continuously monitoring the depth to water, never allowing the purge rate to exceed 500 milliliters per minute. Purging was continued until stabilization was indicated by the field parameters. In general, stabilization was deemed to be complete once the range in measured values for the required field parameters was less than 10% per parameter over three monitoring intervals.

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 dedicated bladder pump discharge lines into the labeled, laboratory-supplied, pre-preserved sample containers after purging was completed based on stabilization of field parameters.

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

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 location and equipment, sampling method, field observations, and field parameter measurements.

2.4 Laboratory Analysis Program

The December 2011 groundwater and surface water samples were shipped 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 the NC Appendix I constituents plus tetrahydrofuran and several indicator parameters specific to the C&D rules effective January 1, 2007. The surface water samples at the facility were analyzed for the NC Appendix I list of constituents and tetrahydrofuran. The samples were received by the laboratory on December 6, 2011, in good condition and properly preserved.

2.5 December 2011 Sampling Results

Analytical results for the December 2011 groundwater and surface water samples are summarized in Tables 4 and 5, respectively, with available historical data. The laboratory certificates-of-analysis, chain-of-custody form, and laboratory data review for the sampling event are included in Appendix B.

As presented, four NC Appendix I inorganic constituents (barium, beryllium, mercury, and zinc) were detected at quantifiable concentrations above their respective Solid Waste Section Limits (SWSLs) in samples from one or more downgradient monitoring wells at the facility. These results are generally consistent with historical detections in downgradient wells with the exception of elevated concentrations of beryllium and zinc reported in the sample from MW-5, which appear to be elevated due to entrained sediment in the sample. Indicator parameters iron, manganese, alkalinity, chloride, and total dissolved solids were also detected at quantifiable concentrations in samples from one or more wells as they have been during previous events. Methylene chloride, trichlorofluoromethane, tetrachloroethene, trichloroethene, and tetrahydrofuran were detected in the sample from MW-3 at concentrations above their respective SWSLs during this event.

Two NC Appendix I inorganic constituents were detected at concentrations above the SWSLs in one or more downstream surface water monitoring points during this event. Barium was detected in the sample from SW-3 at a concentration similar to previous events. Zinc was detected in the sample from SW-2 at a concentration higher than historical concentrations, which may be due to entrained sediment in the sample. No NC Appendix I organic constituents were detected in downstream surface water monitoring points at concentrations above the SWSLs during the December 2011 event.

3.0 LABORATORY AND FIELD QA/QC

A field blank was collected by Golder personnel as part of the December 2011 groundwater sampling event. In addition to the field blank, laboratory-prepared trip blanks accompanied the volatile sample

containers for the December 2011 sampling event to and from the laboratory. ENCO analyzed the field blank for NC Appendix I volatile organic compounds (VOCs) and metals plus tetrahydrofuran, and the trip blank for NC Appendix I VOCs and tetrahydrofuran.

A review of the laboratory data was performed by Golder personnel (included in Appendix B). Manganese was reported to be present in the field blank at an estimated concentration and chloride was reported to be present in one of the method blanks analyzed by the laboratory. The detections of chloride in the samples from MW-4 and MW-5 were determined to be blank qualified. No other data qualification was necessary for the laboratory results from the December 2011 report.

4.0 DATA EVALUATIONS

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

4.1 December 2011 Groundwater and Surface Water Quality Standard Comparisons

As presented in Table 4, three inorganic constiotuents were detected above their respective SWSL and applicable groundwater standard in one or more downgradient wells during the December 2011 event. The concentration of barium in the sample from MW-3 was above its SWSL and NC 2L Standard. The concentration of beryllium in the sample from MW-5 and the concentration of mercury in MW-3 were above their SWSL and NC Solid Waste Section Groundwater Protection Standard (GPS). Barium and mercury concentrations are similar to previous events. This was the first event that beryllium was detected in a sample from MW-5 that exceeded its GPS. Dissolved beryllium was analyzed for the sample from MW-5, which resulted in a concentration below the SWSL and GPS. The elevated beryllium concentration is believed to be due to entrained sediment in the sample and not reflective of groundwater quality.

Table 4 also shows that three inorganic constituents were detected at concentrations below the SWSL, but exceeded their applicable groundwater standard in one or more downgradient wells during the December 2011 event. Cobalt was detected at estimated concentrations below the SWSL, but above its GPS in upgradient well MW-1 and downgradient wells MW-3 and MW-5. Thallium was detected at estimated concentrations below the SWSL, but above its GPS in upgradient well MW-1 and downgradient well MW-3. Vanadium was also detected at an estimated concentration below the SWSL, but above its GPS in the sample from MW-5. Indicator metal, iron, was detected above the SWSL and NC 2L Standard in the sample from MW-5. Indicator metal, manganese, was detected in samples from upgradient MW-1 and each downgradient well at concentrations above the SWSL and NC 2L Standard. The concentrations of cobalt, thallium, vanadium, iron, and manganese are consistent with historical background data and are interpreted to represent naturally occurring conditions.

The concentrations of tetrachloroethene and trichloroethene in the sample from MW-3 were reported above the NC 2L Standard as they have been during previous events. There were no detections of NC

Appendix I inorganic or organic constituents in surface water monitoring points above applicable surface water standards during this event.

4.2 December 2011 Statistical Evaluations

As presented, barium, beryllium, and mercury were detected at concentrations above their respective SWSLs in samples from downgradient monitoring wells during this sampling event. The concentrations of barium and mercury in the sample from MW-3 were above their NC 2L Standard and the concentration of beryllium in the sample from MW-5 was above its GPS during this event. Therefore, the concentrations of barium, mercury, and beryllium were statistically evaluated to determine if the reported concentrations exceed the facility background concentrations. The statistical worksheets are presented as Appendix C. As presented, the reported concentrations of barium and mercury were determined to be below their respective background concentrations and are interpreted to represent naturally occurring conditions. However, the reported concentration of beryllium in MW-5 was determined to represent a statistically significant increase over background concentrations. As discussed above, this was the first event that beryllium was detected in a sample from MW-5 that exceeded its GPS, therefore; dissolved beryllium was analyzed for the sample and resulted in a concentration below the SWSL and GPS. The elevated beryllium concentration is believed to be due to entrained sediment in the sample and not reflective of groundwater quality. Well MW-5 will be redeveloped before the next sampling event to lower turbidity.

5.0 CONCLUSIONS

Methylene chloride, trichlorofluoromethane, tetrachloroethene, trichloroethene, and tetrahydrofuran were detected in the sample from MW-3 above the SWSL during this event. A voluntary Alternate Source Demonstration (ASD) was submitted to the NC DENR Division of Waste Management, Solid Waste Section on November 5, 2007, which evaluated the source of trichlorofluoromethane. Based on the findings of the ASD, the most likely source for trichlorofluoromethane detected in samples from MW-3 is landfill gas, rather than leachate. The ASD was approved by NC DENR on May 15, 2008. Subsequently, WCA Waste Corporation submitted a Landfill Gas Remediation Plan (LGRP) to address methane migration in the vicinity of MW-3, which was approved by NC DENR on July 1, 2010. As proposed in the LGRP, a cut-off trench was installed prior to the December 2010 monitoring event. Trichlorofluoromethane concentrations in samples from MW-3 have been on a declining trend over the past seven events. The concentrations of tetrachloroethene and trichloroethene have had an increasing trend over the past three events. Methylene chloride was detected at the SWSL during this event from the sample collected from MW-3. This is the first time methylene chloride has been detected in a monitoring well at this facility. VOC concentrations in MW-3 will continue to be evaluated in 2012 to determine the effectiveness of the corrective measures.

Based on the results summarized herein, WCA will continue monitoring this facility in accordance with the requirements of the Detection Monitoring Program for C&D Landfills as outlined in Title 15A NCAC 13B.0544. The next groundwater monitoring event is tentatively scheduled for June 2012.

6.0 REFERENCES

Golder Associates NC, Inc., 2007, Material Recovery, LLC C&D Landfill; Alternate Source Demonstration. November 5.

Golder Associates NC, Inc., 2011, Material Recovery, LLC C&D Landfill; Summary of Piezometer Decommissioning, Monitoring Well and Gas Probe Installation, Monitoring Well Development, Pump Installations, and Background Sampling for Phase 2A Landfill Expansion. September 22.

Heath, Ralph C., 1982, Basic Ground-Water Hydrology, USGS Water Supply Paper 2220.

JEI (Joyce Engineering, Inc.), 2001, Hydrogeologic Report & Groundwater Monitoring Plan; Volume One; Site Application, Section II; Material Recovery, LLC Construction and Demolition Debris Landfill, Wake County, North Carolina.

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

Stoddard, Edward F., Farrar, Stewart S., Horton, Jr. J. Wright, Butler, J. Robert and Durhan, Robert M., 1991, The Eastern Piedmont in North Carolina, in Horton, J. W., Jr., and Zullo, V.A., eds., The Geology of the Carolinas: The University of Tennessee Press, p. 59 - 78.

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TABLES

TABLE 1

Summary of Historical Groundwater Elevation Data in Monitoring Wells
Material Recovery, LLC Construction and Demolition Landfill, Permit No. 92-31
Wake County, North Carolina

	Monitoring Wells								
	MW-1	**MW-2**	**MW-3**	**MW-4**	**MW-5**	**MW-6As**	**MW-6Ad**	**MW-7As**	**MW-7Ad**
TOC Elevation (ft AMSL)	**280.95**	**213.37**	**218.54**	**201.52**	**203.38**	**217.40**	**216.72**	**238.35**	**237.20**
Date	**Static Groundwater Elevation (ft AMSL)**								
08/07/02	252.98	195.37	191.13	186.43	191.82	--	--	--	--
06/16/03	258.29	197.10	195.09	191.72	193.45	--	--	--	--
12/01/03	258.17	197.55	195.62	191.88	194.13	--	--	--	--
06/10/04	257.17	196.89	194.54	191.12	193.43	--	--	--	--
12/16/04	256.71	196.85	193.93	190.70	193.38	--	--	--	--
06/05/05	256.73	196.40	193.41	190.13	193.01	--	--	--	--
12/27/05	254.10	196.16	191.64	189.84	193.38	--	--	--	--
06/21/06	253.98	196.27	192.07	189.57	193.18	--	--	--	--
12/01/06	253.11	196.43	191.83	189.44	193.67	--	--	--	--
06/28/07	254.11	196.29	192.21	189.32	192.83	--	--	--	--
12/13/07	251.52	195.89	190.81	187.92	192.52	--	--	--	--
06/19/08	251.92	195.86	191.95	189.91	192.46	--	--	--	--
12/02/08	250.38	195.86	190.75	189.90	193.09	--	--	--	--
01/23/09	--	--	191.25	--	--	--	--	--	--
06/11/09	252.94	196.15	191.92	190.30	193.38	--	--	--	--
12/10/09	252.69	196.37	191.42	191.45	194.82	--	--	--	--
06/15/10	255.99	196.11	192.51	191.10	193.37	--	--	--	--
12/09/10	254.44	195.98	191.34	189.67	192.56	--	--	--	--
06/15/11	254.05	195.79	191.33	190.04	192.57	207.99	208.16	224.98	224.76
12/06/11	252.00	195.82	190.62	188.87	192.60	207.69	207.54	225.47	225.38
MEAN	*254.28*	*196.27*	*192.27*	*189.96*	*193.14*	*207.84*	*207.85*	*225.23*	*225.07*
MAXIMUM	*258.29*	*197.55*	*195.62*	*191.88*	*194.82*	*207.99*	*208.16*	*225.47*	*225.38*
MINIMUM	*250.38*	*195.37*	*190.62*	*186.43*	*191.82*	*207.69*	*207.54*	*224.98*	*224.76*

Notes:
1. TOC = top of casing
2. ft AMSL = feet above mean sea level
3. Monitoring well MW-1 is the facility background well.

Golder Associates

TABLE 2

Summary of Estimated Horizontal Flow Velocities
Material Recovery, LLC Construction and Demolition Landfill, Permit No. 92-31
Wake County, North Carolina

December 2011							
Gradient Calculation Segment	**Flow Direction**	**Gradient Segment Length (feet)**	**Gradient Segment Elevations (feet)**	**Horizontal Gradient (i, feet/feet)**	**Effective Porosity (n_e)**	**Hydraulic Conductivity (K, cm/sec)**	**Velocity (V_{gw}, feet/year)**
i_1	NW	1174	230 / 200	0.0255	0.2	1.20E-04	15.86
i_2	NW	2502	250 / 190	0.0240	0.2	1.20E-04	14.89
i_3	NNW	1137	230 / 200	0.0264	0.2	1.20E-04	16.38

Notes:

1. Horizontal velocities based on the modified Darcy equation $V_{gw} = Ki/n_e$.
2. The geometric mean of K from individual well aquifer tests was used to calculate the hydraulic conductivity (tests conducted by Joyce Engineering Inc. as part of the Site Application, 2001).
3. An effective porosity of 20% was used in velocity calculations.
4. cm/sec = centimeters per second

TABLE 3

Summary of Well Construction Information
Material Recovery, LLC Construction and Demolition Landfill, Permit No. 92-31
Wake County, North Carolina

Well & Piezometer Number	Date Installed	Casing Diameter (inches)	Well Elevations		Total Depth Drilled		Screened Interval				Lithology of Screened Interval	Status
			Ground Surface	T.O.C.	Depth (feet B.G.S.)	Elevation (feet M.S.L.)	Depth (feet B.G.S.)		Elevation (feet M.S.L.)			
			feet above M.S.L.				from	to	from	to		
MW-1	08/22/01	2	278.17	280.95	49.0	229.17	24.0	49.0	254.17	229.17	Saprolite	Compliance Well
MW-2	08/02/02	2	210.55	213.37	35.0	175.55	19.5	34.5	191.05	176.05	PWR (Saprolite)	Compliance Well
MW-3	07/31/02	2	216.3	218.54	34.5	181.80	19.0	34.0	197.30	182.30	Silty Sand/PWR (Saprolite)	Compliance Well
MW-4	08/01/02	2	199.03	201.52	27.0	172.03	11.5	26.5	187.53	172.53	Silty Sand/PWR (Saprolite)	Compliance Well
MW-5	08/01/02	2	200.79	203.38	24.0	176.79	8.5	23.5	192.29	177.29	Silty Sand/PWR (Saprolite)	Compliance Well
MW-6As	05/11/11	2	214.7	217.40	16	229.17	5	15	209.7	199.7	Saprolite/PWR	Future Compliance Well
MW-6Ad	06/01/11	2	214.3	216.72	57	157.30	47	57	167.3	157.3	Bedrock	Future Compliance Well
MW-7As	05/11/11	2	235.6	238.35	34	201.60	9	24	226.6	211.6	PWR	Future Compliance Well
MW-7Ad	05/31/11	2	235.3	237.20	48	187.30	38	48	197.3	187.3	Bedrock	Future Compliance Well

Notes:

1. All elevations are referenced to mean sea level (M.S.L.); depths are referenced to ground surface (G.S.).
2. B.G.S. = below ground surface
3. T.O.C. = top of casing
4. PWR = partially weathered rock
5. MW-1 was installed as P-4.

Table 4

Summary of Detected Constituents in Groundwater
Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	MW-1 (Upgradient)	MW-2	MW-3	MW-4	MW-5	Blanks
Antimony	ug/L	05/07/02	30	--	--	--	--	--	ND
SWS GPS = 1 ug/L	ug/L	08/07/02	30	--	--	--	--	--	--
	ug/L	06/29/07	6	ND	ND	ND	ND	ND	ND
	ug/L	12/13/07	6	ND	ND	ND	ND	ND	ND
	ug/L	06/19/08	6	ND	ND	ND	ND	ND	ND
	ug/L	12/02/08	6	ND	ND	ND	ND	ND	ND
	ug/L	06/11/09	6	ND	ND	ND	1.05 J	ND	ND
	ug/L	12/10/09	6	ND	ND	ND	ND	ND	ND
	ug/L	06/15/10	6	ND	ND	ND	ND	ND	ND
	ug/L	12/09/10	6	ND	ND	0.276 J	ND	ND	ND
	ug/L	06/15/11	6	ND	ND	ND	ND	ND	ND
	ug/L	12/06/11	6	0.267 J	ND	ND	ND	ND	ND
Arsenic	ug/L	08/07/02	10	ND	ND	ND	ND	ND	ND
NC 2L = 10 ug/L	ug/L	06/16/03	10	ND	ND	ND	ND	ND	ND
	ug/L	12/16/03	10	ND	ND	ND	ND	ND	ND
	ug/L	06/16/04	10	ND	ND	ND	ND	ND	ND
	ug/L	12/16/04	10	ND	ND	ND	ND	ND	ND
	ug/L	06/14/05	10	ND	ND	ND	ND	ND	ND
	ug/L	12/27/05	10	ND	ND	ND	ND	ND	ND
	ug/L	06/21/06	10	ND	ND	ND	ND	ND	ND
	ug/L	12/13/06	10	3.2 B	3.8 B	9.2 B	3.0 B	4.0 B	3.5 J
	ug/L	06/29/07	10	ND	ND	4.7 J	ND	ND	ND
	ug/L	12/13/07	10	2.2 B	ND	4.6 B	ND	2.2 B	2.5 J
	ug/L	06/19/08	10	ND	ND	4.1 J	ND	ND	ND
	ug/L	12/02/08	10	ND	ND	ND	ND	ND	ND
	ug/L	06/11/09	10	4.4 B	ND	5.4 B	ND	ND	3.5 J
	ug/L	12/10/09	10	ND	ND	5.01 J	ND	3.75 J	ND
	ug/L	06/15/10	10	ND	3.60 J	ND	ND	ND	ND
	ug/L	12/09/10	10	ND	ND	3.28 J	ND	ND	ND
	ug/L	06/15/11	10	3.39 J	ND	ND	ND	4.64 J	ND
	ug/L	12/06/11	10	ND	ND	ND	ND	ND	ND
Barium	ug/L	08/07/02	500	ND	ND	4000	ND	ND	ND
NC 2L = 700 ug/L	ug/L	06/16/03	500	ND	ND	3100	ND	ND	ND
	ug/L	12/16/03	500	160	420	1200	120	120	ND
	ug/L	06/16/04	500	ND	540	1500	ND	ND	ND
	ug/L	12/16/04	500	ND	570	3100	ND	ND	ND
	ug/L	06/14/05	500	ND	520	2600	ND	ND	ND
	ug/L	12/27/05	500	ND	640	5700	ND	ND	ND
	ug/L	06/21/06	500	ND	708	4690	ND	ND	ND
	ug/L	12/13/06	100	217	681	6510	121	136	0.4 J
	ug/L	06/29/07	100	269	628	3140	99.5 J	42.1 B	10.4 J
	ug/L	12/13/07	100	417	697	5640	147	47.0 J	0.30 J
	ug/L	06/19/08	100	426	623	3750	123	38.6 J	ND
	ug/L	12/02/08	100	488	565	3130	109	40.3 J	ND
	ug/L	06/11/09	100	502	607	2380	94.2 J	45.2 J	ND
	ug/L	12/10/09	100	489	544	1970	99.9 J	36.0 J	ND
	ug/L	06/15/10	100	359	560	1100	130	29.2 J	ND
	ug/L	12/09/10	100	433	650	987	151	41.3 J	1.72 J
	ug/L	06/15/11	100	447	597	1170	110	37.4 J	ND
	ug/L	12/06/11	100	521	487	1330	155	59.8 J	ND
Beryllium	ug/L	06/29/07	1	ND	3.50	5.90	1.00	0.80 J	ND
SWS GPS = 4 ug/L	ug/L	12/13/07	1	ND	3.00	10.8	1.00	1.00	ND
	ug/L	06/19/08	1	ND	3.50	7.60	1.00	0.80 J	ND
	ug/L	12/02/08	1	0.40 J	2.80	6.70	0.90 J	1.00	ND
	ug/L	06/11/09	1	1.04	4.02	5.82	1.04	2.03	0.08 J
	ug/L	12/10/09	1	0.633 J	3.31	4.83	0.931 J	0.895 J	ND
	ug/L	06/15/10	1	0.435 J	4.03	2.73	1.04	0.597 J	ND
	ug/L	12/09/10	1	0.531 J	3.55	2.41	1.60	1.37	ND
	ug/L	06/15/11	1	0.592 J	4.04	2.95	1.26	0.757 J	ND
	ug/L	12/06/11	1	0.585 J	3.22	3.35	1.73	4.75	ND
Dissolved Beryllium	ug/L	12/06/11	--	--	--	--	--	0.287 J	ND

Table 4

Summary of Detected Constituents in Groundwater
Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	MW-1 (Upgradient)	MW-2	MW-3	MW-4	MW-5	Blanks
Cadmium	ug/L	05/07/02	1	--	--	--	--	--	ND
NC 2L = 2 ug/L	ug/L	08/07/02	1	1.4	1.1	1.8	1.2	1.0	ND
	ug/L	06/16/03	1	1.2	1.1	1.7	1.8	3.4	ND
	ug/L	12/16/03	1	ND	1.3	ND	ND	ND	ND
	ug/L	06/16/04	1	ND	ND	ND	ND	ND	ND
	ug/L	12/16/04	1	ND	ND	ND	ND	1.1	ND
	ug/L	06/14/05	1	ND	ND	ND	ND	ND	ND
	ug/L	12/27/05	1	ND	ND	ND	ND	ND	ND
	ug/L	06/21/06	1	ND	ND	ND	ND	ND	ND
	ug/L	12/13/06	1	ND	ND	0.50 J	ND	ND	ND
	ug/L	06/29/07	1	ND	ND	0.50 J	ND	ND	ND
	ug/L	12/13/07	1	ND	ND	ND	ND	ND	ND
	ug/L	06/19/08	1	ND	ND	ND	ND	ND	ND
	ug/L	12/02/08	1	ND	ND	ND	ND	ND	ND
	ug/L	06/11/09	1	0.26 J	0.36 J	0.58 J	0.19 J	0.34 J	ND
	ug/L	12/10/09	1	ND	ND	0.516 J	ND	ND	ND
	ug/L	06/15/10	1	ND	ND	ND	ND	ND	ND
	ug/L	12/09/10	1	ND	ND	0.523 J	ND	ND	ND
	ug/L	06/15/11	1	ND	ND	ND	ND	ND	ND
	ug/L	12/06/11	1	ND	ND	ND	ND	ND	ND
Chromium	ug/L	08/07/02	10	ND	ND	ND	ND	ND	ND
NC 2L = 10 ug/L	ug/L	06/16/03	10	ND	ND	ND	ND	ND	ND
	ug/L	12/16/03	10	ND	ND	ND	ND	ND	ND
	ug/L	06/16/04	10	ND	ND	ND	ND	ND	ND
	ug/L	12/16/04	10	ND	ND	ND	ND	ND	ND
	ug/L	06/14/05	10	ND	ND	ND	ND	ND	ND
	ug/L	12/27/05	10	ND	ND	ND	ND	15	ND
	ug/L	06/21/06	10	ND	ND	ND	ND	ND	ND
	ug/L	12/13/06	10	ND	ND	ND	ND	ND	ND
	ug/L	06/29/07	10	ND	ND	ND	ND	ND	ND
	ug/L	12/13/07	10	ND	ND	ND	ND	ND	ND
	ug/L	06/19/08	10	ND	ND	ND	ND	ND	ND
	ug/L	12/02/08	10	ND	ND	ND	ND	ND	ND
	ug/L	06/11/09	10	2.4 J	1.1 J	ND	ND	ND	ND
	ug/L	12/10/09	10	ND	ND	ND	ND	ND	ND
	ug/L	06/15/10	10	1.79 J	ND	ND	ND	ND	ND
	ug/L	12/09/10	10	1.04 J	ND	1.89 J	ND	ND	ND
	ug/L	06/15/11	10	ND	ND	ND	ND	ND	ND
	ug/L	12/06/11	10	ND	ND	ND	ND	2.12 J	ND
Cobalt	ug/L	06/29/07	10	5.8 J	ND	6.3 J	ND	ND	ND
SWS GPS = 1 ug/L	ug/L	12/13/07	10	6.3 J	ND	6.5 J	ND	ND	ND
	ug/L	06/19/08	10	6.1 J	ND	7.0 J	ND	ND	ND
	ug/L	12/02/08	10	4.7 J	ND	3.9 J	ND	ND	ND
	ug/L	06/11/09	10	7.5 J	ND	2.3 J	ND	1.4 J	ND
	ug/L	12/10/09	10	5.84 J	ND	2.19 J	ND	1.25 J	ND
	ug/L	06/15/10	10	5.84 J	ND	ND	ND	ND	ND
	ug/L	12/09/10	10	6.64 J	ND	1.87 J	ND	1.40 J	ND
	ug/L	06/15/11	10	6.17 J	ND	1.50 J	ND	ND	ND
	ug/L	12/06/11	10	5.39 J	ND	1.16 J	ND	1.79 J	ND
Copper	ug/L	08/07/02	0.05	ND	ND	ND	ND	ND	ND
NC 2L = 1000 ug/L	ug/L	06/29/07	10	ND	ND	2.0 J	ND	ND	ND
	ug/L	12/13/07	10	13.6	ND	1.40 J	0.80 J	2.20 J	ND
	ug/L	06/19/08	10	6.30 B	ND	1.30 B	10.5	ND	1.30 J
	ug/L	12/02/08	10	13.1	ND	ND	ND	ND	ND
	ug/L	06/11/09	10	13.9	ND	ND	1.20 J	3.59 J	ND
	ug/L	12/10/09	10	3.62 J	ND	ND	ND	ND	ND
	ug/L	06/15/10	10	3.99 J	ND	ND	ND	ND	ND
	ug/L	12/09/10	10	4.23 J	ND	ND	ND	1.87 J	ND
	ug/L	06/15/11	10	3.18 J	ND	ND	1.70 J	ND	ND
	ug/L	12/06/11	10	2.48 J	ND	ND	ND	7.00 J	ND

Table 4

Summary of Detected Constituents in Groundwater
Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	MW-1 (Upgradient)	MW-2	MW-3	MW-4	MW-5	Blanks
Lead	ug/L	08/07/02	10	ND	ND	ND	ND	19	ND
NC 2L = 15 ug/L	ug/L	06/16/03	10	ND	ND	ND	ND	21	ND
	ug/L	12/16/03	10	ND	ND	ND	ND	34	ND
	ug/L	06/16/04	10	ND	ND	ND	ND	15	ND
	ug/L	12/16/04	10	ND	ND	ND	ND	62	ND
	ug/L	06/14/05	10	ND	ND	ND	ND	92	ND
	ug/L	12/27/05	10	ND	ND	ND	ND	81	ND
	ug/L	06/21/06	10	ND	ND	ND	ND	33.4	ND
	ug/L	12/13/06	10	2.7 J	ND	4.6 J	2.5 J	44.0	ND
	ug/L	06/29/07	10	ND	ND	ND	ND	ND	ND
	ug/L	12/13/07	10	ND	ND	ND	ND	2.4 J	ND
	ug/L	06/19/08	10	2.7 J	ND	3.0 J	ND	ND	ND
	ug/L	12/02/08	10	3.4 J	ND	ND	ND	ND	ND
	ug/L	06/11/09	10	5.2 J	2.4 J	3.5 J	2.4 J	5.1 J	ND
	ug/L	12/10/09	10	ND	ND	ND	ND	ND	ND
	ug/L	06/15/10	10	ND	ND	ND	ND	ND	ND
	ug/L	12/09/10	10	ND	ND	ND	ND	ND	ND
	ug/L	06/15/11	10	2.23 J	ND	ND	ND	3.12 J	ND
	ug/L	12/06/11	10	ND	ND	ND	ND	8.99 J	ND
Mercury	ug/L	08/07/02	0.5	ND	ND	ND	ND	ND	ND
NC 2L = 1 ug/L	ug/L	06/16/03	0.5	ND	ND	ND	ND	ND	ND
	ug/L	12/16/03	0.5	ND	ND	ND	ND	ND	ND
	ug/L	06/16/04	0.5	ND	ND	ND	ND	ND	ND
	ug/L	12/16/04	0.5	ND	ND	ND	ND	ND	ND
	ug/L	06/14/05	0.5	ND	ND	ND	ND	ND	ND
	ug/L	12/27/05	0.5	ND	ND	ND	ND	ND	ND
	ug/L	06/21/06	2	ND	ND	ND	ND	ND	ND
	ug/L	12/13/06	0.2	ND	ND	ND	ND	ND	ND
	ug/L	06/29/07	0.2	ND	ND	2.24	ND	ND	ND
	ug/L	08/09/07	0.2	--	--	1.30	--	--	ND
	ug/L	12/13/07	0.2	ND	ND	ND	ND	ND	ND
	ug/L	06/19/08	0.2	ND	ND	0.58	0.12 J	ND	ND
	ug/L	12/02/08	0.2	ND	ND	0.59	ND	ND	ND
	ug/L	06/11/09	0.2	ND	ND	0.75	0.07 J	ND	ND
	ug/L	12/10/09	0.2	ND	ND	1.03	0.113 J	ND	ND
	ug/L	06/15/10	0.2	0.201	ND	1.53	ND	ND	ND
	ug/L	12/09/10	0.2	ND	ND	0.848	ND	ND	ND
	ug/L	06/15/11	0.2	ND	ND	0.768	ND	ND	ND
	ug/L	12/06/11	0.2	ND	ND	1.03	ND	ND	ND
Nickel	ug/L	08/07/02	50	ND	ND	ND	ND	ND	ND
NC 2L = 100 ug/L	ug/L	06/29/07	50	ND	ND	ND	ND	ND	ND
	ug/L	12/13/07	50	3.4 J	ND	8.0 J	4.0 J	2.3 J	ND
	ug/L	06/19/08	50	ND	ND	ND	2.1 J	ND	ND
	ug/L	12/02/08	50	ND	ND	ND	ND	ND	ND
	ug/L	06/11/09	50	2.3 J	0.7 J	2.1 J	1.5 J	1.2 J	ND
	ug/L	12/10/09	50	ND	ND	ND	ND	ND	ND
	ug/L	06/15/10	50	ND	ND	ND	ND	ND	ND
	ug/L	12/09/10	50	2.21 J	ND	ND	2.98 J	ND	ND
	ug/L	06/15/11	50	ND	ND	ND	ND	ND	ND
	ug/L	12/06/11	50	2.09 J	ND	ND	2.96 J	ND	ND

Table 4

Summary of Detected Constituents in Groundwater
Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	MW-1 (Upgradient)	MW-2	MW-3	MW-4	MW-5	Blanks
Selenium	ug/L	08/07/02	20	ND	ND	ND	ND	ND	ND
NC 2L = 20 ug/L	ug/L	06/16/03	20	ND	ND	ND	ND	ND	ND
	ug/L	12/16/03	20	ND	ND	ND	ND	ND	ND
	ug/L	06/16/04	20	ND	ND	ND	ND	ND	ND
	ug/L	12/16/04	20	ND	ND	ND	ND	ND	ND
	ug/L	06/14/05	20	ND	ND	ND	ND	ND	ND
	ug/L	12/27/05	20	ND	ND	ND	ND	ND	ND
	ug/L	06/21/06	20	ND	ND	ND	ND	ND	ND
	ug/L	12/13/06	10	4.3 B	2.1 B	ND	5.4 B	ND	4.5 J
	ug/L	06/29/07	10	ND	ND	2.8 J	ND	ND	ND
	ug/L	12/13/07	10	ND	ND	ND	ND	ND	ND
	ug/L	06/19/08	10	ND	ND	ND	2.7 J	ND	ND
	ug/L	12/02/08	10	ND	ND	ND	ND	ND	ND
	ug/L	06/11/09	10	ND	ND	4.8 J	ND	ND	ND
	ug/L	12/10/09	10	ND	ND	ND	ND	ND	ND
	ug/L	06/15/10	10	ND	ND	ND	ND	ND	ND
	ug/L	12/09/10	10	ND	ND	ND	1.85 J	ND	ND
	ug/L	06/15/11	10	ND	ND	ND	ND	ND	ND
	ug/L	12/06/11	10	ND	ND	ND	ND	ND	ND
Silver	ug/L	08/07/02	10	ND	ND	ND	ND	ND	ND
SWS GPS = 20 ug/L	ug/L	06/16/03	10	ND	ND	ND	ND	ND	ND
	ug/L	12/16/03	10	ND	ND	ND	ND	ND	ND
	ug/L	06/16/04	10	ND	ND	ND	ND	ND	ND
	ug/L	12/16/04	10	ND	ND	ND	ND	ND	ND
	ug/L	06/14/05	10	ND	ND	ND	ND	ND	ND
	ug/L	12/27/05	10	ND	ND	ND	ND	ND	ND
	ug/L	06/21/06	10	ND	ND	ND	ND	ND	ND
	ug/L	12/13/06	10	ND	3.1 J	ND	ND	ND	ND
	ug/L	06/29/07	10	ND	ND	ND	ND	ND	ND
	ug/L	12/13/07	10	ND	ND	ND	ND	ND	ND
	ug/L	06/19/08	10	ND	ND	ND	ND	ND	ND
	ug/L	12/02/08	10	ND	ND	ND	ND	ND	ND
	ug/L	06/11/09	10	2.7 J	ND	1.4 J	6.8 J	ND	ND
	ug/L	12/10/09	10	ND	2.08 J	ND	ND	ND	ND
	ug/L	06/15/10	10	ND	ND	ND	ND	ND	ND
	ug/L	12/09/10	10	ND	ND	ND	ND	ND	ND
	ug/L	06/15/11	10	ND	ND	ND	ND	ND	ND
	ug/L	12/06/11	10	2.67 J	ND	ND	ND	3.09 J	ND
Thallium	ug/L	06/29/07	5.5	0.246 J	0.137 J	0.390 J	0.039 J	ND	ND
SWS GPS = 0.2 ug/L	ug/L	12/13/07	5.5	0.372 J	0.141 J	0.492 J	0.050 J	ND	ND
	ug/L	06/19/08	5.5	0.352 J	0.143 J	0.450 J	0.047 J	ND	ND
	ug/L	12/02/08	5.5	ND	ND	ND	ND	ND	ND
	ug/L	06/11/09	5.5	0.304 J	ND	0.210 J	ND	ND	ND
	ug/L	12/10/09	5.5	0.325 J	0.111 J	0.318 J	ND	ND	ND
	ug/L	06/15/10	5.5	0.144 J	ND	0.126 J	ND	ND	ND
	ug/L	12/09/10	5.5	0.126 J	ND	ND	ND	ND	ND
	ug/L	06/15/11	5.5	ND	ND	ND	ND	ND	ND
	ug/L	12/06/11	5.5	0.319 J	0.119 J	0.226 J	ND	ND	ND
Vanadium	ug/L	06/29/07	25	ND	ND	ND	ND	2.9 J	ND
SWS GPS = 0.3 ug/L	ug/L	12/13/07	25	4.9 J	ND	ND	ND	4.0 J	ND
	ug/L	06/19/08	25	1.3 J	ND	ND	ND	1.1 J	ND
	ug/L	12/02/08	25	4.1 J	ND	ND	ND	ND	ND
	ug/L	06/11/09	25	5.9 J	ND	ND	ND	6.6 J	ND
	ug/L	12/10/09	25	ND	ND	ND	ND	2.15 J	ND
	ug/L	06/15/10	25	ND	ND	ND	ND	ND	ND
	ug/L	12/09/10	25	ND	ND	ND	ND	4.33 J	ND
	ug/L	06/15/11	25	ND	ND	ND	ND	2.41 J	ND
	ug/L	12/06/11	25	ND	ND	ND	ND	16.4 J	ND

Table 4

Summary of Detected Constituents in Groundwater
Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	MW-1 (Upgradient)	MW-2	MW-3	MW-4	MW-5	Blanks
Zinc	ug/L	08/07/02	50	ND	ND	ND	ND	ND	ND
NC 2L = 1000 ug/L	ug/L	06/29/07	10	9.1 J	ND	26.1	ND	ND	ND
	ug/L	12/13/07	10	22.2	3.3 B	33.4	3.2 B	5.0 B	2.6 J
	ug/L	06/19/08	10	15.6	2.5 B	26.2	15.3	2.7 B	1.0 J
	ug/L	12/02/08	10	22.2	ND	13.7	ND	ND	ND
	ug/L	06/11/09	10	32.7 B	4.6 B	15.7 B	13.8 B	31.0 B	8.4 J
	ug/L	12/10/09	10	12.9	ND	11.0	ND	ND	ND
	ug/L	06/15/10	10	13.9	ND	7.62 J	4.03 J	ND	ND
	ug/L	12/09/10	10	27.0	ND	7.78 J	ND	ND	ND
	ug/L	06/15/11	10	12.5	ND	7.94 J	ND	ND	ND
	ug/L	12/06/11	10	15.7	5.51 J	14.5	ND	13.4	ND
Iron	ug/L	06/29/07	300	ND	ND	239 J	ND	4180	ND
NC 2L = 300 ug/L	ug/L	08/09/07	300	364	--	2920	--	--	23 J
	ug/L	12/13/07	300	2970	328	124 J	321	7340	ND
	ug/L	06/19/08	300	1230	86 J	75 J	203 J	16100	ND
	ug/L	12/02/08	300	3780	66 J	32 J	32 J	15500	ND
	ug/L	06/11/09	300	3150	40 J	35 J	158 J	25300	ND
	ug/L	12/10/09	300	409	41.4 J	32.8 J	58.3 J	6370	ND
	ug/L	06/15/10	300	517	109 J	48.9 J	78.6 J	8750	ND
	ug/L	12/09/10	300	210 J	ND	26.1 J	134 J	22300	ND
	ug/L	06/15/11	300	149 J	31.4 J	ND	111 J	9750	ND
	ug/L	12/06/11	300	73.1 J	ND	ND	29.7 J	41800	ND
Manganese	ug/L	06/29/07	50	71.2	174	256	52.6	151	ND
NC 2L = 50 ug/L	ug/L	12/13/07	50	121	123	356	72.3	170	ND
	ug/L	06/19/08	50	86.6	113	274	78.9	155	ND
	ug/L	12/02/08	50	137	72.3	237	63.0	158	2.6
	ug/L	06/11/09	50	125	111	195	68.0	158	ND
	ug/L	12/10/09	50	71.6	62.8	177	65.3	151	ND
	ug/L	06/15/10	50	62.8	158	108	85.4	136	ND
	ug/L	12/09/10	50	66.4	89.9	116	136	158	ND
	ug/L	06/15/11	50	68.2	118	142	106	157	ND
	ug/L	12/06/11	50	67.5	86.9	171	188	164	1.46 J
Methylene Chloride	ug/L	06/16/03	10	ND	ND	ND	ND	ND	ND
NC 2L = 5 ug/L	ug/L	12/16/03	10	ND	ND	ND	ND	ND	ND
	ug/L	06/16/04	10	ND	ND	ND	ND	ND	ND
	ug/L	12/16/04	10	ND	ND	ND	ND	ND	ND
	ug/L	06/14/05	10	ND	ND	ND	ND	ND	ND
	ug/L	12/27/05	10	ND	ND	ND	ND	ND	ND
	ug/L	06/21/06	10	ND	ND	ND	ND	ND	ND
	ug/L	12/13/06	10	ND	ND	ND	ND	ND	ND
	ug/L	06/29/07	1	ND	ND	ND	ND	ND	ND
	ug/L	12/13/07	1	ND	ND	ND	ND	ND	ND
	ug/L	06/19/08	1	ND	ND	ND	ND	ND	ND
	ug/L	12/02/08	1	ND	ND	ND	ND	ND	ND
	ug/L	06/11/09	1	ND	ND	ND	ND	ND	ND
	ug/L	12/10/09	1	ND	ND	ND	ND	ND	ND
	ug/L	06/15/10	1	ND	ND	ND	ND	ND	ND
	ug/L	12/09/10	1	ND	ND	ND	ND	ND	ND
	ug/L	06/15/11	1	ND	ND	ND	ND	ND	ND
	ug/L	12/06/11	1	ND	ND	1.0	ND	ND	ND

Table 4

Summary of Detected Constituents in Groundwater
Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	MW-1 (Upgradient)	MW-2	MW-3	MW-4	MW-5	Blanks
Tetrachloroethene	ug/L	06/16/03	5	ND	ND	ND	ND	ND	ND
NC 2L = 0.7 ug/L	ug/L	12/16/03	5	ND	ND	ND	ND	ND	ND
	ug/L	06/16/04	5	ND	ND	ND	ND	ND	ND
	ug/L	12/16/04	5	ND	ND	ND	ND	ND	ND
	ug/L	06/14/05	5	ND	ND	ND	ND	ND	ND
	ug/L	12/27/05	5	ND	ND	ND	ND	ND	ND
	ug/L	06/21/06	5	ND	ND	ND	ND	ND	ND
	ug/L	12/13/06	5	ND	ND	ND	ND	ND	ND
	ug/L	06/29/07	1	ND	ND	ND	ND	ND	ND
	ug/L	12/13/07	1	ND	ND	ND	ND	ND	ND
	ug/L	06/19/08	1	ND	ND	ND	ND	ND	ND
	ug/L	12/02/08	1	ND	ND	0.77 J	ND	ND	ND
	ug/L	06/11/09	1	ND	ND	0.82 J	ND	ND	ND
	ug/L	12/10/09	1	ND	ND	1.2	ND	ND	ND
	ug/L	06/15/10	1	ND	ND	1.0	ND	ND	ND
	ug/L	12/09/10	1	ND	ND	1.4	ND	ND	ND
	ug/L	06/15/11	1	ND	ND	1.9	ND	ND	ND
	ug/L	12/06/11	1	ND	ND	2.9	ND	ND	ND
Trichloroethene	ug/L	06/16/03	5	ND	ND	ND	ND	ND	ND
NC 2L = 3 ug/L	ug/L	12/16/03	5	ND	ND	ND	ND	ND	ND
	ug/L	06/16/04	5	ND	ND	ND	ND	ND	ND
	ug/L	12/16/04	5	ND	ND	ND	ND	ND	ND
	ug/L	06/14/05	5	ND	ND	ND	ND	ND	ND
	ug/L	12/27/05	5	ND	ND	ND	ND	ND	ND
	ug/L	06/21/06	5	ND	ND	ND	ND	ND	ND
	ug/L	12/13/06	5	ND	ND	ND	ND	ND	ND
	ug/L	06/29/07	1	ND	ND	ND	ND	ND	ND
	ug/L	12/13/07	1	ND	ND	ND	ND	ND	ND
	ug/L	06/19/08	1	ND	ND	0.60 J	ND	ND	ND
	ug/L	12/02/08	1	ND	ND	1.6	ND	ND	ND
(verification event)	ug/L	01/23/09	1	--	--	1.7 (4.2)	ND	ND	ND
	ug/L	06/11/09	1	ND	ND	2.2	ND	ND	ND
	ug/L	12/10/09	1	ND	ND	3.4	ND	ND	ND
	ug/L	06/15/10	1	ND	ND	2.1	ND	ND	ND
	ug/L	12/09/10	1	ND	ND	3.0	ND	ND	ND
	ug/L	06/15/11	1	ND	ND	4.6	ND	ND	ND
	ug/L	12/06/11	1	ND	ND	4.8	ND	ND	ND
Trichlorofluoromethane	ug/L	06/16/03	5	ND	ND	ND	ND	ND	ND
NC 2L = 2000 ug/L	ug/L	12/16/03	5	ND	ND	ND	ND	ND	ND
	ug/L	06/16/04	5	ND	ND	ND	ND	ND	ND
	ug/L	12/16/04	5	ND	ND	ND	ND	ND	ND
	ug/L	06/14/05	5	ND	ND	ND	ND	ND	ND
	ug/L	12/27/05	5	ND	ND	ND	ND	ND	ND
	ug/L	06/21/06	5	ND	ND	ND	ND	ND	ND
	ug/L	12/13/06	5	ND	ND	3.3 J	ND	ND	ND
	ug/L	06/29/07	1	ND	0.53 J	34	ND	ND	ND
	ug/L	08/09/07	1	--	--	11	--	--	ND
	ug/L	12/13/07	1	ND	ND	23	ND	ND	ND
	ug/L	06/19/08	1	ND	ND	25	ND	ND	ND
	ug/L	12/02/08	1	ND	ND	13	ND	ND	ND
	ug/L	06/11/09	1	ND	ND	9.2	ND	ND	ND
	ug/L	12/10/09	1	ND	ND	7.8	ND	ND	ND
	ug/L	06/15/10	1	ND	ND	3.1	ND	ND	ND
	ug/L	12/09/10	1	ND	ND	2.6	ND	ND	ND
	ug/L	06/15/11	1	ND	ND	2.2	ND	ND	ND
	ug/L	12/06/11	1	ND	ND	1.4	ND	ND	ND

Table 4

Summary of Detected Constituents in Groundwater
Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	MW-1 (Upgradient)	MW-2	MW-3	MW-4	MW-5	Blanks
Total Xylenes	ug/L	06/16/03	10	ND	ND	ND	ND	ND	ND
NC 2L = 500 ug/L	ug/L	12/16/03	10	5	ND	ND	ND	ND	ND
	ug/L	06/16/04	10	ND	ND	ND	ND	ND	ND
	ug/L	12/16/04	10	ND	ND	ND	ND	ND	ND
	ug/L	06/14/05	10	ND	ND	ND	ND	ND	ND
	ug/L	12/27/05	5	ND	ND	ND	ND	ND	ND
	ug/L	06/21/06	5	ND	ND	ND	ND	ND	ND
	ug/L	12/13/06	5	ND	ND	ND	ND	ND	ND
	ug/L	06/29/07	4	ND	ND	ND	ND	ND	ND
	ug/L	12/13/07	5	ND	ND	ND	ND	ND	ND
	ug/L	06/19/08	5	ND	ND	ND	ND	ND	ND
	ug/L	12/02/08	5	ND	ND	ND	ND	ND	ND
	ug/L	06/11/09	5	ND	ND	ND	ND	ND	ND
	ug/L	12/10/09	5	ND	ND	ND	ND	ND	ND
	ug/L	06/15/10	5	ND	ND	ND	ND	ND	ND
	ug/L	12/09/10	5	ND	ND	ND	ND	ND	ND
	ug/L	06/15/11	5	ND	ND	ND	ND	ND	ND
	ug/L	12/06/11	5	ND	ND	ND	ND	ND	ND
Tetrahydrofuran	ug/L	06/15/11	--	ND	ND	4.8	ND	ND	ND
(No Standard)	ug/L	12/06/11	--	ND	ND	8.5	ND	ND	ND
Chloride	mg/L	06/29/07	--	16	15	27	3.6	3.1	0.54 J
(NC 2L = 250 mg/L)	mg/L	08/09/07	--	24	--	39	--	--	ND
	mg/L	12/13/07	--	27	21	47	9.0	4.3 J	ND
	mg/L	06/19/08	--	29	16	33	5.4 B	4.1 B	1.7 J
	mg/L	12/02/08	--	32	15	33	4.7 J	2.9 J	ND
	mg/L	06/11/09	--	35	16	25	4.9 J	4.8 J	ND
	mg/L	12/10/09	--	40	16	24	5.6	9.2	ND
	mg/L	06/15/10	--	31	19	18	4.9 J	5.1	ND
	mg/L	12/09/10	--	36	18	14	5.0	4.2 J	ND
	mg/L	06/15/11	--	38	18	19	4.5 J	4.6 J	ND
	mg/L	12/06/11	--	42	15	21	4.4 B	3.7 B	1.4 J
Total Dissolved Solids	mg/L	06/29/07	--	88	310	490	92	76	--
(NC 2L = 1000 mg/L)	mg/L	08/09/07	--	82	--	620	--	--	ND
	mg/L	12/13/07	--	70	360	690	110	66	ND
	mg/L	06/19/08	--	86	350	490	90	58	ND
	mg/L	12/02/08	--	78	350	520	110	76	ND
	mg/L	06/11/09	--	68	330	370	48	54	ND
	mg/L	12/10/09	--	64	310	350	46	100	ND
	mg/L	06/15/10	--	76	390	240	130	62	ND
	mg/L	12/09/10	--	72	340	130	130	50	ND
	mg/L	06/15/11	--	60	330	200	80	54	ND
	mg/L	12/06/11	--	68	280	220	110	52	ND
Sulfate	mg/L	06/29/07	250	4.0 B	3.9 B	3.8 B	8.8 B	5.6 B	3.9 J
(NC 2L = 250 mg/L)	mg/L	08/09/07	250	1.4 J	--	1.8 J	--	--	ND
	mg/L	12/13/07	250	0.86 J	1.2 J	1.4 J	3.6 J	0.88 J	ND
	mg/L	06/19/08	250	1.6 J	1.7 J	1.6 J	4.6 J	3.6 J	ND
	mg/L	12/02/08	250	ND	2.0 J	2.0 J	5.5 J	4.0 J	ND
	mg/L	06/11/09	250	1.9 J	1.9 J	1.8 J	6.2 J	4.9 J	ND
	mg/L	12/10/09	250	2.0 J	2.1 J	2.0 J	8.2 J	5.5 J	ND
	mg/L	06/15/10	250	3.1 J	2.0 J	ND	42 J	5.0 J	ND
	mg/L	12/09/10	250	2.5 J	2.1 J	1.9 J	59 J	3.7 J	ND
	mg/L	06/15/11	250	1.2 J	1.1 J	0.81 J	27 J	3.6 J	ND
	mg/L	12/06/11	250	1.6 J	1.7 J	1.5 J	63 J	2.9 J	ND

Table 4

Summary of Detected Constituents in Groundwater
Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	MW-1 (Upgradient)	MW-2	MW-3	MW-4	MW-5	Blanks
Total Alkalinity	mg/L	08/07/02	2.0	3.0 J	5.0 J	ND	26	20	ND
(No Standard)	mg/L	06/29/07	--	ND	ND	ND	17	67	--
	mg/L	08/09/07	--	ND	--	ND	--	--	ND
	mg/L	12/13/07	--	4.7 J	5.4 J	ND	24	24	ND
	mg/L	06/19/08	--	6.1 B	7.9 B	ND	27 B	22 B	7.0 J
	mg/L	12/02/08	--	20	19	22	39	30	ND
	mg/L	06/11/09	--	ND	ND	ND	16	21	ND
	mg/L	12/10/09	--	10 J	10 J	16	27	15	ND
	mg/L	06/15/10	--	8.7 J	ND	11 J	18	23	ND
	mg/L	12/09/10	--	ND	ND	9.5 J	21	24	ND
	mg/L	06/15/11	--	ND	12 J	ND	18	22	ND
	mg/L	12/06/11	--	ND	ND	ND	17	12 J	ND
pH (field)	S.U.	08/07/02	--	4.74	6.11	5.57	6.35	6.15	--
	S.U.	12/13/06	--	5.19	4.82	4.14	5.15	5.71	--
	S.U.	06/29/07	--	5.67	4.82	4.30	4.97	5.37	--
	S.U.	08/09/07	--	4.03	--	3.70	--	--	--
	S.U.	12/13/07	--	4.55	4.82	4.12	4.94	5.58	--
	S.U.	06/19/08	--	4.44	4.77	4.22	5.05	5.65	--
	S.U.	12/02/08	--	4.60	5.03	4.28	5.10	5.65	--
verification event	S.U.	01/23/09	--	--	--	4.09	--	--	--
	S.U.	06/11/09	--	4.77	5.00	4.46	5.21	5.62	--
	S.U.	12/10/09	--	4.53	4.82	4.31	5.12	5.34	--
	S.U.	06/15/10	--	4.99	5.12	4.96	5.55	5.78	--
	S.U.	12/09/10	--	4.45	4.90	4.53	4.82	5.35	--
	S.U.	06/15/11	--	6.45	6.43	6.53	5.97	6.88	--
	S.U.	12/06/11	--	4.22	4.62	4.24	4.71	5.50	--
Specific Conductance (Field)	uS/cm	12/13/06	--	97.7	485	1208	143.8	88.5	--
	uS/cm	06/29/07	--	105	457	696	102	68	--
	uS/cm	08/09/07	--	114	--	785	--	--	--
	uS/cm	12/13/07	--	156	567	1040	402	222	--
	uS/cm	06/19/08	--	149	452	707	124	76	--
	uS/cm	12/02/08	--	131	374	586	101	61	--
verification event	uS/cm	01/23/09	--	--	--	347	--	--	--
	uS/cm	06/11/09	--	166	452	494	82	74	--
	uS/cm	12/10/09	--	185	450	457	103	74	--
	uS/cm	06/15/10	--	143	464	274	157	75	--
	uS/cm	12/09/10	--	148	435	195	191	66	--
	uS/cm	06/15/11	--	164	436	264	129	72	--
	uS/cm	12/06/11	--	170	382	321	206	68	--
Temperature (Field)	°C	12/13/06	--	17.5	16.1	16.2	17.4	15.1	--
	°C	06/29/07	--	20.25	21.3	20.53	20.88	20.64	--
	°C	08/09/07	--	19.13	--	17.51	--	--	--
	°C	12/13/07	--	17.42	17.06	16.99	19.01	16.99	--
	°C	06/19/08	--	18.52	17.58	17.38	17.38	16.02	--
	°C	12/02/08	--	15.63	15.55	16.09	17.15	14.53	--
verification event	°C	01/23/09	--	--	--	14.76	--	--	--
	°C	06/11/09	--	20.49	18.35	17.64	18.82	19.25	--
	°C	12/10/09	--	16.76	15.70	16.05	16.47	14.63	--
	°C	06/15/10	--	20.84	19.16	18.42	17.93	18.64	--
	°C	12/09/10	--	16.14	15.30	15.26	16.58	13.62	--
	°C	06/15/11	--	19.25	17.45	16.71	17.47	17.61	--
	°C	12/06/11	--	17.62	17.09	16.77	18.09	16.91	--

Table 4

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Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	MW-1 (Upgradient)	MW-2	MW-3	MW-4	MW-5	Blanks
Turbidity (Field)	NTU	12/13/06	--	21.6	10.5	16.8	28.7	992	--
	NTU	06/29/07	--	28.4	7.6	0.0	0.0	152	--
	NTU	08/09/07	--	33.5	--	96.2	--	--	--
	NTU	12/13/07	--	846	69.8	8.2	21.3	253	--
	NTU	06/19/08	--	65.9	7.94	16.8	11.2	91.1	--
	NTU	12/02/08	--	50.4	7.91	3.49	8.53	99.7	--
verification event	NTU	01/23/09	--	--	--	3.33	--	--	--
	NTU	06/11/09	--	84.1	7.67	4.38	14.3	191	--
	NTU	12/10/09	--	33.1	5.12	1.67	7.68	42.9	--
	NTU	06/15/10	--	15.1	10.6	2.10	8.28	44.7	--
	NTU	12/09/10	--	6.96	3.21	1.53	6.40	98.5	--
	NTU	06/15/11	--	3.04	3.40	1.06	6.17	235	--
	NTU	12/06/11	--	5.68	4.68	3.09	3.62	461	--
Dissolved Oxygen (Field)	mg/L	12/13/07	--	7.72	5.91	1.18	2.45	0.57	--
	mg/L	06/19/08	--	7.28	5.40	2.18	1.16	0.95	--
	mg/L	12/02/08	--	7.37	6.56	4.03	4.36	1.38	--
verification event	mg/L	01/23/09	--	--	--	2.34	--	--	--
	mg/L	06/11/09	--	7.66	5.68	3.06	1.29	0.85	--
	mg/L	12/10/09	--	6.77	6.14	1.53	0.89	2.24	--
	mg/L	06/15/10	--	6.56	1.80	2.50	1.33	2.64	--
	mg/L	12/09/10	--	7.27	4.31	3.21	5.81	5.34	--
	mg/L	06/15/11	--	4.96	4.01	1.67	1.48	0.49	--
	mg/L	12/06/11	--	6.42	5.40	1.41	1.08	1.27	--
Oxidation-Reduction Potential (Field)	mV	12/13/07	--	334	338	396	375	85	--
	mV	06/19/08	--	307	306	358	344	72	--
	mV	12/02/08	--	232.0	321.8	401.5	464.2	160.4	--
verification event	mV	01/23/09	--	--	--	328.0	--	--	--
	mV	06/11/09	--	263.6	191.1	266.6	184.1	103.9	--
	mV	12/10/09	--	235.4	215.6	236.9	172.5	123.5	--
	mV	06/15/10	--	255.7	190.3	250.5	177.9	92.1	--
	mV	12/09/10	--	278.9	285.7	279.7	238.2	80.8	--
	mV	06/15/11	--	257.3	229.3	271.1	234.7	141.1	--
	mV	12/06/11	--	145.3	128.2	153.4	122.1	95.6	--

Notes:

1. MW = groundwater monitoring well
2. ug/L = micrograms per liter
3. mg/L = milligrams per liter
4. S.U. = Standard Units
5. uS/cm = microsiemens per centimeter
6. ^{o}C = degrees Celsius
7. NTU = Nephelometric Turbidity Units
8. mV = millivolts
9. J = Estimated Value
10. B = Blank-qualified data
11. ND = Not detected at or above the stated reporting limit
12. NC 2L = North Carolina groundwater quality standard established under 15A NCAC 2L .0202
13. SWS GPS = North Carolina Solid Waste Section Groundwater Protection Standard
14. -- = no data available
15. Shaded values are above their current respective NC 2L Standard or GPS.
16. Blanks = Field, trip, and laboratory blanks
17. SWS Reporting Limit = NCPQL or lab-specific reporting limit prior to 2007 and NCSWSL starting on 01/18/07

Table 5

Summary of Detected Constituents in Surface Water
Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	SW-1 (Upstream)	SW-2 (Downstream)	SW-3 (Downstream)	Blanks
Antimony	ug/L	05/07/02	30	--	ND	--	ND
No SW Standard	ug/L	06/29/07	6	ND	ND	ND	ND
	ug/L	12/13/07	6	ND	ND	ND	ND
	ug/L	06/19/08	6	ND	ND	dry	ND
	ug/L	12/02/08	6	ND	ND	ND	ND
	ug/L	06/11/09	6	ND	ND	ND	ND
	ug/L	12/10/09	6	ND	ND	ND	ND
	ug/L	06/15/10	6	ND	ND	ND	ND
	ug/L	12/09/10	6	ND	ND	0.503 J	ND
	ug/L	06/15/11	6	ND	ND	ND	ND
	ug/L	12/06/11	6	ND	ND	ND	ND
Arsenic	ug/L	05/07/02	10	--	ND	--	ND
SW Standard = 50 ug/L	ug/L	08/07/02	10	--	--	ND	ND
	ug/L	06/16/03	10	ND	ND	ND	ND
	ug/L	12/16/03	10	ND	ND	ND	ND
	ug/L	06/16/04	10	ND	ND	ND	ND
	ug/L	12/16/04	10	ND	ND	ND	ND
	ug/L	06/14/05	10	ND	ND	ND	ND
	ug/L	12/27/05	10	ND	ND	ND	ND
	ug/L	06/21/06	10	ND	ND	ND	ND
	ug/L	12/13/06	10	2.8 B	3.0 B	2.0 B	3.5 J
	ug/L	06/29/07	10	3.7 J	ND	ND	ND
	ug/L	12/13/07	10	ND	ND	ND	2.5 J
	ug/L	06/19/08	10	ND	ND	dry	ND
	ug/L	12/02/08	10	ND	ND	ND	ND
	ug/L	06/11/09	10	ND	ND	ND	3.5 J
	ug/L	12/10/09	10	ND	ND	5.15 J	ND
	ug/L	06/15/10	10	ND	ND	ND	ND
	ug/L	12/09/10	10	ND	ND	ND	ND
	ug/L	06/15/11	10	3.09 J	ND	ND	ND
	ug/L	12/06/11	10	ND	ND	ND	ND
Barium	ug/L	05/07/02	500	--	ND	--	ND
No SW Standard	ug/L	08/07/02	500	--	--	ND	ND
	ug/L	06/16/03	500	ND	ND	ND	ND
	ug/L	12/16/03	500	ND	ND	230	ND
	ug/L	06/16/04	500	ND	ND	ND	ND
	ug/L	12/16/04	500	ND	ND	ND	ND
	ug/L	06/14/05	500	ND	ND	ND	ND
	ug/L	12/27/05	500	ND	ND	ND	ND
	ug/L	06/21/06	500	ND	ND	ND	ND
	ug/L	12/13/06	100	98.4 J	37.8 J	265	0.4 J
	ug/L	06/29/07	100	28.2 B	28.8 B	232	10.4 J
	ug/L	12/13/07	100	31.3 J	36.5 J	299	0.30 J
	ug/L	06/19/08	100	31.8 J	32.0 J	dry	ND
	ug/L	12/02/08	100	36.0 J	40.8 J	271	ND
	ug/L	06/11/09	100	41.2 J	48.3 J	264	ND
	ug/L	12/10/09	100	46.0 J	43.9 J	190	ND
	ug/L	06/15/10	100	34.0 J	32.0 J	245	ND
	ug/L	12/09/10	100	29.6 J	32.6 J	277	1.72 J
	ug/L	06/15/11	100	27.5 J	33.3 J	259	ND
	ug/L	12/06/11	100	31.6 J	34.5 J	277	ND
Beryllium	ug/L	05/07/02	2	--	ND	--	ND
SW Standard = 6.5 ug/L	ug/L	06/29/07	1	ND	ND	ND	ND
	ug/L	12/13/07	1	ND	ND	ND	ND
	ug/L	06/19/08	1	ND	ND	dry	ND
	ug/L	12/02/08	1	ND	ND	ND	ND
	ug/L	06/11/09	1	0.14 B	0.15 B	0.22 B	0.08 J
	ug/L	12/10/09	1	0.114 J	0.154 J	0.592 J	ND
	ug/L	06/15/10	1	ND	ND	ND	ND
	ug/L	12/09/10	1	ND	ND	ND	ND
	ug/L	06/15/11	1	ND	ND	0.216 J	ND
	ug/L	12/06/11	1	ND	ND	ND	ND

Table 5

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Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	SW-1 (Upstream)	SW-2 (Downstream)	SW-3 (Downstream)	Blanks
Cadmium	ug/L	05/07/02	1	--	ND	--	ND
SW Standard = 2 ug/L (N)	ug/L	08/07/02	1	--	--	1.6	ND
	ug/L	06/16/03	1	1.0	ND	1.1	ND
	ug/L	12/16/03	1	ND	ND	ND	ND
	ug/L	06/16/04	1	ND	ND	ND	ND
	ug/L	12/16/04	1	ND	ND	ND	ND
	ug/L	06/14/05	1	ND	ND	ND	ND
	ug/L	12/27/05	1	ND	ND	ND	ND
	ug/L	06/21/06	1	ND	ND	ND	ND
	ug/L	12/13/06	1	ND	ND	ND	ND
	ug/L	06/29/07	1	ND	ND	ND	ND
	ug/L	12/13/07	1	ND	ND	ND	ND
	ug/L	06/19/08	1	ND	ND	dry	ND
	ug/L	12/02/08	1	ND	ND	ND	ND
	ug/L	06/11/09	1	0.20 J	ND	0.28 J	ND
	ug/L	12/10/09	1	ND	ND	ND	ND
	ug/L	06/15/10	1	ND	ND	ND	ND
	ug/L	12/09/10	1	ND	ND	ND	ND
	ug/L	06/15/11	1	ND	ND	ND	ND
	ug/L	12/06/11	1	ND	ND	ND	ND
Chromium	ug/L	05/07/02	10	--	ND	--	ND
SW Standard = 50 ug/L	ug/L	08/07/02	10	--	--	ND	ND
	ug/L	06/16/03	10	ND	ND	ND	ND
	ug/L	12/16/03	10	ND	ND	ND	ND
	ug/L	06/16/04	10	ND	ND	ND	ND
	ug/L	12/16/04	10	ND	ND	ND	ND
	ug/L	06/14/05	10	ND	ND	ND	ND
	ug/L	12/27/05	10	ND	ND	ND	ND
	ug/L	06/21/06	10	ND	ND	ND	ND
	ug/L	12/13/06	10	ND	ND	ND	ND
	ug/L	06/29/07	10	ND	ND	ND	ND
	ug/L	12/13/07	10	ND	ND	ND	ND
	ug/L	06/19/08	10	ND	ND	dry	ND
	ug/L	12/02/08	10	ND	ND	ND	ND
	ug/L	06/11/09	10	1.1 J	1.2 J	0.7 J	ND
	ug/L	12/10/09	10	1.70 J	ND	3.41 J	ND
	ug/L	06/15/10	10	ND	1.00 J	ND	ND
	ug/L	12/09/10	10	ND	ND	ND	ND
	ug/L	06/15/11	10	ND	ND	ND	ND
	ug/L	12/06/11	10	ND	ND	ND	ND
Cobalt	ug/L	05/07/02	10	--	ND	--	ND
No SW Standard	ug/L	06/29/07	10	ND	ND	ND	ND
	ug/L	12/13/07	10	ND	ND	ND	ND
	ug/L	06/19/08	10	ND	ND	dry	ND
	ug/L	12/02/08	10	ND	ND	ND	ND
	ug/L	06/11/09	10	0.7 J	ND	ND	ND
	ug/L	12/10/09	10	ND	ND	3.20 J	ND
	ug/L	06/15/10	10	ND	ND	ND	ND
	ug/L	12/09/10	10	ND	ND	ND	ND
	ug/L	06/15/11	10	ND	ND	ND	ND
	ug/L	12/06/11	10	ND	ND	ND	ND
Copper	ug/L	05/07/02	0.05	--	ND	--	ND
SW Standard = 7 ug/L (A)	ug/L	08/07/02	0.05	--	--	ND	ND
	ug/L	06/29/07	10	ND	ND	ND	ND
	ug/L	12/13/07	10	ND	ND	ND	ND
	ug/L	06/19/08	10	1.60 B	ND	dry	1.30 J
	ug/L	12/02/08	10	1.70 J	ND	ND	ND
	ug/L	06/11/09	10	2.02 J	1.03 J	ND	ND
	ug/L	12/10/09	10	3.13 J	2.67 J	4.41 J	ND
	ug/L	06/15/10	10	ND	ND	ND	ND
	ug/L	12/09/10	10	ND	ND	ND	ND
	ug/L	06/15/11	10	ND	ND	ND	ND
	ug/L	12/06/11	10	ND	ND	ND	ND

Table 5

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Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	SW-1 (Upstream)	SW-2 (Downstream)	SW-3 (Downstream)	Blanks
Lead	ug/L	05/07/02	10	--	ND	--	ND
SW Standard = 25 ug/L (N)	ug/L	08/07/02	10	--	--	ND	ND
	ug/L	06/16/03	10	ND	ND	ND	ND
	ug/L	12/16/03	10	ND	ND	ND	ND
	ug/L	06/16/04	10	ND	ND	ND	ND
	ug/L	12/16/04	10	ND	ND	ND	ND
	ug/L	06/14/05	10	ND	ND	ND	ND
	ug/L	12/27/05	10	ND	ND	ND	ND
	ug/L	06/21/06	10	ND	ND	ND	ND
	ug/L	12/13/06	10	2.1 J	ND	3.8 J	ND
	ug/L	06/29/07	10	ND	ND	ND	ND
	ug/L	12/13/07	10	ND	ND	ND	ND
	ug/L	06/19/08	10	ND	ND	dry	ND
	ug/L	12/02/08	10	ND	ND	ND	ND
	ug/L	06/11/09	10	2.5 J	3.5 J	2.2 J	ND
	ug/L	12/10/09	10	3.51 J	ND	10.2	ND
	ug/L	06/15/10	10	ND	ND	ND	ND
	ug/L	12/09/10	10	ND	ND	ND	ND
	ug/L	06/15/11	10	ND	2.15 J	1.96 J	ND
	ug/L	12/06/11	10	ND	ND	ND	ND
Nickel	ug/L	05/07/02	50	--	ND	--	ND
SW Standard = 88 ug/L (N)	ug/L	08/07/02	50	--	--	ND	ND
	ug/L	06/29/07	50	ND	ND	ND	ND
	ug/L	12/13/07	50	ND	ND	ND	ND
	ug/L	06/19/08	50	ND	ND	dry	ND
	ug/L	12/02/08	50	ND	ND	ND	ND
	ug/L	06/11/09	50	0.9 J	1.0 J	1.8 J	ND
	ug/L	12/10/09	50	ND	ND	2.94 J	ND
	ug/L	06/15/10	50	ND	ND	ND	ND
	ug/L	12/09/10	50	ND	ND	ND	ND
	ug/L	06/15/11	50	ND	ND	ND	ND
	ug/L	12/06/11	50	ND	ND	ND	ND
Selenium	ug/L	05/07/02	20	--	ND	--	ND
SW Standard = 5 ug/L	ug/L	08/07/02	20	--	--	ND	ND
	ug/L	06/16/03	20	ND	ND	ND	ND
	ug/L	12/16/03	20	ND	ND	ND	ND
	ug/L	06/16/04	20	ND	ND	ND	ND
	ug/L	12/16/04	20	ND	ND	ND	ND
	ug/L	06/14/05	20	ND	ND	ND	ND
	ug/L	12/27/05	20	ND	ND	ND	ND
	ug/L	06/21/06	20	ND	ND	ND	ND
	ug/L	12/13/06	10	2.8 B	4.1 B	3.1 B	4.5 J
	ug/L	06/29/07	10	ND	ND	ND	ND
	ug/L	12/13/07	10	ND	ND	ND	ND
	ug/L	06/19/08	10	ND	ND	dry	ND
	ug/L	12/02/08	10	ND	ND	ND	ND
	ug/L	06/11/09	10	ND	4.8 J	ND	ND
	ug/L	12/10/09	10	ND	ND	ND	ND
	ug/L	06/15/10	10	ND	ND	ND	ND
	ug/L	12/09/10	10	ND	ND	0.830 J	ND
	ug/L	06/15/11	10	ND	ND	1.15 J	ND
	ug/L	12/06/11	10	ND	ND	ND	ND
Thallium	ug/L	05/07/02	10	--	ND	--	ND
No SW Standard	ug/L	06/29/07	5.5	ND	ND	0.042 J	ND
	ug/L	12/13/07	5.5	ND	ND	0.041 J	ND
	ug/L	06/19/08	5.5	ND	ND	dry	ND
	ug/L	12/02/08	5.5	ND	ND	ND	ND
	ug/L	06/11/09	5.5	ND	ND	ND	ND
	ug/L	12/10/09	5.5	ND	ND	0.173 J	ND
	ug/L	06/15/10	5.5	ND	ND	ND	ND
	ug/L	12/09/10	5.5	ND	ND	ND	ND
	ug/L	06/15/11	5.5	ND	ND	ND	ND
	ug/L	12/06/11	5.5	ND	ND	ND	ND

Table 5

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Parameter	Reporting Units	Date	SWS Reporting Limit	SW-1 (Upstream)	SW-2 (Downstream)	SW-3 (Downstream)	Blanks
Vanadium	ug/L	05/07/02	40	--	ND	--	ND
No SW Standard	ug/L	06/29/07	25	1.9 J	ND	ND	ND
	ug/L	12/13/07	25	ND	ND	ND	ND
	ug/L	06/19/08	25	ND	ND	dry	ND
	ug/L	12/02/08	25	ND	ND	ND	ND
	ug/L	06/11/09	25	1.8 J	1.3 J	0.9 J	ND
	ug/L	12/10/09	25	3.52 J	2.22 J	8.66 J	ND
	ug/L	06/15/10	25	ND	ND	ND	ND
	ug/L	12/09/10	25	ND	ND	ND	ND
	ug/L	06/15/11	25	1.43 J	ND	1.75 J	ND
	ug/L	12/06/11	25	ND	ND	ND	ND
Zinc	ug/L	05/07/02	50	--	ND	--	ND
SW Standard = 50 ug/L (A)	ug/L	08/07/02	50	--	--	ND	ND
	ug/L	06/29/07	10	ND	ND	ND	ND
	ug/L	12/13/07	10	1.0 B	1.0 B	2.2 B	2.6 J
	ug/L	06/19/08	10	1.1 B	1.4 B	dry	1.0 J
	ug/L	12/02/08	10	7.1 J	ND	ND	ND
	ug/L	06/11/09	10	11.0 B	38.8 B	7.8 B	8.4 J
	ug/L	12/10/09	10	7.72 J	6.93 J	26.3	ND
	ug/L	06/15/10	10	4.85 J	ND	6.62 J	ND
	ug/L	12/09/10	10	ND	ND	ND	ND
	ug/L	06/15/11	10	ND	ND	7.08 J	ND
	ug/L	12/06/11	10	ND	34.6	4.87 J	ND
Acetone	ug/L	05/07/02	100	--	ND	--	ND
SW Standard = 2 ug/L*	ug/L	06/16/03	100	ND	ND	ND	ND
	ug/L	12/16/03	100	ND	ND	ND	ND
	ug/L	06/16/04	100	ND	ND	ND	ND
	ug/L	12/16/04	100	ND	ND	ND	ND
	ug/L	06/14/05	100	ND	ND	ND	ND
	ug/L	12/27/05	100	ND	ND	ND	ND
	ug/L	06/21/06	100	ND	ND	ND	ND
	ug/L	12/13/06	100	1.6 J	ND	ND	ND
	ug/L	06/29/07	100	ND	ND	ND	1.5 J
	ug/L	12/13/07	100	ND	ND	ND	ND
	ug/L	06/19/08	100	ND	ND	dry	ND
	ug/L	12/02/08	100	ND	ND	ND	ND
	ug/L	06/11/09	100	ND	ND	ND	ND
	ug/L	12/10/09	100	ND	ND	ND	ND
	ug/L	06/15/10	100	ND	ND	ND	ND
	ug/L	12/09/10	100	ND	ND	ND	ND
	ug/L	06/15/11	100	ND	ND	ND	ND
	ug/L	12/06/11	100	ND	ND	ND	ND
Toluene	ug/L	05/07/02	5	--	ND	--	ND
SW Standard = 11 ug/L	ug/L	06/16/03	5	ND	ND	ND	ND
	ug/L	12/16/03	5	ND	ND	ND	ND
	ug/L	06/16/04	5	ND	ND	ND	ND
	ug/L	12/16/04	5	ND	ND	ND	ND
	ug/L	06/14/05	5	ND	ND	ND	ND
	ug/L	12/27/05	5	ND	ND	ND	ND
	ug/L	06/21/06	5	ND	ND	ND	ND
	ug/L	12/13/06	5	ND	ND	ND	ND
	ug/L	06/29/07	1	ND	ND	ND	0.63 J
	ug/L	12/13/07	1	ND	ND	ND	ND
	ug/L	06/19/08	1	ND	ND	dry	ND
	ug/L	12/02/08	1	ND	ND	ND	ND
	ug/L	06/11/09	1	ND	ND	ND	ND
	ug/L	12/10/09	1	ND	ND	ND	ND
	ug/L	06/15/10	1	0.41 J	ND	ND	ND
	ug/L	12/09/10	1	ND	ND	ND	ND
	ug/L	06/15/11	1	ND	ND	ND	ND
	ug/L	12/06/11	1	ND	ND	ND	ND

Table 5

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Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	SW-1 (Upstream)	SW-2 (Downstream)	SW-3 (Downstream)	Blanks
pH (field)	S.U.	08/07/02	--	--	--	5.76	--
	S.U.	12/13/06	--	6.10	6.09	5.90	--
	S.U.	06/29/07	--	6.62	5.86	6.31	--
	S.U.	12/13/07	--	5.93	5.96	5.46	--
	S.U.	06/19/08	--	6.66	6.69	dry	--
	S.U.	12/02/08	--	6.60	6.56	6.82	--
	S.U.	06/11/09	--	6.56	6.46	6.25	--
	S.U.	12/10/09	--	6.38	5.75	6.00	--
	S.U.	06/15/10	--	6.32	6.51	6.62	--
	S.U.	12/09/10	--	5.78	5.78	5.65	--
	S.U.	06/15/11	--	8.28	7.94	7.87	--
	S.U.	12/06/11	--	6.53	6.28	6.01	--
Specific Conductance (Field)	uS/cm	12/13/06	--	183	113	476	--
	uS/cm	06/29/07	--	71	81	454	--
	uS/cm	12/13/07	--	119	145	626	--
	uS/cm	06/19/08	--	97	119	dry	--
	uS/cm	12/02/08	--	79	134	442	--
	uS/cm	06/11/09	--	99	353	440	--
	uS/cm	12/10/09	--	63	183	274	--
	uS/cm	06/15/10	--	87	126	438	--
	uS/cm	12/09/10	--	82	98	409	--
	uS/cm	06/15/11	--	89	131	460	--
	uS/cm	12/06/11	--	83	91	451	--
Temperature (Field)	^{o}C	12/13/06	--	12.8	10.6	11.2	--
	^{o}C	06/29/07	--	27.92	23.41	22.96	--
	^{o}C	12/13/07	--	15.22	14.57	15.72	--
	^{o}C	06/19/08	--	22.71	20.16	dry	--
	^{o}C	12/02/08	--	8.91	8.98	9.62	--
	^{o}C	06/11/09	--	24.98	23.07	20.52	--
	^{o}C	12/10/09	--	10.91	10.79	10.98	--
	^{o}C	06/15/10	--	26.00	22.70	22.02	--
	^{o}C	12/09/10	--	4.79	4.64	5.78	--
	^{o}C	06/15/11	--	23.25	19.85	20.63	--
	^{o}C	12/06/11	--	14.62	13.67	14.44	--
Turbidity (Field)	NTU	12/13/06	--	4.2	11.4	16.3	--
	NTU	06/29/07	--	8.7	0.0	80.5	--
	NTU	12/13/07	--	0.0	0.0	39.5	--
	NTU	06/19/08	--	35.2	20.1	dry	--
	NTU	12/02/08	--	16.3	12.5	6.34	--
	NTU	06/11/09	--	56.2	18.4	11.8	--
	NTU	12/10/09	--	95.2	54.2	51.3	--
	NTU	06/15/10	--	18.3	12.7	3.59	--
	NTU	12/09/10	--	18.1	16.7	15.1	--
	NTU	06/15/11	--	13.9	8.41	15.2	--
	NTU	12/06/11	--	45.5	26.7	1.39	--
Dissolved Oxygen (Field)	mg/L	12/13/07	--	8.82	14.57	8.26	--
	mg/L	06/19/08	--	7.66	8.54	dry	--
	mg/L	12/02/08	--	8.23	10.83	9.33	--
	mg/L	06/11/09	--	4.58	8.47	9.36	--
	mg/L	12/10/09	--	9.76	11.26	10.82	--
	mg/L	06/15/10	--	4.51	8.58	8.93	--
	mg/L	12/09/10	--	13.10	14.56	10.93	--
	mg/L	06/15/11	--	6.25	8.42	7.64	--
	mg/L	12/06/11	--	9.71	11.29	9.69	--

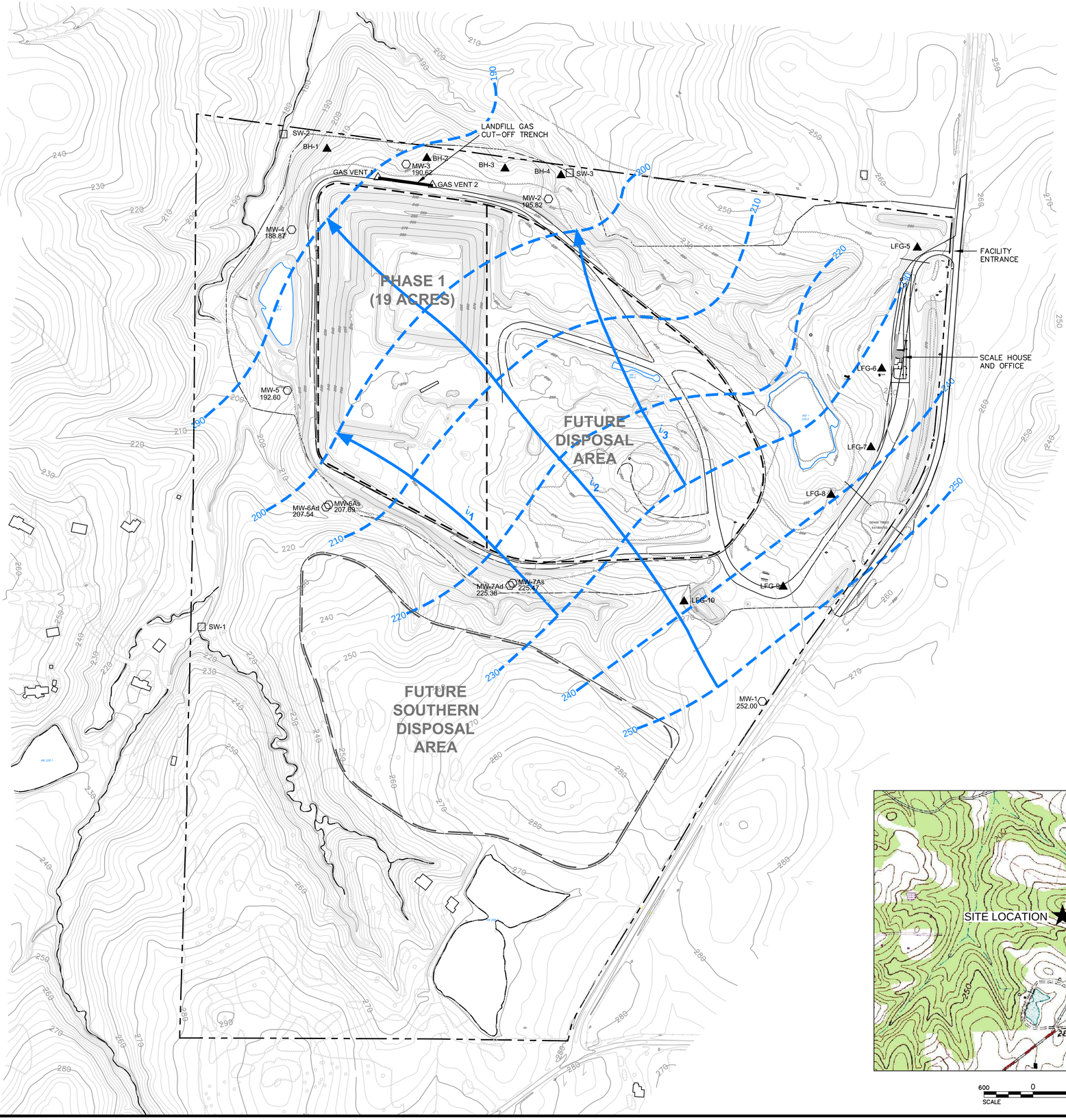
Table 5

Summary of Detected Constituents in Surface Water
Material Recovery, LLC Construction and Demolition Landfill, Permit 92-31
Wake County, North Carolina

Parameter	Reporting Units	Date	SWS Reporting Limit	SW-1 (Upstream)	SW-2 (Downstream)	SW-3 (Downstream)	Blanks
Oxidation-Reduction Potential (Field)	mV	12/13/07	--	111	305	331	--
	mV	06/19/08	--	26	64	dry	--
	mV	12/02/08	--	171.7	324.3	269.1	--
	mV	06/11/09	--	62.5	207.3	192.6	--
	mV	12/10/09	--	168.4	181.3	190.3	--
	mV	06/15/10	--	130.2	106.3	120.3	--
	mV	12/09/10	--	206.9	174.4	292.6	--
	mV	06/15/11	--	179.2	119.6	98.0	--
	mV	12/06/11	--	90.2	92.0	111.3	--

Notes:
1. SW = surface water monitoring point
2. ug/L = micrograms per liter
3. mg/L = milligrams per liter
4. S.U. = Standard Units
5. uS/cm = microsiemens per centimeter
6. ^{o}C = degrees Celsius
7. NTU = Nephelometric Turbidity Units
8. mV = millivolts
9. J = estimated Value
10. B = blank-qualified data
11. ND = not detected at or above the stated reporting limit
12. -- = no data available
13. dry = no flowing water at time of sampling and no sample was collected
13. Shaded values are above their current respective NC Surface Water Standards under 15A NCAC 2B.0211 for Freshwater Aquatic Life classification.
14. Blanks = Field, trip, and laboratory blanks
15. SWS Reporting Limit = NCPQL or lab-specific reporting limit prior to 2007 and NCSWSL starting on 01/18/07
16. (A) = Action Level Standard per 15A NCAC 2B.0211
17. (N) = Narrative Standard per 15A NCAC 2B.0211
18. * = Standard is a National Criteria per EPA

DRAWING



LEGEND

- EXISTING 10-FOOT GROUND SURFACE CONTOUR
- EXISTING 2-FOOT GROUND SURFACE CONTOUR
- PROPERTY LINE
- APPROXIMATE LIMITS OF WASTE
- EXISTING ROAD
- BH-1 — LANDFILL GAS MONITORING POINT
- MW-1 252.00 — GROUNDWATER MONITORING POINT AND GROUNDWATER ELEVATION
- SW-3 — SURFACE WATER MONITORING POINT
- 250 — GROUNDWATER SURFACE CONTOURS
- i_1 — APPROXIMATE GROUNDWATER FLOW SEGMENT USED TO CALCULATE GRADIENT
- TREELINE

NOTES

1) TOPOGRAPHIC CONTOUR INTERVAL = 2 FEET

2) GROUNDWATER SURFACE CONTOUR INTERVAL = 10 FEET

3) GROUNDWATER ELEVATIONS MEASURED ON DECEMBER 6, 2011.

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 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) DRAWING BASED ON THE SITE PLAN PREPARED BY JOYCE ENGINEERING, INC. (SEPTEMBER, 2006). DIGITAL MAPPING PROVIDED BY SPATIAL DATA CONSULTANTS, INC., OF HIGH POINT, NORTH CAROLINA. DATE OF AERIAL FLYOVER WAS FEBRUARY 11, 2010.

7) LANDFILL GAS MONITORING POINTS AND SURFACE WATER MONITORING POINT LOCATIONS ARE APPROXIMATE.

8) ELEVATIONS SHOWN IN THIS DRAWING ARE IN FEET ABOVE SEA LEVEL DATUM ("SEA LEVEL DATUM" REFERS TO THE NATIONAL GEODETIC VERTICAL DATUM (NGVD) OF 1929); AND COORDINATES ARE EXPRESSED IN TERMS OF THE STATE PLANE COORDINATE SYSTEM.

9) GROUNDWATER ELEVATIONS FOR MW-6AD AND MW-7AD WERE NOT USED IN THE CONSTRUCTION OF THE GROUNDWATER CONTOURS SINCE THESE WELLS ARE SCREENED IN THE BEDROCK AQUIFER.

200 0 200 400
SCALE FEET

REV	DATE	DES	REVISION DESCRIPTION	CADD	CHK	RVW
2	12/8/11	BWF	DECEMBER 2011 GROUNDWATER CONTOURS	LKB		
1	7/6/11	NLR	JUNE 2011 GROUNDWATER CONTOURS	LKB	DYR	RPK

PROJECT

MATERIAL RECOVERY, LLC
C&D LANDFILL
WAKE COUNTY, NORTH CAROLINA

TITLE

GROUNDWATER CONTOUR MAP DECEMBER 6, 2011

Golder Associates
GREENSBORO, NC

PROJECT No.	073-9602411		FILE No.	073960241112-13-11)
DESIGN	DYR	5/11/10	SCALE	AS SHOWN
CADD	LKB	5/11/10	REV.	–
CHECK	DYR	5/11/10	DWG 1	
REVIEW	RPK	5/11/10		

X:\Projects\WCA\Material Recovery C&D Landfill\073-9602-40\GW Maps\073960241112-13-11).dwg 12/7/2012 11:14 AM

APPENDIX A
GROUNDWATER AND SURFACE WATER SAMPLING LOGS

DATE: 12-6-11

Golder Associates

GROUNDWATER SAMPLING LOG

Project Name: WCA- Wake
Project No./Phase No.: 0739-602411
Well ID: MW-1
Sampler(s): N. Rathjen/B.Freyer
Well Diameter: 2 inches
Initial Depth to Water: 28.95 feet
Depth to Bottom: 50.67 feet
Water Column Thickness: 21.72 feet
Pumping Rate: 200 mL/min.
System Volume: 500 mL
Well Location: along Brownfield Rd
Equipment: YSI 556, QED MP-15, 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)
0957	4.34	0.158	14.0	6.74	17.97	150.4	29.18
1000	4.24	0.168	7.01	6.49	17.75	148.8	29.16
1003	4.22	0.170	5.71	6.46	17.65	146.5	29.31
1006	4.22	0.170	5.68	6.42	17.62	145.3	29.26
Sampled @ 1006							

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

Signature: Natthen Rathjen **Date:** 12-6-11

QA/QC Sign Off: Paul Reedy **Date:** 1-27-12

DATE: 12-6-11

Golder Associates

GROUNDWATER SAMPLING LOG

Project Name: WCA- Wake
Project No./Phase No.: 0739-602411
Well ID: MW-2
Sampler(s): N. Rathjen/B.Freyer
Well Diameter: 2 inches
Initial Depth to Water: 17.55 feet
Depth to Bottom: 38.36 feet
Water Column Thickness: 20.81 feet
Pumping Rate: 200 mL/min.
System Volume: 500 mL
Well Location: N of northern disposal area near SW-3 + property line
Equipment: YSI 556, QED MP-15, 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)
1023	4.67	0.406	7.53	7.19	17.07	132.5	17.56
1026	4.74	0.379	5.90	6.77	17.00	129.7	17.59
1029	4.64	0.379	6.84	5.71	16.93	129.5	17.60
1032	4.61	0.382	7.36	5.38	17.02	128.9	17.58
1035	4.62	0.382	4.68	5.40	17.09	128.2	17.65
	sampled @ 1035						

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

Signature: [signature] **Date:** 12-6-11

QA/QC Sign Off: [signature] **Date:** 1-27-12

DATE: 12-6-11

GROUNDWATER SAMPLING LOG

Project Name:	WCA- Wake	**Project No./Phase No.:**	0739-602411
Well ID:	MW-3	**Sampler(s):**	N. Rathjen/B.Freyer
Well Diameter:	2 inches	**Initial Depth to Water:**	27.92 feet
Depth to Bottom:	37.66 feet	**Water Column Thickness:**	9.74 feet
Pumping Rate:	200 mL/min.	**System Volume:**	500 mL
Well Location:	W of MW-2 near BH-2 along N property line		
Equipment:	YSI 556, QED MP-15, 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)
1100	4.63	0.277	1.88	6.67	17.56	130.8	28.07
1103	4.37	0.280	1.25	3.77	17.21	134.5	28.07
1106	4.33	0.279	2.15	2.72	17.02	137.5	28.04
1109	4.29	0.279	~~2.07~~ 439 (MW2)	2.01	16.85	143.0	28.12
1112	4.27	0.289	4.85	1.83	16.81	149.7	28.12
1115	4.26	0.304	4.84	1.60	16.80	152.2	28.12
1118	4.25	0.314	4.17	1.50	16.78	152.4	28.12
1121	4.24	0.321	3.09	1.41	16.77	153.4	28.12
Sampled @	1121						

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

Weather - slight breeze, overcast, 60's

Signature: Natalie Rathjen **Date:** 12-6-11

QA/QC Sign Off: Paul Ready **Date:** 1-27-12

DATE: 12-6-11

GROUNDWATER SAMPLING LOG

Project Name:	WCA- Wake	**Project No./Phase No.:**	0739-602411
Well ID:	MW-4	**Sampler(s):**	N. Rathjen/B.Freyer
Well Diameter:	2 inches	**Initial Depth to Water:**	12.65 feet
Depth to Bottom:	28.82 feet	**Water Column Thickness:**	16.17 feet
Pumping Rate:	200 mL/min.	**System Volume:**	500 mL
Well Location:	NW portion of Northern disposal area, near W stream		
Equipment:	YSI 556, QED MP-15, 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)
1136	4.90	0.153	9.28	3.68	17.85	122.5	12.69
1139	4.77	0.189	6.37	1.52	18.04	124.6	12.65
1142	4.72	0.200	4.28	1.14	18.11	124.0	12.65
1145	4.71	0.204	5.63	1.10	18.09	123.4	12.67
1148	4.71	0.206	3.62	1.08	18.07	122.1	12.66
	sampled @ 1148						

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

Overcast, calm, 60's

Signature: B. Rathjen Date: 12/6/11

QA/QC Sign Off: Paul Ready Date: 1-27-12

DATE: 12-6-11

GROUNDWATER SAMPLING LOG

Project Name: WCA- Wake
Project No./Phase No.: 0739-602411
Well ID: MW-5
Sampler(s): N. Rathjen/B.Freyer
Well Diameter: 2 inches
Initial Depth to Water: 10.78 feet
Depth to Bottom: 26.00 feet
Water Column Thickness: 15.22 feet
Pumping Rate: 150 mL/min.
System Volume: 500 mL
Well Location: SW portion of U disposal area near W stream
Equipment: YSI 556, QED MP-15, 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)
1228	5.89	0.072	470	9.09	19.39	80.1	11.01
1232	5.60	0.069	385	6.75	18.38	86.1	10.86
1236	5.54	0.068	346	4.20	17.44	89.2	10.90
1240	5.52	0.068	353	2.14	17.20	90.4	10.95
1244	5.51	0.068	360	1.45	17.06	91.9	10.95
1248	5.51	0.067	385	1.38	16.99	93.6	10.93
1252	5.50	0.068	419	1.24	16.93	95.2	10.98
1256	5.50	0.068	461	1.27	16.91	95.6	10.98
Sampled @	1256						

Comments (weather conditions, color, type of sample, purge-water management, etc.):
Weather- OVercast, calm, 60's
-reinstalled pump and then pulled pump because check ball was stuck
-sampled due to increasing turb.

Signature: Nathan Rathjen **Date:** 12-6-11

QA/QC Sign Off: Paul Reedy **Date:** 1-27-12

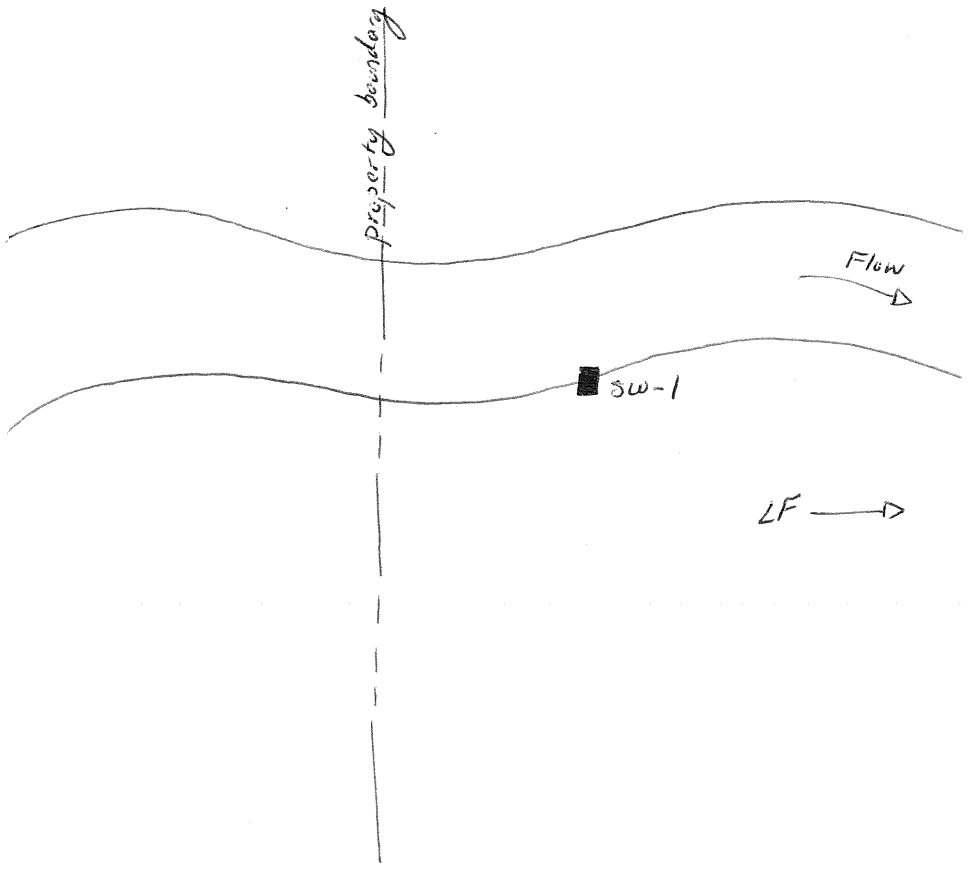
DATE: 12-6-11

SURFACE WATER SAMPLING LOG

Project Name: WCA- Wake **Project No./Phase No.:** 0739-602411
Sample ID: SW-1 **Sampler(s):** N.Rathjen/B. Freyer
Sampling Location: W of southern disposal area along W property line
Equipment: YSI 556, Hach Turbidimeter

Time	1316
pH s.u.	6.53
Cond. mS/cm	0.083
Turb. ntu	45.5
Dis. O_2 mg/L	9.71
Temp. °C	14.62
ORP mv	90.2

Surface Water Sampling Location Sketch



Comments (sample methodology, weather conditions, color, silt, etc.):
Weather - calm, clear overcast, 60's

Signature: Natalie Rathjen **Date:** 12-6-11

QA/QC Sign Off: Paul Rady **Date:** 1-27-12

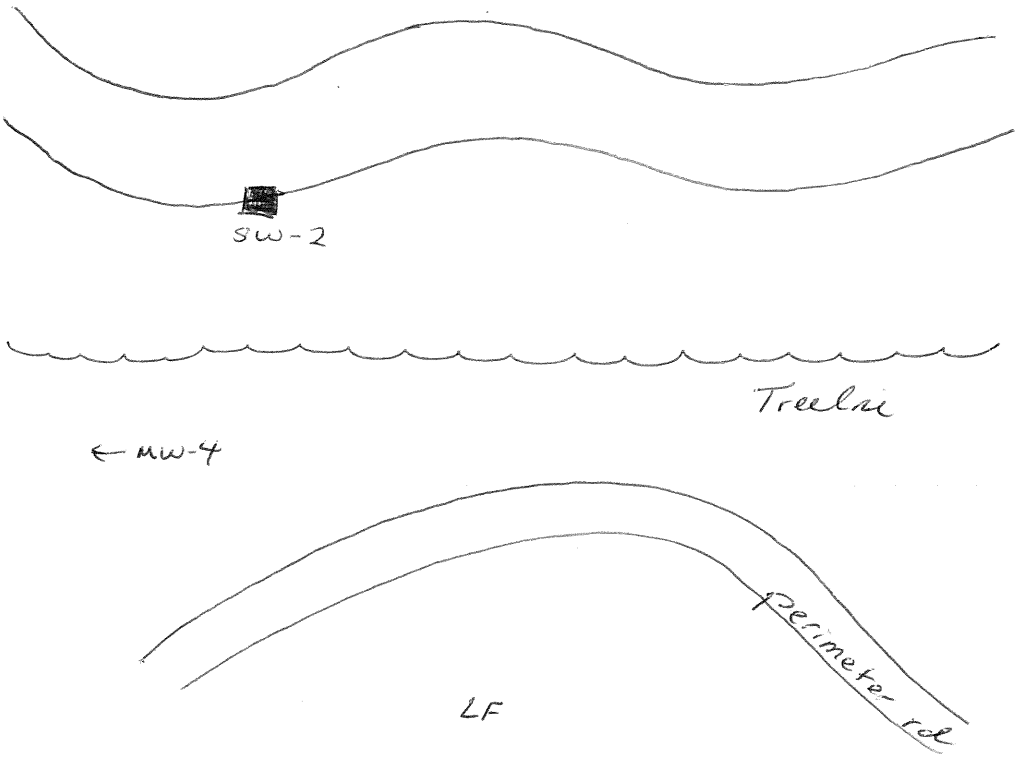
DATE: 12-6-11

SURFACE WATER SAMPLING LOG

Project Name: WCA- Wake **Project No./Phase No.:** 0739-602411
Sample ID: SW-2 **Sampler(s):** N.Rathjen/B. Freyer
Sampling Location: near NW corner of property line
Equipment: YSI 556, Hach Turbidimeter

Time	1202
pH s.u.	6.28
Cond. mS/cm	0.091
Turb. ntu	26.7
Dis. O_2 mg/L	11.29
Temp. °C	13.67
ORP mv	92.0

Surface Water Sampling Location Sketch



Comments (sample methodology, weather conditions, color, silt, etc.):
Weather - calm, overcast, 60's

Signature: [signature] **Date:** 12-6-11

QA/QC Sign Off: [signature] **Date:** 1-27-12

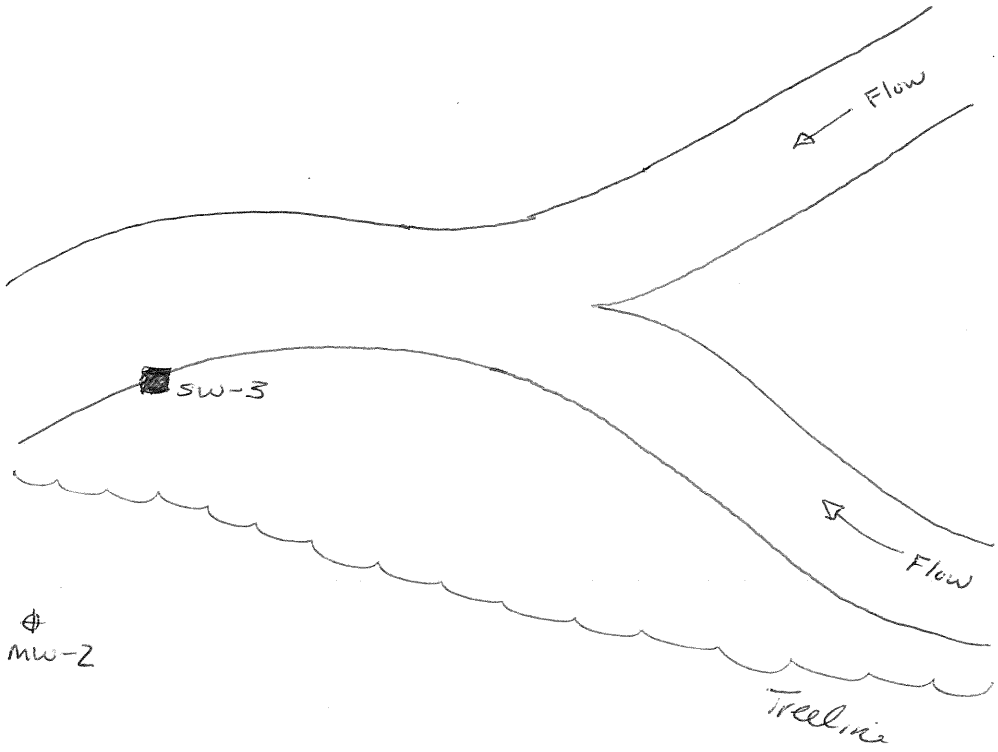
DATE: 12-6-11

SURFACE WATER SAMPLING LOG

Project Name: WCA- Wake **Project No./Phase No.:** 0739-602411
Sample ID: SW-3 **Sampler(s):** N.Rathjen/B. Freyer
Sampling Location: adjacent to BH-4 along northern-central property line
Equipment: YSI 556, Hach Turbidimeter

Time	1045
pH s.u.	6.01
Cond. mS/cm	0.451
Turb. ntu	1.39
Dis. O_2 mg/L	9.69
Temp. °C	14.44
ORP mv	111.3

Surface Water Sampling Location Sketch



Comments (sample methodology, weather conditions, color, silt, etc.):
Weather - overcast, calm, 60's

Signature: [signature] **Date:** 12-6-11

QA/QC Sign Off: [signature] **Date:** 1-27-12

APPENDIX B
DECEMBER 2011 GROUNDWATER AND SURFACE WATER CERTIFICATE-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

Wednesday, January 25, 2012

Golder Associates, Inc. (GO007)

Attn: Dusty Reedy

5B Oak Branch Drive

Greensboro, NC 27407

RE: Laboratory Results for
Project Number: 073-9602411.100, Project Name/Desc: WCA- Material Recovery, LLC
ENCO Workorder(s): C114089

Dear Dusty Reedy,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Tuesday, December 6, 2011.

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 62.

PROJECT NARRATIVE

Date: 25 January 2012
Client: Golder Associates, Inc. (GO007)
Project: WCA- Material Recovery, LLC
Lab ID: C114089

Overview

This report is an amendment to the original report dated 23 January 2012 for this work order. This report was revised, at the client's request, to include Dissolved Beryllium on sample MW-5.

This report is an amendment to the original report dated 20 December 2011 for this work order. At the client's request, sample MW-5 was reprepped and reanalyzed for Beryllium.

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 recovery of Sulfate was outside of control limits for the MS and MSD samples. The QC batch was approved based on acceptable LCS recovery of this analyte.

The spike recoveries of Mercury in the MS and MSD samples and Silver in the Post Spike sample were outside of control limits. The QC batches were approved based on acceptable LCS recovery of these analytes.

The spike recoveries of 1,1-Dichloroethene, Benzene, and Trichloroethene were outside of control limits for the LCS, MS, and/or MSD samples, indicating a possible high bias; however, these analyte were not detected in the associated samples, reducing the impact of the deviations.

Quality Control Remarks

The surrogate spike recovery of Dibromofluoromethane was outside of control limits for one of the 8260B Method Blanks; however, no target analytes were detected in the sample, reducing the impact of the deviation.

Other Comments

At the client's request, sample MW-3 was reanalyzed by EPA Method 8260B to confirm the detection of Methylene Chloride, and sample MW-5 was reprepped and reanalyzed for Beryllium. As the reportable concentrations of Methylene Chloride and Beryllium were confirmed upon reanalysis, only the original detections are included in this report.

Selenium was detected in the Field Blank. The sample was reprepped and reanalyzed by an alternate method, EPA Method 6020A, and the detection did not confirm. Both results are included in this report.

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: 9231-MW1	Lab ID: C114089-01	Sampled: 12/06/11 10:06	Received: 12/06/11 15:30

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	01/03/12	12/11/11 11:39	12/11/2011 19:48
EPA 310.2	12/20/11	12/13/11 06:37	12/13/2011 08:32
EPA 6010C	06/03/12	12/09/11 09:18	12/12/2011 10:33
EPA 6020A	06/03/12	12/08/11 08:29	12/9/2011 10:50
EPA 7470A	01/03/12	12/12/11 08:36	12/14/2011 13:02
EPA 8260B	12/20/11	12/09/11 11:44	12/10/2011 05:52
SM 2540C	12/13/11	12/09/11 17:38	12/9/2011 17:38

Client ID: 9231-MW2 (MS/MSD)	Lab ID: C114089-02	Sampled: 12/06/11 10:35	Received: 12/06/11 15:30

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	01/03/12	12/11/11 11:39	12/11/2011 20:05
EPA 310.2	12/20/11	12/13/11 06:37	12/13/2011 08:19
EPA 6010C	06/03/12	12/09/11 09:18	12/12/2011 10:23
EPA 6020A	06/03/12	12/08/11 08:29	12/9/2011 10:37
EPA 7470A	01/03/12	12/12/11 08:36	12/14/2011 11:15
EPA 8260B	12/20/11	12/09/11 11:44	12/10/2011 03:00
SM 2540C	12/13/11	12/09/11 17:38	12/9/2011 17:38

Client ID: 9231-MW3	Lab ID: C114089-03	Sampled: 12/06/11 11:21	Received: 12/06/11 15:30

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	01/03/12	12/11/11 11:39	12/11/2011 20:21
EPA 310.2	12/20/11	12/13/11 06:37	12/13/2011 08:33
EPA 6010C	06/03/12	12/09/11 09:18	12/12/2011 10:35
EPA 6020A	06/03/12	12/08/11 08:29	12/9/2011 10:52
EPA 7470A	01/03/12	12/12/11 08:36	12/14/2011 12:44
EPA 8260B	12/20/11	12/09/11 11:44	12/10/2011 06:21
SM 2540C	12/13/11	12/09/11 17:38	12/9/2011 17:38

Client ID: 9231-MW4	Lab ID: C114089-04	Sampled: 12/06/11 11:48	Received: 12/06/11 15:30

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	01/03/12	12/11/11 11:39	12/11/2011 20:38
EPA 310.2	12/20/11	12/13/11 06:37	12/13/2011 08:33
EPA 6010C	06/03/12	12/09/11 09:18	12/12/2011 10:37
EPA 6020A	06/03/12	12/08/11 08:29	12/9/2011 10:53
EPA 7470A	01/03/12	12/12/11 08:36	12/14/2011 13:06
EPA 8260B	12/20/11	12/09/11 11:44	12/10/2011 06:50
SM 2540C	12/13/11	12/09/11 17:38	12/9/2011 17:38

Client ID:	9231-MW5	Lab ID: C114089-05	Sampled: 12/06/11 12:56	Received: 12/06/11 15:30
Parameter	**Hold Date/Time(s)**	**Prep Date/Time(s)**		**Analysis Date/Time(s)**
EPA 300.0	01/03/12	12/11/11	11:39	12/11/2011 20:54
EPA 310.2	12/20/11	12/13/11	06:37	12/13/2011 08:34
EPA 6010C	06/03/12	12/09/11	09:18	12/12/2011 10:44
EPA 6020A	06/03/12	12/08/11	08:29	12/9/2011 11:12
EPA 7470A	01/03/12	12/12/11	08:36	12/14/2011 12:48
EPA 8260B	12/20/11	12/09/11	11:44	12/10/2011 07:19
SM 2540C	12/13/11	12/09/11	17:38	12/9/2011 17:38

Client ID:	9231-SW1	Lab ID: C114089-06	Sampled: 12/06/11 13:16	Received: 12/06/11 15:30
Parameter	**Hold Date/Time(s)**	**Prep Date/Time(s)**		**Analysis Date/Time(s)**
EPA 6010C	06/03/12	12/09/11	09:18	12/12/2011 10:46
EPA 6020A	06/03/12	12/08/11	08:29	12/9/2011 11:14
EPA 8260B	12/20/11	12/09/11	11:44	12/10/2011 07:47

Client ID:	9231-SW2	Lab ID: C114089-07	Sampled: 12/06/11 12:02	Received: 12/06/11 15:30
Parameter	**Hold Date/Time(s)**	**Prep Date/Time(s)**		**Analysis Date/Time(s)**
EPA 6010C	06/03/12	12/09/11	09:18	12/12/2011 10:48
EPA 6020A	06/03/12	12/08/11	08:29	12/9/2011 11:16
EPA 8260B	12/20/11	12/09/11	11:44	12/10/2011 08:16

Client ID:	9231-SW3	Lab ID: C114089-08	Sampled: 12/06/11 10:45	Received: 12/06/11 15:30
Parameter	**Hold Date/Time(s)**	**Prep Date/Time(s)**		**Analysis Date/Time(s)**
EPA 6010C	06/03/12	12/09/11	09:18	12/12/2011 10:50
EPA 6020A	06/03/12	12/08/11	08:29	12/9/2011 11:18
EPA 8260B	12/20/11	12/09/11	11:44	12/10/2011 08:45

Client ID:	Field Blank	Lab ID: C114089-09	Sampled: 12/06/11 13:05	Received: 12/06/11 15:30
Parameter	**Hold Date/Time(s)**	**Prep Date/Time(s)**		**Analysis Date/Time(s)**
EPA 6010C	06/03/12	12/09/11	09:18	12/12/2011 10:52
EPA 6020A	06/03/12	12/08/11	08:29	12/9/2011 11:19
EPA 7470A	01/03/12	12/12/11	08:36	12/14/2011 12:50
EPA 8260B	12/20/11	12/13/11	11:06	12/15/2011 03:51

Client ID:	Trip Blank	Lab ID: C114089-10	Sampled: 12/06/11 10:06	Received: 12/06/11 15:30
Parameter	**Hold Date/Time(s)**	**Prep Date/Time(s)**		**Analysis Date/Time(s)**
EPA 8260B	12/20/11	12/13/11	11:06	12/15/2011 04:21

Client ID:	9231-MW5 Dissolved	Lab ID: C114089-11	Sampled: 12/06/11 12:56	Received: 12/06/11 15:30
Parameter	**Hold Date/Time(s)**	**Prep Date/Time(s)**		**Analysis Date/Time(s)**
EPA 6010C	06/03/12	01/23/12	12:56	1/24/2012 13:16

NORTH CAROLINA SWS SAMPLE DETECTION SUMMARY

Client ID: 9231-MW1 **Lab ID: C114089-01**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Antimony - Total	0.267	J	1	0.220	2.00	6	ug/L	EPA 6020A	
Barium - Total	521		1	1.00	10.0	100	ug/L	EPA 6010C	
Beryllium - Total	0.585	J	1	0.100	1.00	1	ug/L	EPA 6010C	
Chloride	42000	B	1	47	5000	NE	ug/L	EPA 300.0	QB-01
Cobalt - Total	5.39	J	1	1.10	10.0	10	ug/L	EPA 6010C	
Copper - Total	2.48	J	1	1.60	10.0	10	ug/L	EPA 6010C	
Iron - Total	73.1	J	1	22.0	50.0	300	ug/L	EPA 6010C	
Manganese - Total	67.5		1	1.10	10.0	50	ug/L	EPA 6010C	
Nickel - Total	2.09	J	1	1.80	10.0	50	ug/L	EPA 6010C	
Silver - Total	2.67	J	1	1.90	10.0	10	ug/L	EPA 6010C	
Sulfate as SO4	1600	J	1	20	5000	250000	ug/L	EPA 300.0	
Thallium - Total	0.319	J	1	0.110	1.00	5.5	ug/L	EPA 6020A	
Total Dissolved Solids	68000		1	10000	10000	NE	ug/L	SM 2540C	
Zinc - Total	15.7		1	3.80	10.0	10	ug/L	EPA 6010C	

Client ID: 9231-MW2 (MS/MSD) **Lab ID: C114089-02**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	487		1	1.00	10.0	100	ug/L	EPA 6010C	
Beryllium - Total	3.22		1	0.100	1.00	1	ug/L	EPA 6010C	
Chloride	15000	B	1	47	5000	NE	ug/L	EPA 300.0	QB-01
Manganese - Total	86.9		1	1.10	10.0	50	ug/L	EPA 6010C	
Sulfate as SO4	1700	J	1	20	5000	250000	ug/L	EPA 300.0	
Thallium - Total	0.119	J	1	0.110	1.00	5.5	ug/L	EPA 6020A	
Total Dissolved Solids	280000		1	10000	10000	NE	ug/L	SM 2540C	
Zinc - Total	5.51	J	1	3.80	10.0	10	ug/L	EPA 6010C	

Client ID: 9231-MW3 **Lab ID: C114089-03**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	1330		1	1.00	10.0	100	ug/L	EPA 6010C	
Beryllium - Total	3.35		1	0.100	1.00	1	ug/L	EPA 6010C	
Chloride	21000	B	1	47	5000	NE	ug/L	EPA 300.0	QB-01
Cobalt - Total	1.16	J	1	1.10	10.0	10	ug/L	EPA 6010C	
Manganese - Total	171		1	1.10	10.0	50	ug/L	EPA 6010C	
Mercury - Total	1.03		1	0.170	0.200	0.2	ug/L	EPA 7470A	
Methylene chloride	1.0		1	0.14	1.0	1	ug/L	EPA 8260B	
Sulfate as SO4	1500	J	1	20	5000	250000	ug/L	EPA 300.0	
Tetrachloroethene	2.9		1	0.73	1.0	1	ug/L	EPA 8260B	
Tetrahydrofuran	8.5		1	0.80	1.0	NE	ug/L	EPA 8260B	
Thallium - Total	0.226	J	1	0.110	1.00	5.5	ug/L	EPA 6020A	
Total Dissolved Solids	220000		1	10000	10000	NE	ug/L	SM 2540C	
Trichloroethene	4.8		1	0.72	1.0	1	ug/L	EPA 8260B	
Trichlorofluoromethane	1.4		1	0.66	1.0	1	ug/L	EPA 8260B	
Zinc - Total	14.5		1	3.80	10.0	10	ug/L	EPA 6010C	

Client ID: 9231-MW4 **Lab ID: C114089-04**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	155		1	1.00	10.0	100	ug/L	EPA 6010C	
Beryllium - Total	1.73		1	0.100	1.00	1	ug/L	EPA 6010C	
Chloride	4400	JB	1	47	5000	NE	ug/L	EPA 300.0	J-01

Client ID: 9231-MW4 **Lab ID: C114089-04**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Iron - Total	29.7	J	1	22.0	50.0	300	ug/L	EPA 6010C	
Manganese - Total	188		1	1.10	10.0	50	ug/L	EPA 6010C	
Nickel - Total	2.96	J	1	1.80	10.0	50	ug/L	EPA 6010C	
Sulfate as SO4	63000	J	1	20	5000	250000	ug/L	EPA 300.0	
Total Alkalinity as CaCO3	17000		1	12000	15000	NE	ug/L	EPA 310.2	
Total Dissolved Solids	110000		1	10000	10000	NE	ug/L	SM 2540C	

Client ID: 9231-MW5 **Lab ID: C114089-05**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	59.8	J	1	1.00	10.0	100	ug/L	EPA 6010C	
Beryllium - Total	4.75		1	0.100	1.00	1	ug/L	EPA 6010C	
Chloride	3700	JB	1	47	5000	NE	ug/L	EPA 300.0	J-01
Chromium - Total	2.12	J	1	1.00	10.0	10	ug/L	EPA 6010C	
Cobalt - Total	1.79	J	1	1.10	10.0	10	ug/L	EPA 6010C	
Copper - Total	7.00	J	1	1.60	10.0	10	ug/L	EPA 6010C	
Iron - Total	41800		1	22.0	50.0	300	ug/L	EPA 6010C	
Lead - Total	8.99	J	1	1.90	10.0	10	ug/L	EPA 6010C	
Manganese - Total	164		1	1.10	10.0	50	ug/L	EPA 6010C	
Silver - Total	3.09	J	1	1.90	10.0	10	ug/L	EPA 6010C	
Sulfate as SO4	2900	J	1	20	5000	250000	ug/L	EPA 300.0	
Total Alkalinity as CaCO3	12000	J	1	12000	15000	NE	ug/L	EPA 310.2	
Total Dissolved Solids	52000		1	10000	10000	NE	ug/L	SM 2540C	
Vanadium - Total	16.4	J	1	1.40	10.0	25	ug/L	EPA 6010C	
Zinc - Total	13.4		1	3.80	10.0	10	ug/L	EPA 6010C	

Client ID: 9231-SW1 **Lab ID: C114089-06**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	31.6	J	1	1.00	10.0	100	ug/L	EPA 6010C	

Client ID: 9231-SW2 **Lab ID: C114089-07**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	34.5	J	1	1.00	10.0	100	ug/L	EPA 6010C	
Zinc - Total	34.6		1	3.80	10.0	10	ug/L	EPA 6010C	

Client ID: 9231-SW3 **Lab ID: C114089-08**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Barium - Total	277		1	1.00	10.0	100	ug/L	EPA 6010C	
Zinc - Total	4.87	J	1	3.80	10.0	10	ug/L	EPA 6010C	

Client ID: Field Blank **Lab ID: C114089-09**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Manganese - Total	1.46	J	1	1.10	10.0	50	ug/L	EPA 6010C	
Selenium - Total	2.77	J	1	2.70	10.0	10	ug/L	EPA 6010C	

Client ID: 9231-MW5 Dissolved **Lab ID: C114089-11**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Beryllium - Dissolved	0.287	J	1	0.100	1.00	1	ug/L	EPA 6010C	

ANALYTICAL RESULTS

Description: 9231-MW1 **Lab Sample ID:** C114089-01 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 10:06 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.90	U	ug/L	1	0.90	1.0	5	EPA 8260B	12/10/11 05:52	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.65	U	ug/L	1	0.65	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.75	U	ug/L	1	0.75	1.0	3	EPA 8260B	12/10/11 05:52	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
1,1-Dichloroethane [75-34-3] ^	0.080	U	ug/L	1	0.080	1.0	5	EPA 8260B	12/10/11 05:52	JKG	
1,1-Dichloroethene [75-35-4] ^	0.60	U	ug/L	1	0.60	1.0	5	EPA 8260B	12/10/11 05:52	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	12/10/11 05:52	JKG	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.11	U	ug/L	1	0.11	1.0	5	EPA 8260B	12/10/11 05:52	JKG	
1,2-Dichloroethane [107-06-2] ^	0.47	U	ug/L	1	0.47	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
1,2-Dichloropropane [78-87-5] ^	0.59	U	ug/L	1	0.59	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.79	U	ug/L	1	0.79	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	12/10/11 05:52	JKG	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	12/10/11 05:52	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	12/10/11 05:52	JKG	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	12/10/11 05:52	JKG	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	12/10/11 05:52	JKG	
Benzene [71-43-2] ^	0.68	U	ug/L	1	0.68	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
Bromochloromethane [74-97-5] ^	0.87	U	ug/L	1	0.87	1.0	3	EPA 8260B	12/10/11 05:52	JKG	
Bromodichloromethane [75-27-4] ^	0.75	U	ug/L	1	0.75	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
Bromoform [75-25-2] ^	0.68	U	ug/L	1	0.68	1.0	3	EPA 8260B	12/10/11 05:52	JKG	
Bromomethane [74-83-9] ^	0.58	U	ug/L	1	0.58	1.0	10	EPA 8260B	12/10/11 05:52	JKG	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	12/10/11 05:52	JKG	
Carbon tetrachloride [56-23-5] ^	0.69	U	ug/L	1	0.69	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
Chlorobenzene [108-90-7] ^	0.74	U	ug/L	1	0.74	1.0	3	EPA 8260B	12/10/11 05:52	JKG	
Chloroethane [75-00-3] ^	0.75	U	ug/L	1	0.75	1.0	10	EPA 8260B	12/10/11 05:52	JKG	
Chloroform [67-66-3] ^	0.70	U	ug/L	1	0.70	1.0	5	EPA 8260B	12/10/11 05:52	JKG	
Chloromethane [74-87-3] ^	0.55	U	ug/L	1	0.55	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.72	U	ug/L	1	0.72	1.0	5	EPA 8260B	12/10/11 05:52	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.075	U	ug/L	1	0.075	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
Dibromochloromethane [124-48-1] ^	0.63	U	ug/L	1	0.63	1.0	3	EPA 8260B	12/10/11 05:52	JKG	
Dibromomethane [74-95-3] ^	0.90	U	ug/L	1	0.90	1.0	10	EPA 8260B	12/10/11 05:52	JKG	
Ethylbenzene [100-41-4] ^	0.62	U	ug/L	1	0.62	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	12/10/11 05:52	JKG	
Methylene chloride [75-09-2] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
Styrene [100-42-5] ^	0.053	U	ug/L	1	0.053	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
Tetrachloroethene [127-18-4] ^	0.73	U	ug/L	1	0.73	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	12/10/11 05:52	JKG	
Toluene [108-88-3] ^	0.85	U	ug/L	1	0.85	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.12	U	ug/L	1	0.12	1.0	5	EPA 8260B	12/10/11 05:52	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.50	U	ug/L	1	0.50	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	12/10/11 05:52	JKG	

Description: 9231-MW1 **Lab Sample ID:** C114089-01 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 10:06 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
Trichlorofluoromethane [75-69-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	12/10/11 05:52	JKG	
Vinyl chloride [75-01-4] ^	0.60	U	ug/L	1	0.60	1.0	1	EPA 8260B	12/10/11 05:52	JKG	
Xylenes (Total) [1330-20-7] ^	2.1	U	ug/L	1	2.1	3.0	5	EPA 8260B	12/10/11 05:52	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*48*	*1*	*50.0*	*97 %*	*51-122*	*1L09014*	*EPA 8260B*	*12/10/11 05:52*	*JKG*	
Dibromofluoromethane	*45*	*1*	*50.0*	*90 %*	*68-117*	*1L09014*	*EPA 8260B*	*12/10/11 05:52*	*JKG*	
Toluene-d8	*48*	*1*	*50.0*	*96 %*	*67-127*	*1L09014*	*EPA 8260B*	*12/10/11 05:52*	*JKG*	

Description: 9231-MW1 | **Lab Sample ID:** C114089-01 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 10:06 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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	12/14/11 13:02	KER	

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Description: 9231-MW1 | **Lab Sample ID:** C114089-01 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 10:06 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	**0.267**	J	ug/L	1	0.220	2.00	6	EPA 6020A	12/09/11 10:50	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	12/12/11 10:33	JDH	
Barium [7440-39-3] ^	**521**		ug/L	1	1.00	10.0	100	EPA 6010C	12/12/11 10:33	JDH	
Beryllium [7440-41-7] ^	**0.585**	J	ug/L	1	0.100	1.00	1	EPA 6010C	12/12/11 10:33	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	12/12/11 10:33	JDH	
Chromium [7440-47-3] ^	1.00	U	ug/L	1	1.00	10.0	10	EPA 6010C	12/12/11 10:33	JDH	
Cobalt [7440-48-4] ^	**5.39**	J	ug/L	1	1.10	10.0	10	EPA 6010C	12/12/11 10:33	JDH	
Copper [7440-50-8] ^	**2.48**	J	ug/L	1	1.60	10.0	10	EPA 6010C	12/12/11 10:33	JDH	
Iron [7439-89-6] ^	**73.1**	J	ug/L	1	22.0	50.0	300	EPA 6010C	12/12/11 10:33	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:33	JDH	
Manganese [7439-96-5] ^	**67.5**		ug/L	1	1.10	10.0	50	EPA 6010C	12/12/11 10:33	JDH	
Nickel [7440-02-0] ^	**2.09**	J	ug/L	1	1.80	10.0	50	EPA 6010C	12/12/11 10:33	JDH	
Selenium [7782-49-2] ^	2.70	U	ug/L	1	2.70	10.0	10	EPA 6010C	12/12/11 10:33	JDH	
Silver [7440-22-4] ^	**2.67**	J	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:33	JDH	
Thallium [7440-28-0] ^	**0.319**	J	ug/L	1	0.110	1.00	5.5	EPA 6020A	12/09/11 10:50	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	12/12/11 10:33	JDH	
Zinc [7440-66-6] ^	**15.7**		ug/L	1	3.80	10.0	10	EPA 6010C	12/12/11 10:33	JDH	

Description: 9231-MW1 **Lab Sample ID:** C114089-01 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 10:06 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	**42000**	B	ug/L	1	47	5000	NE	EPA 300.0	12/11/11 19:48	CCB	QB-01
Sulfate as SO4 [14808-79-8] ^	**1600**	J	ug/L	1	20	5000	250000	EPA 300.0	12/11/11 19:48	CCB	
Total Alkalinity as CaCO3 [471-34-1] ^	12000	U	ug/L	1	12000	15000	NE	EPA 310.2	12/13/11 08:32	CCB	
Total Dissolved Solids [ECL-0156] ^	**68000**		ug/L	1	10000	10000	NE	SM 2540C	12/09/11 17:38	JOC	

Description: 9231-MW2 (MS/MSD) **Lab Sample ID:** C114089-02 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 10:35 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.90	U	ug/L	1	0.90	1.0	5	EPA 8260B	12/10/11 03:00	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.65	U	ug/L	1	0.65	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.75	U	ug/L	1	0.75	1.0	3	EPA 8260B	12/10/11 03:00	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
1,1-Dichloroethane [75-34-3] ^	0.080	U	ug/L	1	0.080	1.0	5	EPA 8260B	12/10/11 03:00	JKG	
1,1-Dichloroethene [75-35-4] ^	0.60	U	ug/L	1	0.60	1.0	5	EPA 8260B	12/10/11 03:00	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	12/10/11 03:00	JKG	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.11	U	ug/L	1	0.11	1.0	5	EPA 8260B	12/10/11 03:00	JKG	
1,2-Dichloroethane [107-06-2] ^	0.47	U	ug/L	1	0.47	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
1,2-Dichloropropane [78-87-5] ^	0.59	U	ug/L	1	0.59	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.79	U	ug/L	1	0.79	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	12/10/11 03:00	JKG	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	12/10/11 03:00	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	12/10/11 03:00	JKG	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	12/10/11 03:00	JKG	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	12/10/11 03:00	JKG	
Benzene [71-43-2] ^	0.68	U	ug/L	1	0.68	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
Bromochloromethane [74-97-5] ^	0.87	U	ug/L	1	0.87	1.0	3	EPA 8260B	12/10/11 03:00	JKG	
Bromodichloromethane [75-27-4] ^	0.75	U	ug/L	1	0.75	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
Bromoform [75-25-2] ^	0.68	U	ug/L	1	0.68	1.0	3	EPA 8260B	12/10/11 03:00	JKG	
Bromomethane [74-83-9] ^	0.58	U	ug/L	1	0.58	1.0	10	EPA 8260B	12/10/11 03:00	JKG	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	12/10/11 03:00	JKG	
Carbon tetrachloride [56-23-5] ^	0.69	U	ug/L	1	0.69	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
Chlorobenzene [108-90-7] ^	0.74	U	ug/L	1	0.74	1.0	3	EPA 8260B	12/10/11 03:00	JKG	
Chloroethane [75-00-3] ^	0.75	U	ug/L	1	0.75	1.0	10	EPA 8260B	12/10/11 03:00	JKG	
Chloroform [67-66-3] ^	0.70	U	ug/L	1	0.70	1.0	5	EPA 8260B	12/10/11 03:00	JKG	
Chloromethane [74-87-3] ^	0.55	U	ug/L	1	0.55	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.72	U	ug/L	1	0.72	1.0	5	EPA 8260B	12/10/11 03:00	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.075	U	ug/L	1	0.075	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
Dibromochloromethane [124-48-1] ^	0.63	U	ug/L	1	0.63	1.0	3	EPA 8260B	12/10/11 03:00	JKG	
Dibromomethane [74-95-3] ^	0.90	U	ug/L	1	0.90	1.0	10	EPA 8260B	12/10/11 03:00	JKG	
Ethylbenzene [100-41-4] ^	0.62	U	ug/L	1	0.62	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	12/10/11 03:00	JKG	
Methylene chloride [75-09-2] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
Styrene [100-42-5] ^	0.053	U	ug/L	1	0.053	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
Tetrachloroethene [127-18-4] ^	0.73	U	ug/L	1	0.73	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	12/10/11 03:00	JKG	
Toluene [108-88-3] ^	0.85	U	ug/L	1	0.85	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.12	U	ug/L	1	0.12	1.0	5	EPA 8260B	12/10/11 03:00	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.50	U	ug/L	1	0.50	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	12/10/11 03:00	JKG	
Trichloroethene [79-01-6] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
Trichlorofluoromethane [75-69-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	12/10/11 03:00	JKG	

Description: 9231-MW2 (MS/MSD) **Lab Sample ID:** C114089-02 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 10:35 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.60	U	ug/L	1	0.60	1.0	1	EPA 8260B	12/10/11 03:00	JKG	
Xylenes (Total) [1330-20-7] ^	2.1	U	ug/L	1	2.1	3.0	5	EPA 8260B	12/10/11 03:00	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*48*	*1*	*50.0*	*95 %*	*51-122*	*1L09014*	*EPA 8260B*	*12/10/11 03:00*	*JKG*	
Dibromofluoromethane	*44*	*1*	*50.0*	*88 %*	*68-117*	*1L09014*	*EPA 8260B*	*12/10/11 03:00*	*JKG*	
Toluene-d8	*47*	*1*	*50.0*	*93 %*	*67-127*	*1L09014*	*EPA 8260B*	*12/10/11 03:00*	*JKG*	

Description: 9231-MW2 (MS/MSD) **Lab Sample ID:** C114089-02 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 10:35 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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	12/14/11 11:15	KER	

Description: 9231-MW2 (MS/MSD) **Lab Sample ID:** C114089-02 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 10:35 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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	12/09/11 10:37	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	12/12/11 10:23	JDH	
Barium [7440-39-3] ^	**487**		ug/L	1	1.00	10.0	100	EPA 6010C	12/12/11 10:23	JDH	
Beryllium [7440-41-7] ^	**3.22**		ug/L	1	0.100	1.00	1	EPA 6010C	12/12/11 10:23	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	12/12/11 10:23	JDH	
Chromium [7440-47-3] ^	1.00	U	ug/L	1	1.00	10.0	10	EPA 6010C	12/12/11 10:23	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	12/12/11 10:23	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	12/12/11 10:23	JDH	
Iron [7439-89-6] ^	22.0	U	ug/L	1	22.0	50.0	300	EPA 6010C	12/12/11 10:23	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:23	JDH	
Manganese [7439-96-5] ^	**86.9**		ug/L	1	1.10	10.0	50	EPA 6010C	12/12/11 10:23	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	12/12/11 10:23	JDH	
Selenium [7782-49-2] ^	2.70	U	ug/L	1	2.70	10.0	10	EPA 6010C	12/12/11 10:23	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:23	JDH	
Thallium [7440-28-0] ^	**0.119**	J	ug/L	1	0.110	1.00	5.5	EPA 6020A	12/09/11 10:37	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	12/12/11 10:23	JDH	
Zinc [7440-66-6] ^	**5.51**	J	ug/L	1	3.80	10.0	10	EPA 6010C	12/12/11 10:23	JDH	

Description: 9231-MW2 (MS/MSD) **Lab Sample ID:** C114089-02 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 10:35 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	**15000**	B	ug/L	1	47	5000	NE	EPA 300.0	12/11/11 20:05	CCB	QB-01
Sulfate as SO4 [14808-79-8] ^	**1700**	J	ug/L	1	20	5000	250000	EPA 300.0	12/11/11 20:05	CCB	
Total Alkalinity as CaCO3 [471-34-1] ^	12000	U	ug/L	1	12000	15000	NE	EPA 310.2	12/13/11 08:19	CCB	
Total Dissolved Solids [ECL-0156] ^	**280000**		ug/L	1	10000	10000	NE	SM 2540C	12/09/11 17:38	JOC	

Description: 9231-MW3 **Lab Sample ID:** C114089-03 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 11:21 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.90	U	ug/L	1	0.90	1.0	5	EPA 8260B	12/10/11 06:21	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.65	U	ug/L	1	0.65	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.75	U	ug/L	1	0.75	1.0	3	EPA 8260B	12/10/11 06:21	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
1,1-Dichloroethane [75-34-3] ^	0.080	U	ug/L	1	0.080	1.0	5	EPA 8260B	12/10/11 06:21	JKG	
1,1-Dichloroethene [75-35-4] ^	0.60	U	ug/L	1	0.60	1.0	5	EPA 8260B	12/10/11 06:21	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	12/10/11 06:21	JKG	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.11	U	ug/L	1	0.11	1.0	5	EPA 8260B	12/10/11 06:21	JKG	
1,2-Dichloroethane [107-06-2] ^	0.47	U	ug/L	1	0.47	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
1,2-Dichloropropane [78-87-5] ^	0.59	U	ug/L	1	0.59	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.79	U	ug/L	1	0.79	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	12/10/11 06:21	JKG	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	12/10/11 06:21	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	12/10/11 06:21	JKG	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	12/10/11 06:21	JKG	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	12/10/11 06:21	JKG	
Benzene [71-43-2] ^	0.68	U	ug/L	1	0.68	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
Bromochloromethane [74-97-5] ^	0.87	U	ug/L	1	0.87	1.0	3	EPA 8260B	12/10/11 06:21	JKG	
Bromodichloromethane [75-27-4] ^	0.75	U	ug/L	1	0.75	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
Bromoform [75-25-2] ^	0.68	U	ug/L	1	0.68	1.0	3	EPA 8260B	12/10/11 06:21	JKG	
Bromomethane [74-83-9] ^	0.58	U	ug/L	1	0.58	1.0	10	EPA 8260B	12/10/11 06:21	JKG	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	12/10/11 06:21	JKG	
Carbon tetrachloride [56-23-5] ^	0.69	U	ug/L	1	0.69	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
Chlorobenzene [108-90-7] ^	0.74	U	ug/L	1	0.74	1.0	3	EPA 8260B	12/10/11 06:21	JKG	
Chloroethane [75-00-3] ^	0.75	U	ug/L	1	0.75	1.0	10	EPA 8260B	12/10/11 06:21	JKG	
Chloroform [67-66-3] ^	0.70	U	ug/L	1	0.70	1.0	5	EPA 8260B	12/10/11 06:21	JKG	
Chloromethane [74-87-3] ^	0.55	U	ug/L	1	0.55	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.72	U	ug/L	1	0.72	1.0	5	EPA 8260B	12/10/11 06:21	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.075	U	ug/L	1	0.075	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
Dibromochloromethane [124-48-1] ^	0.63	U	ug/L	1	0.63	1.0	3	EPA 8260B	12/10/11 06:21	JKG	
Dibromomethane [74-95-3] ^	0.90	U	ug/L	1	0.90	1.0	10	EPA 8260B	12/10/11 06:21	JKG	
Ethylbenzene [100-41-4] ^	0.62	U	ug/L	1	0.62	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	12/10/11 06:21	JKG	
Methylene chloride [75-09-2] ^	**1.0**		ug/L	1	0.14	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
Styrene [100-42-5] ^	0.053	U	ug/L	1	0.053	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
Tetrachloroethene [127-18-4] ^	**2.9**		ug/L	1	0.73	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
Tetrahydrofuran [109-99-9] ^	**8.5**		ug/L	1	0.80	1.0	NE	EPA 8260B	12/10/11 06:21	JKG	
Toluene [108-88-3] ^	0.85	U	ug/L	1	0.85	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.12	U	ug/L	1	0.12	1.0	5	EPA 8260B	12/10/11 06:21	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.50	U	ug/L	1	0.50	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	12/10/11 06:21	JKG	
Trichloroethene [79-01-6] ^	**4.8**		ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
Trichlorofluoromethane [75-69-4] ^	**1.4**		ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	12/10/11 06:21	JKG	

Description: 9231-MW3 | **Lab Sample ID:** C114089-03 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 11:21 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.60	U	ug/L	1	0.60	1.0	1	EPA 8260B	12/10/11 06:21	JKG	
Xylenes (Total) [1330-20-7] ^	2.1	U	ug/L	1	2.1	3.0	5	EPA 8260B	12/10/11 06:21	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*47*	*1*	*50.0*	*94 %*	*51-122*	*1L09014*	*EPA 8260B*	*12/10/11 06:21*	*JKG*	
Dibromofluoromethane	*45*	*1*	*50.0*	*89 %*	*68-117*	*1L09014*	*EPA 8260B*	*12/10/11 06:21*	*JKG*	
Toluene-d8	*46*	*1*	*50.0*	*93 %*	*67-127*	*1L09014*	*EPA 8260B*	*12/10/11 06:21*	*JKG*	

Description: 9231-MW3 | **Lab Sample ID:** C114089-03 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 11:21 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	**1.03**		ug/L	1	0.170	0.200	0.2	EPA 7470A	12/14/11 12:44	KER	

Description: 9231-MW3 **Lab Sample ID:** C114089-03 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 11:21 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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	12/09/11 10:52	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	12/12/11 10:35	JDH	
Barium [7440-39-3] ^	**1330**		ug/L	1	1.00	10.0	100	EPA 6010C	12/12/11 10:35	JDH	
Beryllium [7440-41-7] ^	**3.35**		ug/L	1	0.100	1.00	1	EPA 6010C	12/12/11 10:35	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	12/12/11 10:35	JDH	
Chromium [7440-47-3] ^	1.00	U	ug/L	1	1.00	10.0	10	EPA 6010C	12/12/11 10:35	JDH	
Cobalt [7440-48-4] ^	**1.16**	J	ug/L	1	1.10	10.0	10	EPA 6010C	12/12/11 10:35	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	12/12/11 10:35	JDH	
Iron [7439-89-6] ^	22.0	U	ug/L	1	22.0	50.0	300	EPA 6010C	12/12/11 10:35	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:35	JDH	
Manganese [7439-96-5] ^	**171**		ug/L	1	1.10	10.0	50	EPA 6010C	12/12/11 10:35	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	12/12/11 10:35	JDH	
Selenium [7782-49-2] ^	2.70	U	ug/L	1	2.70	10.0	10	EPA 6010C	12/12/11 10:35	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:35	JDH	
Thallium [7440-28-0] ^	**0.226**	J	ug/L	1	0.110	1.00	5.5	EPA 6020A	12/09/11 10:52	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	12/12/11 10:35	JDH	
Zinc [7440-66-6] ^	**14.5**		ug/L	1	3.80	10.0	10	EPA 6010C	12/12/11 10:35	JDH	

Description: 9231-MW3 | **Lab Sample ID:** C114089-03 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 11:21 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	**21000**	B	ug/L	1	47	5000	NE	EPA 300.0	12/11/11 20:21	CCB	QB-01
Sulfate as SO4 [14808-79-8] ^	**1500**	J	ug/L	1	20	5000	250000	EPA 300.0	12/11/11 20:21	CCB	
Total Alkalinity as CaCO3 [471-34-1] ^	12000	U	ug/L	1	12000	15000	NE	EPA 310.2	12/13/11 08:33	CCB	
Total Dissolved Solids [ECL-0156] ^	**220000**		ug/L	1	10000	10000	NE	SM 2540C	12/09/11 17:38	JOC	

Description: 9231-MW4 **Lab Sample ID:** C114089-04 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 11:48 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.90	U	ug/L	1	0.90	1.0	5	EPA 8260B	12/10/11 06:50	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.65	U	ug/L	1	0.65	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.75	U	ug/L	1	0.75	1.0	3	EPA 8260B	12/10/11 06:50	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
1,1-Dichloroethane [75-34-3] ^	0.080	U	ug/L	1	0.080	1.0	5	EPA 8260B	12/10/11 06:50	JKG	
1,1-Dichloroethene [75-35-4] ^	0.60	U	ug/L	1	0.60	1.0	5	EPA 8260B	12/10/11 06:50	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	12/10/11 06:50	JKG	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.11	U	ug/L	1	0.11	1.0	5	EPA 8260B	12/10/11 06:50	JKG	
1,2-Dichloroethane [107-06-2] ^	0.47	U	ug/L	1	0.47	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
1,2-Dichloropropane [78-87-5] ^	0.59	U	ug/L	1	0.59	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.79	U	ug/L	1	0.79	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	12/10/11 06:50	JKG	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	12/10/11 06:50	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	12/10/11 06:50	JKG	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	12/10/11 06:50	JKG	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	12/10/11 06:50	JKG	
Benzene [71-43-2] ^	0.68	U	ug/L	1	0.68	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
Bromochloromethane [74-97-5] ^	0.87	U	ug/L	1	0.87	1.0	3	EPA 8260B	12/10/11 06:50	JKG	
Bromodichloromethane [75-27-4] ^	0.75	U	ug/L	1	0.75	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
Bromoform [75-25-2] ^	0.68	U	ug/L	1	0.68	1.0	3	EPA 8260B	12/10/11 06:50	JKG	
Bromomethane [74-83-9] ^	0.58	U	ug/L	1	0.58	1.0	10	EPA 8260B	12/10/11 06:50	JKG	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	12/10/11 06:50	JKG	
Carbon tetrachloride [56-23-5] ^	0.69	U	ug/L	1	0.69	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
Chlorobenzene [108-90-7] ^	0.74	U	ug/L	1	0.74	1.0	3	EPA 8260B	12/10/11 06:50	JKG	
Chloroethane [75-00-3] ^	0.75	U	ug/L	1	0.75	1.0	10	EPA 8260B	12/10/11 06:50	JKG	
Chloroform [67-66-3] ^	0.70	U	ug/L	1	0.70	1.0	5	EPA 8260B	12/10/11 06:50	JKG	
Chloromethane [74-87-3] ^	0.55	U	ug/L	1	0.55	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.72	U	ug/L	1	0.72	1.0	5	EPA 8260B	12/10/11 06:50	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.075	U	ug/L	1	0.075	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
Dibromochloromethane [124-48-1] ^	0.63	U	ug/L	1	0.63	1.0	3	EPA 8260B	12/10/11 06:50	JKG	
Dibromomethane [74-95-3] ^	0.90	U	ug/L	1	0.90	1.0	10	EPA 8260B	12/10/11 06:50	JKG	
Ethylbenzene [100-41-4] ^	0.62	U	ug/L	1	0.62	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	12/10/11 06:50	JKG	
Methylene chloride [75-09-2] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
Styrene [100-42-5] ^	0.053	U	ug/L	1	0.053	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
Tetrachloroethene [127-18-4] ^	0.73	U	ug/L	1	0.73	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	12/10/11 06:50	JKG	
Toluene [108-88-3] ^	0.85	U	ug/L	1	0.85	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.12	U	ug/L	1	0.12	1.0	5	EPA 8260B	12/10/11 06:50	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.50	U	ug/L	1	0.50	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	12/10/11 06:50	JKG	
Trichloroethene [79-01-6] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
Trichlorofluoromethane [75-69-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	12/10/11 06:50	JKG	

Description: 9231-MW4 | **Lab Sample ID:** C114089-04 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 11:48 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.60	U	ug/L	1	0.60	1.0	1	EPA 8260B	12/10/11 06:50	JKG	
Xylenes (Total) [1330-20-7] ^	2.1	U	ug/L	1	2.1	3.0	5	EPA 8260B	12/10/11 06:50	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*47*	*1*	*50.0*	*93 %*	*51-122*	*1L09014*	*EPA 8260B*	*12/10/11 06:50*	*JKG*	
Dibromofluoromethane	*43*	*1*	*50.0*	*87 %*	*68-117*	*1L09014*	*EPA 8260B*	*12/10/11 06:50*	*JKG*	
Toluene-d8	*46*	*1*	*50.0*	*92 %*	*67-127*	*1L09014*	*EPA 8260B*	*12/10/11 06:50*	*JKG*	

Description: 9231-MW4 **Lab Sample ID:** C114089-04 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 11:48 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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	12/14/11 13:06	KER	

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Description: 9231-MW4 | **Lab Sample ID:** C114089-04 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 11:48 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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	12/09/11 10:53	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	12/12/11 10:37	JDH	
Barium [7440-39-3] ^	**155**		ug/L	1	1.00	10.0	100	EPA 6010C	12/12/11 10:37	JDH	
Beryllium [7440-41-7] ^	**1.73**		ug/L	1	0.100	1.00	1	EPA 6010C	12/12/11 10:37	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	12/12/11 10:37	JDH	
Chromium [7440-47-3] ^	1.00	U	ug/L	1	1.00	10.0	10	EPA 6010C	12/12/11 10:37	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	12/12/11 10:37	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	12/12/11 10:37	JDH	
Iron [7439-89-6] ^	**29.7**	J	ug/L	1	22.0	50.0	300	EPA 6010C	12/12/11 10:37	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:37	JDH	
Manganese [7439-96-5] ^	**188**		ug/L	1	1.10	10.0	50	EPA 6010C	12/12/11 10:37	JDH	
Nickel [7440-02-0] ^	**2.96**	J	ug/L	1	1.80	10.0	50	EPA 6010C	12/12/11 10:37	JDH	
Selenium [7782-49-2] ^	2.70	U	ug/L	1	2.70	10.0	10	EPA 6010C	12/12/11 10:37	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:37	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	12/09/11 10:53	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	12/12/11 10:37	JDH	
Zinc [7440-66-6] ^	3.80	U	ug/L	1	3.80	10.0	10	EPA 6010C	12/12/11 10:37	JDH	

Description: 9231-MW4 **Lab Sample ID:** C114089-04 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 11:48 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	**4400**	JB	ug/L	1	47	5000	NE	EPA 300.0	12/11/11 20:38	CCB	J-01
Sulfate as SO4 [14808-79-8] ^	**63000**	J	ug/L	1	20	5000	250000	EPA 300.0	12/11/11 20:38	CCB	
Total Alkalinity as CaCO3 [471-34-1] ^	**17000**		ug/L	1	12000	15000	NE	EPA 310.2	12/13/11 08:33	CCB	
Total Dissolved Solids [ECL-0156] ^	**110000**		ug/L	1	10000	10000	NE	SM 2540C	12/09/11 17:38	JOC	

Description: 9231-MW5 **Lab Sample ID:** C114089-05 **Received:** 12/06/11 15:30

Matrix: Ground Water **Sampled:** 12/06/11 12:56 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.90	U	ug/L	1	0.90	1.0	5	EPA 8260B	12/10/11 07:19	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.65	U	ug/L	1	0.65	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.75	U	ug/L	1	0.75	1.0	3	EPA 8260B	12/10/11 07:19	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
1,1-Dichloroethane [75-34-3] ^	0.080	U	ug/L	1	0.080	1.0	5	EPA 8260B	12/10/11 07:19	JKG	
1,1-Dichloroethene [75-35-4] ^	0.60	U	ug/L	1	0.60	1.0	5	EPA 8260B	12/10/11 07:19	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	12/10/11 07:19	JKG	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.11	U	ug/L	1	0.11	1.0	5	EPA 8260B	12/10/11 07:19	JKG	
1,2-Dichloroethane [107-06-2] ^	0.47	U	ug/L	1	0.47	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
1,2-Dichloropropane [78-87-5] ^	0.59	U	ug/L	1	0.59	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.79	U	ug/L	1	0.79	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	12/10/11 07:19	JKG	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	12/10/11 07:19	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	12/10/11 07:19	JKG	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	12/10/11 07:19	JKG	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	12/10/11 07:19	JKG	
Benzene [71-43-2] ^	0.68	U	ug/L	1	0.68	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
Bromochloromethane [74-97-5] ^	0.87	U	ug/L	1	0.87	1.0	3	EPA 8260B	12/10/11 07:19	JKG	
Bromodichloromethane [75-27-4] ^	0.75	U	ug/L	1	0.75	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
Bromoform [75-25-2] ^	0.68	U	ug/L	1	0.68	1.0	3	EPA 8260B	12/10/11 07:19	JKG	
Bromomethane [74-83-9] ^	0.58	U	ug/L	1	0.58	1.0	10	EPA 8260B	12/10/11 07:19	JKG	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	12/10/11 07:19	JKG	
Carbon tetrachloride [56-23-5] ^	0.69	U	ug/L	1	0.69	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
Chlorobenzene [108-90-7] ^	0.74	U	ug/L	1	0.74	1.0	3	EPA 8260B	12/10/11 07:19	JKG	
Chloroethane [75-00-3] ^	0.75	U	ug/L	1	0.75	1.0	10	EPA 8260B	12/10/11 07:19	JKG	
Chloroform [67-66-3] ^	0.70	U	ug/L	1	0.70	1.0	5	EPA 8260B	12/10/11 07:19	JKG	
Chloromethane [74-87-3] ^	0.55	U	ug/L	1	0.55	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.72	U	ug/L	1	0.72	1.0	5	EPA 8260B	12/10/11 07:19	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.075	U	ug/L	1	0.075	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
Dibromochloromethane [124-48-1] ^	0.63	U	ug/L	1	0.63	1.0	3	EPA 8260B	12/10/11 07:19	JKG	
Dibromomethane [74-95-3] ^	0.90	U	ug/L	1	0.90	1.0	10	EPA 8260B	12/10/11 07:19	JKG	
Ethylbenzene [100-41-4] ^	0.62	U	ug/L	1	0.62	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	12/10/11 07:19	JKG	
Methylene chloride [75-09-2] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
Styrene [100-42-5] ^	0.053	U	ug/L	1	0.053	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
Tetrachloroethene [127-18-4] ^	0.73	U	ug/L	1	0.73	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	12/10/11 07:19	JKG	
Toluene [108-88-3] ^	0.85	U	ug/L	1	0.85	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.12	U	ug/L	1	0.12	1.0	5	EPA 8260B	12/10/11 07:19	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.50	U	ug/L	1	0.50	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	12/10/11 07:19	JKG	
Trichloroethene [79-01-6] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
Trichlorofluoromethane [75-69-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	12/10/11 07:19	JKG	

Description: 9231-MW5 | **Lab Sample ID:** C114089-05 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 12:56 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.60	U	ug/L	1	0.60	1.0	1	EPA 8260B	12/10/11 07:19	JKG	
Xylenes (Total) [1330-20-7] ^	2.1	U	ug/L	1	2.1	3.0	5	EPA 8260B	12/10/11 07:19	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*47*	*1*	*50.0*	*94 %*	*51-122*	*1L09014*	*EPA 8260B*	*12/10/11 07:19*	*JKG*	
Dibromofluoromethane	*44*	*1*	*50.0*	*88 %*	*68-117*	*1L09014*	*EPA 8260B*	*12/10/11 07:19*	*JKG*	
Toluene-d8	*46*	*1*	*50.0*	*92 %*	*67-127*	*1L09014*	*EPA 8260B*	*12/10/11 07:19*	*JKG*	

Description: 9231-MW5 | **Lab Sample ID:** C114089-05 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 12:56 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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	12/14/11 12:48	KER	

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Description: 9231-MW5 | **Lab Sample ID:** C114089-05 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 12:56 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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	12/09/11 11:12	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	12/12/11 10:44	JDH	
Barium [7440-39-3] ^	**59.8**	J	ug/L	1	1.00	10.0	100	EPA 6010C	12/12/11 10:44	JDH	
Beryllium [7440-41-7] ^	**4.75**		ug/L	1	0.100	1.00	1	EPA 6010C	12/12/11 10:44	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	12/12/11 10:44	JDH	
Chromium [7440-47-3] ^	**2.12**	J	ug/L	1	1.00	10.0	10	EPA 6010C	12/12/11 10:44	JDH	
Cobalt [7440-48-4] ^	**1.79**	J	ug/L	1	1.10	10.0	10	EPA 6010C	12/12/11 10:44	JDH	
Copper [7440-50-8] ^	**7.00**	J	ug/L	1	1.60	10.0	10	EPA 6010C	12/12/11 10:44	JDH	
Iron [7439-89-6] ^	**41800**		ug/L	1	22.0	50.0	300	EPA 6010C	12/12/11 10:44	JDH	
Lead [7439-92-1] ^	**8.99**	J	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:44	JDH	
Manganese [7439-96-5] ^	**164**		ug/L	1	1.10	10.0	50	EPA 6010C	12/12/11 10:44	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	12/12/11 10:44	JDH	
Selenium [7782-49-2] ^	2.70	U	ug/L	1	2.70	10.0	10	EPA 6010C	12/12/11 10:44	JDH	
Silver [7440-22-4] ^	**3.09**	J	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:44	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	12/09/11 11:12	VLO	
Vanadium [7440-62-2] ^	**16.4**	J	ug/L	1	1.40	10.0	25	EPA 6010C	12/12/11 10:44	JDH	
Zinc [7440-66-6] ^	**13.4**		ug/L	1	3.80	10.0	10	EPA 6010C	12/12/11 10:44	JDH	

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Description: 9231-MW5 | **Lab Sample ID:** C114089-05 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 12:56 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	**3700**	JB	ug/L	1	47	5000	NE	EPA 300.0	12/11/11 20:54	CCB	J-01
Sulfate as SO4 [14808-79-8] ^	**2900**	J	ug/L	1	20	5000	250000	EPA 300.0	12/11/11 20:54	CCB	
Total Alkalinity as CaCO3 [471-34-1] ^	**12000**	J	ug/L	1	12000	15000	NE	EPA 310.2	12/13/11 08:34	CCB	
Total Dissolved Solids [ECL-0156] ^	**52000**		ug/L	1	10000	10000	NE	SM 2540C	12/09/11 17:38	JOC	

Description: 9231-SW1 **Lab Sample ID:** C114089-06 **Received:** 12/06/11 15:30

Matrix: Surface Water **Sampled:** 12/06/11 13:16 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.90	U	ug/L	1	0.90	1.0	5	EPA 8260B	12/10/11 07:47	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.65	U	ug/L	1	0.65	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.75	U	ug/L	1	0.75	1.0	3	EPA 8260B	12/10/11 07:47	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
1,1-Dichloroethane [75-34-3] ^	0.080	U	ug/L	1	0.080	1.0	5	EPA 8260B	12/10/11 07:47	JKG	
1,1-Dichloroethene [75-35-4] ^	0.60	U	ug/L	1	0.60	1.0	5	EPA 8260B	12/10/11 07:47	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	12/10/11 07:47	JKG	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.11	U	ug/L	1	0.11	1.0	5	EPA 8260B	12/10/11 07:47	JKG	
1,2-Dichloroethane [107-06-2] ^	0.47	U	ug/L	1	0.47	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
1,2-Dichloropropane [78-87-5] ^	0.59	U	ug/L	1	0.59	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.79	U	ug/L	1	0.79	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	12/10/11 07:47	JKG	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	12/10/11 07:47	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	12/10/11 07:47	JKG	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	12/10/11 07:47	JKG	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	12/10/11 07:47	JKG	
Benzene [71-43-2] ^	0.68	U	ug/L	1	0.68	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
Bromochloromethane [74-97-5] ^	0.87	U	ug/L	1	0.87	1.0	3	EPA 8260B	12/10/11 07:47	JKG	
Bromodichloromethane [75-27-4] ^	0.75	U	ug/L	1	0.75	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
Bromoform [75-25-2] ^	0.68	U	ug/L	1	0.68	1.0	3	EPA 8260B	12/10/11 07:47	JKG	
Bromomethane [74-83-9] ^	0.58	U	ug/L	1	0.58	1.0	10	EPA 8260B	12/10/11 07:47	JKG	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	12/10/11 07:47	JKG	
Carbon tetrachloride [56-23-5] ^	0.69	U	ug/L	1	0.69	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
Chlorobenzene [108-90-7] ^	0.74	U	ug/L	1	0.74	1.0	3	EPA 8260B	12/10/11 07:47	JKG	
Chloroethane [75-00-3] ^	0.75	U	ug/L	1	0.75	1.0	10	EPA 8260B	12/10/11 07:47	JKG	
Chloroform [67-66-3] ^	0.70	U	ug/L	1	0.70	1.0	5	EPA 8260B	12/10/11 07:47	JKG	
Chloromethane [74-87-3] ^	0.55	U	ug/L	1	0.55	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.72	U	ug/L	1	0.72	1.0	5	EPA 8260B	12/10/11 07:47	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.075	U	ug/L	1	0.075	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
Dibromochloromethane [124-48-1] ^	0.63	U	ug/L	1	0.63	1.0	3	EPA 8260B	12/10/11 07:47	JKG	
Dibromomethane [74-95-3] ^	0.90	U	ug/L	1	0.90	1.0	10	EPA 8260B	12/10/11 07:47	JKG	
Ethylbenzene [100-41-4] ^	0.62	U	ug/L	1	0.62	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	12/10/11 07:47	JKG	
Methylene chloride [75-09-2] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
Styrene [100-42-5] ^	0.053	U	ug/L	1	0.053	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
Tetrachloroethene [127-18-4] ^	0.73	U	ug/L	1	0.73	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	12/10/11 07:47	JKG	
Toluene [108-88-3] ^	0.85	U	ug/L	1	0.85	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.12	U	ug/L	1	0.12	1.0	5	EPA 8260B	12/10/11 07:47	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.50	U	ug/L	1	0.50	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	12/10/11 07:47	JKG	
Trichloroethene [79-01-6] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
Trichlorofluoromethane [75-69-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	12/10/11 07:47	JKG	

Description: 9231-SW1 | **Lab Sample ID:** C114089-06 | **Received:** 12/06/11 15:30

Matrix: Surface Water | **Sampled:** 12/06/11 13:16 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.60	U	ug/L	1	0.60	1.0	1	EPA 8260B	12/10/11 07:47	JKG	
Xylenes (Total) [1330-20-7] ^	2.1	U	ug/L	1	2.1	3.0	5	EPA 8260B	12/10/11 07:47	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*46*	*1*	*50.0*	*93 %*	*51-122*	*1L09014*	*EPA 8260B*	*12/10/11 07:47*	*JKG*	
Dibromofluoromethane	*44*	*1*	*50.0*	*89 %*	*68-117*	*1L09014*	*EPA 8260B*	*12/10/11 07:47*	*JKG*	
Toluene-d8	*47*	*1*	*50.0*	*93 %*	*67-127*	*1L09014*	*EPA 8260B*	*12/10/11 07:47*	*JKG*	

Description: 9231-SW1 **Lab Sample ID:** C114089-06 **Received:** 12/06/11 15:30

Matrix: Surface Water **Sampled:** 12/06/11 13:16 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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	12/09/11 11:14	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	12/12/11 10:46	JDH	
Barium [7440-39-3] ^	**31.6**	J	ug/L	1	1.00	10.0	100	EPA 6010C	12/12/11 10:46	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	12/12/11 10:46	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	12/12/11 10:46	JDH	
Chromium [7440-47-3] ^	1.00	U	ug/L	1	1.00	10.0	10	EPA 6010C	12/12/11 10:46	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	12/12/11 10:46	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	12/12/11 10:46	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:46	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	12/12/11 10:46	JDH	
Selenium [7782-49-2] ^	2.70	U	ug/L	1	2.70	10.0	10	EPA 6010C	12/12/11 10:46	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:46	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	12/09/11 11:14	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	12/12/11 10:46	JDH	
Zinc [7440-66-6] ^	3.80	U	ug/L	1	3.80	10.0	10	EPA 6010C	12/12/11 10:46	JDH	

Description: 9231-SW2 **Lab Sample ID:** C114089-07 **Received:** 12/06/11 15:30

Matrix: Surface Water **Sampled:** 12/06/11 12:02 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.90	U	ug/L	1	0.90	1.0	5	EPA 8260B	12/10/11 08:16	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.65	U	ug/L	1	0.65	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.75	U	ug/L	1	0.75	1.0	3	EPA 8260B	12/10/11 08:16	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
1,1-Dichloroethane [75-34-3] ^	0.080	U	ug/L	1	0.080	1.0	5	EPA 8260B	12/10/11 08:16	JKG	
1,1-Dichloroethene [75-35-4] ^	0.60	U	ug/L	1	0.60	1.0	5	EPA 8260B	12/10/11 08:16	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	12/10/11 08:16	JKG	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.11	U	ug/L	1	0.11	1.0	5	EPA 8260B	12/10/11 08:16	JKG	
1,2-Dichloroethane [107-06-2] ^	0.47	U	ug/L	1	0.47	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
1,2-Dichloropropane [78-87-5] ^	0.59	U	ug/L	1	0.59	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.79	U	ug/L	1	0.79	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	12/10/11 08:16	JKG	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	12/10/11 08:16	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	12/10/11 08:16	JKG	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	12/10/11 08:16	JKG	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	12/10/11 08:16	JKG	
Benzene [71-43-2] ^	0.68	U	ug/L	1	0.68	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
Bromochloromethane [74-97-5] ^	0.87	U	ug/L	1	0.87	1.0	3	EPA 8260B	12/10/11 08:16	JKG	
Bromodichloromethane [75-27-4] ^	0.75	U	ug/L	1	0.75	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
Bromoform [75-25-2] ^	0.68	U	ug/L	1	0.68	1.0	3	EPA 8260B	12/10/11 08:16	JKG	
Bromomethane [74-83-9] ^	0.58	U	ug/L	1	0.58	1.0	10	EPA 8260B	12/10/11 08:16	JKG	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	12/10/11 08:16	JKG	
Carbon tetrachloride [56-23-5] ^	0.69	U	ug/L	1	0.69	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
Chlorobenzene [108-90-7] ^	0.74	U	ug/L	1	0.74	1.0	3	EPA 8260B	12/10/11 08:16	JKG	
Chloroethane [75-00-3] ^	0.75	U	ug/L	1	0.75	1.0	10	EPA 8260B	12/10/11 08:16	JKG	
Chloroform [67-66-3] ^	0.70	U	ug/L	1	0.70	1.0	5	EPA 8260B	12/10/11 08:16	JKG	
Chloromethane [74-87-3] ^	0.55	U	ug/L	1	0.55	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.72	U	ug/L	1	0.72	1.0	5	EPA 8260B	12/10/11 08:16	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.075	U	ug/L	1	0.075	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
Dibromochloromethane [124-48-1] ^	0.63	U	ug/L	1	0.63	1.0	3	EPA 8260B	12/10/11 08:16	JKG	
Dibromomethane [74-95-3] ^	0.90	U	ug/L	1	0.90	1.0	10	EPA 8260B	12/10/11 08:16	JKG	
Ethylbenzene [100-41-4] ^	0.62	U	ug/L	1	0.62	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	12/10/11 08:16	JKG	
Methylene chloride [75-09-2] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
Styrene [100-42-5] ^	0.053	U	ug/L	1	0.053	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
Tetrachloroethene [127-18-4] ^	0.73	U	ug/L	1	0.73	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	12/10/11 08:16	JKG	
Toluene [108-88-3] ^	0.85	U	ug/L	1	0.85	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.12	U	ug/L	1	0.12	1.0	5	EPA 8260B	12/10/11 08:16	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.50	U	ug/L	1	0.50	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	12/10/11 08:16	JKG	
Trichloroethene [79-01-6] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
Trichlorofluoromethane [75-69-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	12/10/11 08:16	JKG	

Description: 9231-SW2 | **Lab Sample ID:** C114089-07 | **Received:** 12/06/11 15:30

Matrix: Surface Water | **Sampled:** 12/06/11 12:02 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.60	U	ug/L	1	0.60	1.0	1	EPA 8260B	12/10/11 08:16	JKG	
Xylenes (Total) [1330-20-7] ^	2.1	U	ug/L	1	2.1	3.0	5	EPA 8260B	12/10/11 08:16	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*47*	*1*	*50.0*	*94 %*	*51-122*	*1L09014*	*EPA 8260B*	*12/10/11 08:16*	*JKG*	
Dibromofluoromethane	*44*	*1*	*50.0*	*88 %*	*68-117*	*1L09014*	*EPA 8260B*	*12/10/11 08:16*	*JKG*	
Toluene-d8	*46*	*1*	*50.0*	*91 %*	*67-127*	*1L09014*	*EPA 8260B*	*12/10/11 08:16*	*JKG*	

Description: 9231-SW2 **Lab Sample ID:** C114089-07 **Received:** 12/06/11 15:30

Matrix: Surface Water **Sampled:** 12/06/11 12:02 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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	12/09/11 11:16	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	12/12/11 10:48	JDH	
Barium [7440-39-3] ^	**34.5**	J	ug/L	1	1.00	10.0	100	EPA 6010C	12/12/11 10:48	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	12/12/11 10:48	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	12/12/11 10:48	JDH	
Chromium [7440-47-3] ^	1.00	U	ug/L	1	1.00	10.0	10	EPA 6010C	12/12/11 10:48	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	12/12/11 10:48	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	12/12/11 10:48	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:48	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	12/12/11 10:48	JDH	
Selenium [7782-49-2] ^	2.70	U	ug/L	1	2.70	10.0	10	EPA 6010C	12/12/11 10:48	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:48	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	12/09/11 11:16	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	12/12/11 10:48	JDH	
Zinc [7440-66-6] ^	**34.6**		ug/L	1	3.80	10.0	10	EPA 6010C	12/12/11 10:48	JDH	

Description: 9231-SW3 **Lab Sample ID:** C114089-08 **Received:** 12/06/11 15:30

Matrix: Surface Water **Sampled:** 12/06/11 10:45 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.90	U	ug/L	1	0.90	1.0	5	EPA 8260B	12/10/11 08:45	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.65	U	ug/L	1	0.65	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.75	U	ug/L	1	0.75	1.0	3	EPA 8260B	12/10/11 08:45	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
1,1-Dichloroethane [75-34-3] ^	0.080	U	ug/L	1	0.080	1.0	5	EPA 8260B	12/10/11 08:45	JKG	
1,1-Dichloroethene [75-35-4] ^	0.60	U	ug/L	1	0.60	1.0	5	EPA 8260B	12/10/11 08:45	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	12/10/11 08:45	JKG	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.11	U	ug/L	1	0.11	1.0	5	EPA 8260B	12/10/11 08:45	JKG	
1,2-Dichloroethane [107-06-2] ^	0.47	U	ug/L	1	0.47	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
1,2-Dichloropropane [78-87-5] ^	0.59	U	ug/L	1	0.59	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.79	U	ug/L	1	0.79	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	12/10/11 08:45	JKG	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	12/10/11 08:45	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	12/10/11 08:45	JKG	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	12/10/11 08:45	JKG	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	12/10/11 08:45	JKG	
Benzene [71-43-2] ^	0.68	U	ug/L	1	0.68	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
Bromochloromethane [74-97-5] ^	0.87	U	ug/L	1	0.87	1.0	3	EPA 8260B	12/10/11 08:45	JKG	
Bromodichloromethane [75-27-4] ^	0.75	U	ug/L	1	0.75	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
Bromoform [75-25-2] ^	0.68	U	ug/L	1	0.68	1.0	3	EPA 8260B	12/10/11 08:45	JKG	
Bromomethane [74-83-9] ^	0.58	U	ug/L	1	0.58	1.0	10	EPA 8260B	12/10/11 08:45	JKG	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	12/10/11 08:45	JKG	
Carbon tetrachloride [56-23-5] ^	0.69	U	ug/L	1	0.69	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
Chlorobenzene [108-90-7] ^	0.74	U	ug/L	1	0.74	1.0	3	EPA 8260B	12/10/11 08:45	JKG	
Chloroethane [75-00-3] ^	0.75	U	ug/L	1	0.75	1.0	10	EPA 8260B	12/10/11 08:45	JKG	
Chloroform [67-66-3] ^	0.70	U	ug/L	1	0.70	1.0	5	EPA 8260B	12/10/11 08:45	JKG	
Chloromethane [74-87-3] ^	0.55	U	ug/L	1	0.55	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.72	U	ug/L	1	0.72	1.0	5	EPA 8260B	12/10/11 08:45	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.075	U	ug/L	1	0.075	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
Dibromochloromethane [124-48-1] ^	0.63	U	ug/L	1	0.63	1.0	3	EPA 8260B	12/10/11 08:45	JKG	
Dibromomethane [74-95-3] ^	0.90	U	ug/L	1	0.90	1.0	10	EPA 8260B	12/10/11 08:45	JKG	
Ethylbenzene [100-41-4] ^	0.62	U	ug/L	1	0.62	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	12/10/11 08:45	JKG	
Methylene chloride [75-09-2] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
Styrene [100-42-5] ^	0.053	U	ug/L	1	0.053	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
Tetrachloroethene [127-18-4] ^	0.73	U	ug/L	1	0.73	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	12/10/11 08:45	JKG	
Toluene [108-88-3] ^	0.85	U	ug/L	1	0.85	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.12	U	ug/L	1	0.12	1.0	5	EPA 8260B	12/10/11 08:45	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.50	U	ug/L	1	0.50	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	12/10/11 08:45	JKG	
Trichloroethene [79-01-6] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
Trichlorofluoromethane [75-69-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	12/10/11 08:45	JKG	

Description: 9231-SW3 | **Lab Sample ID:** C114089-08 | **Received:** 12/06/11 15:30

Matrix: Surface Water | **Sampled:** 12/06/11 10:45 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.60	U	ug/L	1	0.60	1.0	1	EPA 8260B	12/10/11 08:45	JKG	
Xylenes (Total) [1330-20-7] ^	2.1	U	ug/L	1	2.1	3.0	5	EPA 8260B	12/10/11 08:45	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*46*	*1*	*50.0*	*93 %*	*51-122*	*1L09014*	*EPA 8260B*	*12/10/11 08:45*	*JKG*	
Dibromofluoromethane	*44*	*1*	*50.0*	*87 %*	*68-117*	*1L09014*	*EPA 8260B*	*12/10/11 08:45*	*JKG*	
Toluene-d8	*46*	*1*	*50.0*	*92 %*	*67-127*	*1L09014*	*EPA 8260B*	*12/10/11 08:45*	*JKG*	

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Description: 9231-SW3 **Lab Sample ID:** C114089-08 **Received:** 12/06/11 15:30

Matrix: Surface Water **Sampled:** 12/06/11 10:45 **Work Order:** C114089

Project: WCA- Material Recovery, LLC **Sampled By:** N. Rathjen / B. Freyer

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	12/09/11 11:18	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	12/12/11 10:50	JDH	
Barium [7440-39-3] ^	**277**		ug/L	1	1.00	10.0	100	EPA 6010C	12/12/11 10:50	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	12/12/11 10:50	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	12/12/11 10:50	JDH	
Chromium [7440-47-3] ^	1.00	U	ug/L	1	1.00	10.0	10	EPA 6010C	12/12/11 10:50	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	12/12/11 10:50	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	12/12/11 10:50	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:50	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	12/12/11 10:50	JDH	
Selenium [7782-49-2] ^	2.70	U	ug/L	1	2.70	10.0	10	EPA 6010C	12/12/11 10:50	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:50	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	12/09/11 11:18	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	12/12/11 10:50	JDH	
Zinc [7440-66-6] ^	**4.87**	J	ug/L	1	3.80	10.0	10	EPA 6010C	12/12/11 10:50	JDH	

Description: Field Blank | **Lab Sample ID:** C114089-09 | **Received:** 12/06/11 15:30

Matrix: Water | **Sampled:** 12/06/11 13:05 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.90	U	ug/L	1	0.90	1.0	5	EPA 8260B	12/15/11 03:51	jkg	
1,1,1-Trichloroethane [71-55-6] ^	0.65	U	ug/L	1	0.65	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.75	U	ug/L	1	0.75	1.0	3	EPA 8260B	12/15/11 03:51	jkg	
1,1,2-Trichloroethane [79-00-5] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
1,1-Dichloroethane [75-34-3] ^	0.080	U	ug/L	1	0.080	1.0	5	EPA 8260B	12/15/11 03:51	jkg	
1,1-Dichloroethene [75-35-4] ^	0.60	U	ug/L	1	0.60	1.0	5	EPA 8260B	12/15/11 03:51	jkg	
1,2,3-Trichloropropane [96-18-4] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	12/15/11 03:51	jkg	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
1,2-Dichlorobenzene [95-50-1] ^	0.11	U	ug/L	1	0.11	1.0	5	EPA 8260B	12/15/11 03:51	jkg	
1,2-Dichloroethane [107-06-2] ^	0.47	U	ug/L	1	0.47	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
1,2-Dichloropropane [78-87-5] ^	0.59	U	ug/L	1	0.59	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
1,4-Dichlorobenzene [106-46-7] ^	0.79	U	ug/L	1	0.79	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	12/15/11 03:51	jkg	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	12/15/11 03:51	jkg	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	12/15/11 03:51	jkg	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	12/15/11 03:51	jkg	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	12/15/11 03:51	jkg	
Benzene [71-43-2] ^	0.68	U	ug/L	1	0.68	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
Bromochloromethane [74-97-5] ^	0.87	U	ug/L	1	0.87	1.0	3	EPA 8260B	12/15/11 03:51	jkg	
Bromodichloromethane [75-27-4] ^	0.75	U	ug/L	1	0.75	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
Bromoform [75-25-2] ^	0.68	U	ug/L	1	0.68	1.0	3	EPA 8260B	12/15/11 03:51	jkg	
Bromomethane [74-83-9] ^	0.58	U	ug/L	1	0.58	1.0	10	EPA 8260B	12/15/11 03:51	jkg	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	12/15/11 03:51	jkg	
Carbon tetrachloride [56-23-5] ^	0.69	U	ug/L	1	0.69	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
Chlorobenzene [108-90-7] ^	0.74	U	ug/L	1	0.74	1.0	3	EPA 8260B	12/15/11 03:51	jkg	
Chloroethane [75-00-3] ^	0.75	U	ug/L	1	0.75	1.0	10	EPA 8260B	12/15/11 03:51	jkg	
Chloroform [67-66-3] ^	0.70	U	ug/L	1	0.70	1.0	5	EPA 8260B	12/15/11 03:51	jkg	
Chloromethane [74-87-3] ^	0.55	U	ug/L	1	0.55	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
cis-1,2-Dichloroethene [156-59-2] ^	0.72	U	ug/L	1	0.72	1.0	5	EPA 8260B	12/15/11 03:51	jkg	
cis-1,3-Dichloropropene [10061-01-5] ^	0.075	U	ug/L	1	0.075	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
Dibromochloromethane [124-48-1] ^	0.63	U	ug/L	1	0.63	1.0	3	EPA 8260B	12/15/11 03:51	jkg	
Dibromomethane [74-95-3] ^	0.90	U	ug/L	1	0.90	1.0	10	EPA 8260B	12/15/11 03:51	jkg	
Ethylbenzene [100-41-4] ^	0.62	U	ug/L	1	0.62	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	12/15/11 03:51	jkg	
Methylene chloride [75-09-2] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
Styrene [100-42-5] ^	0.053	U	ug/L	1	0.053	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
Tetrachloroethene [127-18-4] ^	0.73	U	ug/L	1	0.73	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	12/15/11 03:51	jkg	
Toluene [108-88-3] ^	0.85	U	ug/L	1	0.85	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
trans-1,2-Dichloroethene [156-60-5] ^	0.12	U	ug/L	1	0.12	1.0	5	EPA 8260B	12/15/11 03:51	jkg	
trans-1,3-Dichloropropene [10061-02-6] ^	0.50	U	ug/L	1	0.50	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	12/15/11 03:51	jkg	
Trichloroethene [79-01-6] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
Trichlorofluoromethane [75-69-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	12/15/11 03:51	jkg	

Description: Field Blank | **Lab Sample ID:** C114089-09 | **Received:** 12/06/11 15:30

Matrix: Water | **Sampled:** 12/06/11 13:05 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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] ^	0.60	U	ug/L	1	0.60	1.0	1	EPA 8260B	12/15/11 03:51	jkg	
Xylenes (Total) [1330-20-7] ^	2.1	U	ug/L	1	2.1	3.0	5	EPA 8260B	12/15/11 03:51	jkg	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*48*	*1*	*50.0*	*96 %*	*51-122*	*1L13014*	*EPA 8260B*	*12/15/11 03:51*	*jkg*	
Dibromofluoromethane	*48*	*1*	*50.0*	*95 %*	*68-117*	*1L13014*	*EPA 8260B*	*12/15/11 03:51*	*jkg*	
Toluene-d8	*48*	*1*	*50.0*	*97 %*	*67-127*	*1L13014*	*EPA 8260B*	*12/15/11 03:51*	*jkg*	

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Description: Field Blank | **Lab Sample ID:** C114089-09 | **Received:** 12/06/11 15:30

Matrix: Water | **Sampled:** 12/06/11 13:05 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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	12/14/11 12:50	KER	

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Description: Field Blank | **Lab Sample ID:** C114089-09 | **Received:** 12/06/11 15:30

Matrix: Water | **Sampled:** 12/06/11 13:05 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

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	12/09/11 11:19	VLO	
Arsenic [7440-38-2] ^	2.80	U	ug/L	1	2.80	10.0	10	EPA 6010C	12/12/11 10:52	JDH	
Barium [7440-39-3] ^	1.00	U	ug/L	1	1.00	10.0	100	EPA 6010C	12/12/11 10:52	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	12/12/11 10:52	JDH	
Cadmium [7440-43-9] ^	0.360	U	ug/L	1	0.360	1.00	1	EPA 6010C	12/12/11 10:52	JDH	
Chromium [7440-47-3] ^	1.00	U	ug/L	1	1.00	10.0	10	EPA 6010C	12/12/11 10:52	JDH	
Cobalt [7440-48-4] ^	1.10	U	ug/L	1	1.10	10.0	10	EPA 6010C	12/12/11 10:52	JDH	
Copper [7440-50-8] ^	1.60	U	ug/L	1	1.60	10.0	10	EPA 6010C	12/12/11 10:52	JDH	
Iron [7439-89-6] ^	22.0	U	ug/L	1	22.0	50.0	300	EPA 6010C	12/12/11 10:52	JDH	
Lead [7439-92-1] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:52	JDH	
Manganese [7439-96-5] ^	**1.46**	J	ug/L	1	1.10	10.0	50	EPA 6010C	12/12/11 10:52	JDH	
Nickel [7440-02-0] ^	1.80	U	ug/L	1	1.80	10.0	50	EPA 6010C	12/12/11 10:52	JDH	
Selenium [7782-49-2] ^	0.830	U	ug/L	1	0.830	1.00	10	EPA 6020A	12/09/11 11:19	VLO	
Selenium [7782-49-2] ^	**2.77**	J	ug/L	1	2.70	10.0	10	EPA 6010C	12/12/11 10:52	JDH	
Silver [7440-22-4] ^	1.90	U	ug/L	1	1.90	10.0	10	EPA 6010C	12/12/11 10:52	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	12/09/11 11:19	VLO	
Vanadium [7440-62-2] ^	1.40	U	ug/L	1	1.40	10.0	25	EPA 6010C	12/12/11 10:52	JDH	
Zinc [7440-66-6] ^	3.80	U	ug/L	1	3.80	10.0	10	EPA 6010C	12/12/11 10:52	JDH	

Description: Trip Blank | **Lab Sample ID:** C114089-10 | **Received:** 12/06/11 15:30

Matrix: Water | **Sampled:** 12/06/11 10:06 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **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] ^	0.90	U	ug/L	1	0.90	1.0	5	EPA 8260B	12/15/11 04:21	jkg	
1,1,1-Trichloroethane [71-55-6] ^	0.65	U	ug/L	1	0.65	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.75	U	ug/L	1	0.75	1.0	3	EPA 8260B	12/15/11 04:21	jkg	
1,1,2-Trichloroethane [79-00-5] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
1,1-Dichloroethane [75-34-3] ^	0.080	U	ug/L	1	0.080	1.0	5	EPA 8260B	12/15/11 04:21	jkg	
1,1-Dichloroethene [75-35-4] ^	0.60	U	ug/L	1	0.60	1.0	5	EPA 8260B	12/15/11 04:21	jkg	
1,2,3-Trichloropropane [96-18-4] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	12/15/11 04:21	jkg	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
1,2-Dichlorobenzene [95-50-1] ^	0.11	U	ug/L	1	0.11	1.0	5	EPA 8260B	12/15/11 04:21	jkg	
1,2-Dichloroethane [107-06-2] ^	0.47	U	ug/L	1	0.47	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
1,2-Dichloropropane [78-87-5] ^	0.59	U	ug/L	1	0.59	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
1,4-Dichlorobenzene [106-46-7] ^	0.79	U	ug/L	1	0.79	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	12/15/11 04:21	jkg	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	12/15/11 04:21	jkg	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	12/15/11 04:21	jkg	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	12/15/11 04:21	jkg	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	12/15/11 04:21	jkg	
Benzene [71-43-2] ^	0.68	U	ug/L	1	0.68	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
Bromochloromethane [74-97-5] ^	0.87	U	ug/L	1	0.87	1.0	3	EPA 8260B	12/15/11 04:21	jkg	
Bromodichloromethane [75-27-4] ^	0.75	U	ug/L	1	0.75	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
Bromoform [75-25-2] ^	0.68	U	ug/L	1	0.68	1.0	3	EPA 8260B	12/15/11 04:21	jkg	
Bromomethane [74-83-9] ^	0.58	U	ug/L	1	0.58	1.0	10	EPA 8260B	12/15/11 04:21	jkg	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	12/15/11 04:21	jkg	
Carbon tetrachloride [56-23-5] ^	0.69	U	ug/L	1	0.69	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
Chlorobenzene [108-90-7] ^	0.74	U	ug/L	1	0.74	1.0	3	EPA 8260B	12/15/11 04:21	jkg	
Chloroethane [75-00-3] ^	0.75	U	ug/L	1	0.75	1.0	10	EPA 8260B	12/15/11 04:21	jkg	
Chloroform [67-66-3] ^	0.70	U	ug/L	1	0.70	1.0	5	EPA 8260B	12/15/11 04:21	jkg	
Chloromethane [74-87-3] ^	0.55	U	ug/L	1	0.55	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
cis-1,2-Dichloroethene [156-59-2] ^	0.72	U	ug/L	1	0.72	1.0	5	EPA 8260B	12/15/11 04:21	jkg	
cis-1,3-Dichloropropene [10061-01-5] ^	0.075	U	ug/L	1	0.075	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
Dibromochloromethane [124-48-1] ^	0.63	U	ug/L	1	0.63	1.0	3	EPA 8260B	12/15/11 04:21	jkg	
Dibromomethane [74-95-3] ^	0.90	U	ug/L	1	0.90	1.0	10	EPA 8260B	12/15/11 04:21	jkg	
Ethylbenzene [100-41-4] ^	0.62	U	ug/L	1	0.62	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	12/15/11 04:21	jkg	
Methylene chloride [75-09-2] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
Styrene [100-42-5] ^	0.053	U	ug/L	1	0.053	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
Tetrachloroethene [127-18-4] ^	0.73	U	ug/L	1	0.73	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
Tetrahydrofuran [109-99-9] ^	0.80	U	ug/L	1	0.80	1.0	NE	EPA 8260B	12/15/11 04:21	jkg	
Toluene [108-88-3] ^	0.85	U	ug/L	1	0.85	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
trans-1,2-Dichloroethene [156-60-5] ^	0.12	U	ug/L	1	0.12	1.0	5	EPA 8260B	12/15/11 04:21	jkg	
trans-1,3-Dichloropropene [10061-02-6] ^	0.50	U	ug/L	1	0.50	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	12/15/11 04:21	jkg	
Trichloroethene [79-01-6] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
Trichlorofluoromethane [75-69-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	12/15/11 04:21	jkg	

Description: Trip Blank | **Lab Sample ID:** C114089-10 | **Received:** 12/06/11 15:30

Matrix: Water | **Sampled:** 12/06/11 10:06 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **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
Vinyl chloride [75-01-4] ^	0.60	U	ug/L	1	0.60	1.0	1	EPA 8260B	12/15/11 04:21	jkg	
Xylenes (Total) [1330-20-7] ^	2.1	U	ug/L	1	2.1	3.0	5	EPA 8260B	12/15/11 04:21	jkg	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*49*	*1*	*50.0*	*99 %*	*51-122*	*1L13014*	*EPA 8260B*	*12/15/11 04:21*	*jkg*	
Dibromofluoromethane	*47*	*1*	*50.0*	*95 %*	*68-117*	*1L13014*	*EPA 8260B*	*12/15/11 04:21*	*jkg*	
Toluene-d8	*48*	*1*	*50.0*	*97 %*	*67-127*	*1L13014*	*EPA 8260B*	*12/15/11 04:21*	*jkg*	

Description: 9231-MW5 Dissolved | **Lab Sample ID:** C114089-11 | **Received:** 12/06/11 15:30

Matrix: Ground Water | **Sampled:** 12/06/11 12:56 | **Work Order:** C114089

Project: WCA- Material Recovery, LLC | **Sampled By:** N. Rathjen / B. Freyer

Metals (Dissolved) 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
Beryllium [7440-41-7] ^	**0.287**	J	ug/L	1	0.100	1.00	1	EPA 6010C	01/24/12 13:16	JDH	

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L09014 - EPA 5030B_MS

Blank (1L09014-BLK1) Prepared: 12/09/2011 11:44 Analyzed: 12/10/2011 00:36

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	0.90	U	1.0	ug/L							
1,1,1-Trichloroethane	0.65	U	1.0	ug/L							
1,1,2,2-Tetrachloroethane	0.75	U	1.0	ug/L							
1,1,2-Trichloroethane	0.66	U	1.0	ug/L							
1,1-Dichloroethane	0.080	U	1.0	ug/L							
1,1-Dichloroethene	0.60	U	1.0	ug/L							
1,2,3-Trichloropropane	0.72	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	0.11	U	1.0	ug/L							
1,2-Dichloroethane	0.47	U	1.0	ug/L							
1,2-Dichloropropane	0.59	U	1.0	ug/L							
1,4-Dichlorobenzene	0.79	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	0.68	U	1.0	ug/L							
Bromochloromethane	0.87	U	1.0	ug/L							
Bromodichloromethane	0.75	U	1.0	ug/L							
Bromoform	0.68	U	1.0	ug/L							
Bromomethane	0.58	U	1.0	ug/L							
Carbon disulfide	1.5	U	5.0	ug/L							
Carbon tetrachloride	0.69	U	1.0	ug/L							
Chlorobenzene	0.74	U	1.0	ug/L							
Chloroethane	0.75	U	1.0	ug/L							
Chloroform	0.70	U	1.0	ug/L							
Chloromethane	0.55	U	1.0	ug/L							
cis-1,2-Dichloroethene	0.72	U	1.0	ug/L							
cis-1,3-Dichloropropene	0.075	U	1.0	ug/L							
Dibromochloromethane	0.63	U	1.0	ug/L							
Dibromomethane	0.90	U	1.0	ug/L							
Ethylbenzene	0.62	U	1.0	ug/L							
Iodomethane	1.7	U	5.0	ug/L							
Methylene chloride	0.14	U	1.0	ug/L							
Styrene	0.053	U	1.0	ug/L							
Tetrachloroethene	0.73	U	1.0	ug/L							
Tetrahydrofuran	0.80	U	1.0	ug/L							
Toluene	0.85	U	1.0	ug/L							
trans-1,2-Dichloroethene	0.12	U	1.0	ug/L							
trans-1,3-Dichloropropene	0.50	U	1.0	ug/L							
trans-1,4-Dichloro-2-butene	0.70	U	1.0	ug/L							
Trichloroethene	0.72	U	1.0	ug/L							
Trichlorofluoromethane	0.66	U	1.0	ug/L							
Vinyl acetate	0.95	U	5.0	ug/L							
Vinyl chloride	0.60	U	1.0	ug/L							
Xylenes (Total)	2.1	U	3.0	ug/L							

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L09014 - EPA 5030B_MS

Blank (1L09014-BLK1) Continued Prepared: 12/09/2011 11:44 Analyzed: 12/10/2011 00:36

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Surrogate: 4-Bromofluorobenzene	*47*			*ug/L*	*50.0*		*95*	*51-122*			
Surrogate: Dibromofluoromethane	*44*			*ug/L*	*50.0*		*88*	*68-117*			
Surrogate: Toluene-d8	*47*			*ug/L*	*50.0*		*94*	*67-127*			

LCS (1L09014-BS1) Prepared: 12/09/2011 11:44 Analyzed: 12/10/2011 01:05

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	22		1.0	ug/L	20.0		111	75-133			
Benzene	22		1.0	ug/L	20.0		108	81-134			
Chlorobenzene	22		1.0	ug/L	20.0		108	83-117			
Toluene	22		1.0	ug/L	20.0		110	71-118			
Trichloroethene	22		1.0	ug/L	20.0		110	75-115			

Matrix Spike (1L09014-MS1) Prepared: 12/09/2011 11:44 Analyzed: 12/10/2011 01:33

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	22		1.0	ug/L	20.0	0.60 U	111	75-133			
Benzene	21		1.0	ug/L	20.0	0.68 U	105	81-134			
Chlorobenzene	21		1.0	ug/L	20.0	0.74 U	106	83-117			
Toluene	22		1.0	ug/L	20.0	0.85 U	110	71-118			
Trichloroethene	22		1.0	ug/L	20.0	0.72 U	108	75-115			

Matrix Spike Dup (1L09014-MSD1) Prepared: 12/09/2011 11:44 Analyzed: 12/10/2011 02:03

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	21		1.0	ug/L	20.0	0.60 U	105	75-133	6	20	
Benzene	20		1.0	ug/L	20.0	0.68 U	99	81-134	6	17	
Chlorobenzene	19		1.0	ug/L	20.0	0.74 U	97	83-117	8	16	
Toluene	20		1.0	ug/L	20.0	0.85 U	102	71-118	8	17	
Trichloroethene	20		1.0	ug/L	20.0	0.72 U	101	75-115	7	18	

Batch 1L13014 - EPA 5030B_MS

Blank (1L13014-BLK1) Prepared: 12/13/2011 11:06 Analyzed: 12/15/2011 01:24

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	0.90	U	1.0	ug/L							
1,1,1-Trichloroethane	0.65	U	1.0	ug/L							
1,1,2,2-Tetrachloroethane	0.75	U	1.0	ug/L							
1,1,2-Trichloroethane	0.66	U	1.0	ug/L							
1,1-Dichloroethane	0.080	U	1.0	ug/L							
1,1-Dichloroethene	0.60	U	1.0	ug/L							
1,2,3-Trichloropropane	0.72	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							

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L13014 - EPA 5030B_MS

Blank (1L13014-BLK1) Continued Prepared: 12/13/2011 11:06 Analyzed: 12/15/2011 01:24

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,2-Dichlorobenzene	0.11	U	1.0	ug/L							
1,2-Dichloroethane	0.47	U	1.0	ug/L							
1,2-Dichloropropane	0.59	U	1.0	ug/L							
1,4-Dichlorobenzene	0.79	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	0.68	U	1.0	ug/L							
Bromochloromethane	0.87	U	1.0	ug/L							
Bromodichloromethane	0.75	U	1.0	ug/L							
Bromoform	0.68	U	1.0	ug/L							
Bromomethane	0.58	U	1.0	ug/L							
Carbon disulfide	1.5	U	5.0	ug/L							
Carbon tetrachloride	0.69	U	1.0	ug/L							
Chlorobenzene	0.74	U	1.0	ug/L							
Chloroethane	0.75	U	1.0	ug/L							
Chloroform	0.70	U	1.0	ug/L							
Chloromethane	0.55	U	1.0	ug/L							
cis-1,2-Dichloroethene	0.72	U	1.0	ug/L							
cis-1,3-Dichloropropene	0.075	U	1.0	ug/L							
Dibromochloromethane	0.63	U	1.0	ug/L							
Dibromomethane	0.90	U	1.0	ug/L							
Ethylbenzene	0.62	U	1.0	ug/L							
Iodomethane	1.7	U	5.0	ug/L							
Methylene chloride	0.14	U	1.0	ug/L							
Styrene	0.053	U	1.0	ug/L							
Tetrachloroethene	0.73	U	1.0	ug/L							
Tetrahydrofuran	0.80	U	1.0	ug/L							
Toluene	0.85	U	1.0	ug/L							
trans-1,2-Dichloroethene	0.12	U	1.0	ug/L							
trans-1,3-Dichloropropene	0.50	U	1.0	ug/L							
trans-1,4-Dichloro-2-butene	0.70	U	1.0	ug/L							
Trichloroethene	0.72	U	1.0	ug/L							
Trichlorofluoromethane	0.66	U	1.0	ug/L							
Vinyl acetate	0.95	U	5.0	ug/L							
Vinyl chloride	0.60	U	1.0	ug/L							
Xylenes (Total)	2.1	U	3.0	ug/L							
Surrogate: 4-Bromofluorobenzene	*48*			*ug/L*	*50.0*		*96*	*51-122*			
Surrogate: Dibromofluoromethane	*48*			*ug/L*	*50.0*		*96*	*68-117*			
Surrogate: Toluene-d8	*48*			*ug/L*	*50.0*		*96*	*67-127*			

LCS (1L13014-BS1) Prepared: 12/13/2011 11:06 Analyzed: 12/15/2011 01:54

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	19		1.0	ug/L	20.0		96	75-133			
Benzene	19		1.0	ug/L	20.0		96	81-134			

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L13014 - EPA 5030B_MS

LCS (1L13014-BS1) Continued Prepared: 12/13/2011 11:06 Analyzed: 12/15/2011 01:54

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chlorobenzene	19		1.0	ug/L	20.0		94	83-117			
Toluene	18		1.0	ug/L	20.0		90	71-118			
Trichloroethene	20		1.0	ug/L	20.0		102	75-115			

Matrix Spike (1L13014-MS1) Prepared: 12/13/2011 11:06 Analyzed: 12/15/2011 02:23

Source: C115680-07

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	20		1.0	ug/L	20.0	0.60 U	100	75-133			
Benzene	20		1.0	ug/L	20.0	0.68 U	99	81-134			
Chlorobenzene	20		1.0	ug/L	20.0	0.74 U	98	83-117			
Toluene	19		1.0	ug/L	20.0	0.85 U	93	71-118			
Trichloroethene	25		1.0	ug/L	20.0	0.72 U	124	75-115			QM-07

Matrix Spike Dup (1L13014-MSD1) Prepared: 12/13/2011 11:06 Analyzed: 12/15/2011 02:53

Source: C115680-07

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	19		1.0	ug/L	20.0	0.60 U	96	75-133	5	20	
Benzene	20		1.0	ug/L	20.0	0.68 U	98	81-134	0.5	17	
Chlorobenzene	19		1.0	ug/L	20.0	0.74 U	96	83-117	2	16	
Toluene	19		1.0	ug/L	20.0	0.85 U	94	71-118	2	17	
Trichloroethene	25		1.0	ug/L	20.0	0.72 U	124	75-115	0.6	18	QM-07

Batch 1L16011 - EPA 5030B_MS

Blank (1L16011-BLK1) Prepared: 12/16/2011 10:09 Analyzed: 12/16/2011 22:33

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	0.90	U	1.0	ug/L							
1,1,1-Trichloroethane	0.65	U	1.0	ug/L							
1,1,2,2-Tetrachloroethane	0.75	U	1.0	ug/L							
1,1,2-Trichloroethane	0.66	U	1.0	ug/L							
1,1-Dichloroethane	0.080	U	1.0	ug/L							
1,1-Dichloroethene	0.60	U	1.0	ug/L							QL-02, QV-01
1,2,3-Trichloropropane	0.72	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	0.11	U	1.0	ug/L							
1,2-Dichloroethane	0.47	U	1.0	ug/L							
1,2-Dichloropropane	0.59	U	1.0	ug/L							
1,4-Dichlorobenzene	0.79	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	0.68	U	1.0	ug/L							QL-02, QV-01

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L16011 - EPA 5030B_MS

Blank (1L16011-BLK1) Continued Prepared: 12/16/2011 10:09 Analyzed: 12/16/2011 22:33

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Bromochloromethane	0.87	U	1.0	ug/L							
Bromodichloromethane	0.75	U	1.0	ug/L							
Bromoform	0.68	U	1.0	ug/L							
Bromomethane	0.58	U	1.0	ug/L							
Carbon disulfide	1.5	U	5.0	ug/L							
Carbon tetrachloride	0.69	U	1.0	ug/L							
Chlorobenzene	0.74	U	1.0	ug/L							
Chloroethane	0.75	U	1.0	ug/L							
Chloroform	0.70	U	1.0	ug/L							QV-01
Chloromethane	0.55	U	1.0	ug/L							
cis-1,2-Dichloroethene	0.72	U	1.0	ug/L							
cis-1,3-Dichloropropene	0.075	U	1.0	ug/L							
Dibromochloromethane	0.63	U	1.0	ug/L							
Dibromomethane	0.90	U	1.0	ug/L							
Ethylbenzene	0.62	U	1.0	ug/L							
Iodomethane	1.7	U	5.0	ug/L							
Methylene chloride	0.14	U	1.0	ug/L							
Styrene	0.053	U	1.0	ug/L							
Tetrachloroethene	0.73	U	1.0	ug/L							
Toluene	0.85	U	1.0	ug/L							
trans-1,2-Dichloroethene	0.12	U	1.0	ug/L							
trans-1,3-Dichloropropene	0.50	U	1.0	ug/L							
trans-1,4-Dichloro-2-butene	0.70	U	1.0	ug/L							
Trichloroethene	0.72	U	1.0	ug/L							
Trichlorofluoromethane	0.66	U	1.0	ug/L							
Vinyl acetate	0.95	U	5.0	ug/L							
Vinyl chloride	0.60	U	1.0	ug/L							QV-01
Xylenes (Total)	2.1	U	3.0	ug/L							
Surrogate: 4-Bromofluorobenzene	*47*			*ug/L*	*50.0*		*94*	*51-122*			
Surrogate: Dibromofluoromethane	*59*			*ug/L*	*50.0*		*118*	*68-117*			*QS-03*
Surrogate: Toluene-d8	*53*			*ug/L*	*50.0*		*106*	*67-127*			

LCS (1L16011-BS1) Prepared: 12/16/2011 10:09 Analyzed: 12/16/2011 23:03

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	34		1.0	ug/L	20.0		168	75-133			QL-02
Benzene	28		1.0	ug/L	20.0		141	81-134			QL-02
Chlorobenzene	21		1.0	ug/L	20.0		104	83-117			
Toluene	23		1.0	ug/L	20.0		113	71-118			
Trichloroethene	21		1.0	ug/L	20.0		106	75-115			

Matrix Spike (1L16011-MS1) Prepared: 12/16/2011 10:09 Analyzed: 12/16/2011 23:32

Source: C115855-06

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	31		1.0	ug/L	20.0	0.60 U	154	75-133			QM-07
Benzene	27		1.0	ug/L	20.0	0.68 U	135	81-134			QM-07
Chlorobenzene	20		1.0	ug/L	20.0	0.74 U	100	83-117			

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 1L16011 - EPA 5030B_MS

Matrix Spike (1L16011-MS1) Continued Prepared: 12/16/2011 10:09 Analyzed: 12/16/2011 23:32

Source: C115855-06

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Toluene	22		1.0	ug/L	20.0	0.85 U	108	71-118			
Trichloroethene	20		1.0	ug/L	20.0	0.72 U	100	75-115			

Matrix Spike Dup (1L16011-MSD1) Prepared: 12/16/2011 10:09 Analyzed: 12/17/2011 00:02

Source: C115855-06

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	30		1.0	ug/L	20.0	0.60 U	151	75-133	2	20	QM-07
Benzene	26		1.0	ug/L	20.0	0.68 U	129	81-134	4	17	
Chlorobenzene	20		1.0	ug/L	20.0	0.74 U	98	83-117	2	16	
Toluene	21		1.0	ug/L	20.0	0.85 U	106	71-118	2	17	
Trichloroethene	20		1.0	ug/L	20.0	0.72 U	98	75-115	3	18	

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 1L12007 - EPA 7470A

Blank (1L12007-BLK1) Prepared: 12/12/2011 08:36 Analyzed: 12/14/2011 11:10

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 (1L12007-BS1) Prepared: 12/12/2011 08:36 Analyzed: 12/14/2011 11:13

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.00		0.200	ug/L	5.00		100	80-120			

Matrix Spike (1L12007-MS1) Prepared: 12/12/2011 08:36 Analyzed: 12/14/2011 11:17

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	3.84		0.200	ug/L	5.00	0.170 U	77	75-125			

Matrix Spike (1L12007-MS2) Prepared: 12/12/2011 08:36 Analyzed: 12/14/2011 11:32

Source: C114099-03

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	3.14		0.200	ug/L	5.00	0.170 U	63	75-125			QM-05

Matrix Spike Dup (1L12007-MSD1) Prepared: 12/12/2011 08:36 Analyzed: 12/14/2011 11:18

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	4.11		0.200	ug/L	5.00	0.170 U	82	75-125	7	25	

Matrix Spike Dup (1L12007-MSD2) Prepared: 12/12/2011 08:36 Analyzed: 12/14/2011 12:40

QUALITY CONTROL

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 1L12007 - EPA 7470A

Matrix Spike Dup (1L12007-MSD2) Continued Prepared: 12/12/2011 08:36 Analyzed: 12/14/2011 12:40

Source: C114099-03

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	3.32		0.200	ug/L	5.00	0.170 U	66	75-125	6	25	QM-05

Post Spike (1L12007-PS1) Prepared: 12/12/2011 08:36 Analyzed: 12/14/2011 11:20

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	3.91		0.200	ug/L	5.00	-0.0710	80	75-125			

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

Batch 1L08007 - EPA 3005A

Blank (1L08007-BLK1) Prepared: 12/08/2011 08:29 Analyzed: 12/09/2011 10:33

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	0.220	U	2.00	ug/L							
Selenium	0.830	U	1.00	ug/L							
Thallium	0.110	U	1.00	ug/L							

LCS (1L08007-BS1) Prepared: 12/08/2011 08:29 Analyzed: 12/09/2011 10:40

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	201		2.00	ug/L	200		101	80-120			
Selenium	217		1.00	ug/L	200		108	80-120			
Thallium	200		1.00	ug/L	200		100	80-120			

Matrix Spike (1L08007-MS1) Prepared: 12/08/2011 08:29 Analyzed: 12/09/2011 10:43

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	207		2.00	ug/L	200	0.220 U	104	75-125			
Selenium	230		1.00	ug/L	200	1.13	114	75-125			
Thallium	189		1.00	ug/L	200	0.119	94	75-125			

Matrix Spike Dup (1L08007-MSD1) Prepared: 12/08/2011 08:29 Analyzed: 12/09/2011 10:45

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	205		2.00	ug/L	200	0.220 U	103	75-125	0.9	20	
Selenium	231		1.00	ug/L	200	1.13	115	75-125	0.5	20	
Thallium	186		1.00	ug/L	200	0.119	93	75-125	1	20	

Post Spike (1L08007-PS1) Prepared: 12/08/2011 08:29 Analyzed: 12/09/2011 10:46

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

QUALITY CONTROL

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

Batch 1L08007 - EPA 3005A

Post Spike (1L08007-PS1) Continued Prepared: 12/08/2011 08:29 Analyzed: 12/09/2011 10:46

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	205		2.00	ug/L	200	-0.0460	102	80-120			
Selenium	230		1.00	ug/L	200	1.13	114	80-120			
Thallium	185		1.00	ug/L	200	0.119	93	80-120			

Batch 1L09009 - EPA 3005A

Blank (1L09009-BLK1) Prepared: 12/09/2011 09:18 Analyzed: 12/12/2011 10:16

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	1.00	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	2.70	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 (1L09009-BS1) Prepared: 12/09/2011 09:18 Analyzed: 12/12/2011 10:18

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	199		10.0	ug/L	200		99	80-120			
Barium	214		10.0	ug/L	200		107	80-120			
Beryllium	20.2		1.00	ug/L	20.0		101	80-120			
Cadmium	21.6		1.00	ug/L	20.0		108	80-120			
Chromium	209		10.0	ug/L	200		104	80-120			
Cobalt	212		10.0	ug/L	200		106	80-120			
Copper	204		10.0	ug/L	200		102	80-120			
Iron	1100		50.0	ug/L	1000		110	80-120			
Lead	206		10.0	ug/L	200		103	80-120			
Manganese	208		10.0	ug/L	200		104	80-120			
Nickel	215		10.0	ug/L	200		107	80-120			
Selenium	200		10.0	ug/L	200		100	80-120			
Silver	213		10.0	ug/L	200		107	80-120			
Vanadium	211		10.0	ug/L	200		105	80-120			
Zinc	212		10.0	ug/L	200		106	80-120			

Matrix Spike (1L09009-MS1) Prepared: 12/09/2011 09:18 Analyzed: 12/12/2011 10:25

Source: C114089-02

QUALITY CONTROL

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

Batch 1L09009 - EPA 3005A

Matrix Spike (1L09009-MS1) Continued Prepared: 12/09/2011 09:18 Analyzed: 12/12/2011 10:25

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	205		10.0	ug/L	200	2.80 U	102	75-125			
Barium	727		10.0	ug/L	200	487	120	75-125			
Beryllium	24.1		1.00	ug/L	20.0	3.22	104	75-125			
Cadmium	22.1		1.00	ug/L	20.0	0.360 U	110	75-125			
Chromium	209		10.0	ug/L	200	1.00 U	104	75-125			
Cobalt	214		10.0	ug/L	200	1.10 U	107	75-125			
Copper	206		10.0	ug/L	200	1.60 U	103	75-125			
Iron	1130		50.0	ug/L	1000	22.0 U	113	75-125			
Lead	207		10.0	ug/L	200	1.90 U	104	75-125			
Manganese	299		10.0	ug/L	200	86.9	106	75-125			
Nickel	215		10.0	ug/L	200	1.80 U	108	75-125			
Selenium	207		10.0	ug/L	200	2.70 U	103	75-125			
Silver	187		10.0	ug/L	200	1.90 U	94	75-125			
Vanadium	213		10.0	ug/L	200	1.40 U	106	75-125			
Zinc	219		10.0	ug/L	200	5.51	107	75-125			

Matrix Spike Dup (1L09009-MSD1) Prepared: 12/09/2011 09:18 Analyzed: 12/12/2011 10:27

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	193		10.0	ug/L	200	2.80 U	97	75-125	6	20	
Barium	712		10.0	ug/L	200	487	112	75-125	2	20	
Beryllium	23.5		1.00	ug/L	20.0	3.22	101	75-125	2	20	
Cadmium	21.2		1.00	ug/L	20.0	0.360 U	106	75-125	4	20	
Chromium	203		10.0	ug/L	200	1.00 U	102	75-125	3	20	
Cobalt	206		10.0	ug/L	200	1.10 U	103	75-125	4	20	
Copper	200		10.0	ug/L	200	1.60 U	100	75-125	3	20	
Iron	1090		50.0	ug/L	1000	22.0 U	109	75-125	4	20	
Lead	199		10.0	ug/L	200	1.90 U	99	75-125	4	20	
Manganese	292		10.0	ug/L	200	86.9	103	75-125	2	20	
Nickel	207		10.0	ug/L	200	1.80 U	104	75-125	4	20	
Selenium	192		10.0	ug/L	200	2.70 U	96	75-125	7	20	
Silver	176		10.0	ug/L	200	1.90 U	88	75-125	6	20	
Vanadium	207		10.0	ug/L	200	1.40 U	103	75-125	3	20	
Zinc	211		10.0	ug/L	200	5.51	103	75-125	4	20	

Post Spike (1L09009-PS1) Prepared: 12/09/2011 09:18 Analyzed: 12/12/2011 10:29

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	0.196		0.0100	mg/L	0.200	-0.000319	98	80-120			
Barium	0.699		0.0100	mg/L	0.200	0.487	106	80-120			
Beryllium	0.0234		0.00100	mg/L	0.0200	0.00322	101	80-120			
Cadmium	0.0213		0.00100	mg/L	0.0200	0.000138	106	80-120			
Chromium	0.202		0.0100	mg/L	0.200	0.000546	101	80-120			
Cobalt	0.208		0.0100	mg/L	0.200	-0.000295	104	80-120			
Copper	0.201		0.0100	mg/L	0.200	0.000165	100	80-120			

QUALITY CONTROL

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

Batch 1L09009 - EPA 3005A

Post Spike (1L09009-PS1) Continued Prepared: 12/09/2011 09:18 Analyzed: 12/12/2011 10:29

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Iron	1.08		0.0500	mg/L	1.00	0.0168	106	80-120			
Lead	0.200		0.0100	mg/L	0.200	-0.00150	101	80-120			
Manganese	0.289		0.0100	mg/L	0.200	0.0869	101	80-120			
Nickel	0.207		0.0100	mg/L	0.200	-1.41E-5	104	80-120			
Selenium	0.195		0.0100	mg/L	0.200	0.000647	97	80-120			
Silver	0.0882		0.0100	mg/L	0.200	0.000739	44	80-120			QM-08
Vanadium	0.206		0.0100	mg/L	0.200	-0.000409	103	80-120			
Zinc	0.211		0.0100	mg/L	0.200	0.00551	103	80-120			

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

Batch 2A23028 - EPA 3005A

Blank (2A23028-BLK1) Prepared: 01/23/2012 12:56 Analyzed: 01/24/2012 13:11

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Beryllium	0.100	U	1.00	ug/L							

LCS (2A23028-BS1) Prepared: 01/23/2012 12:56 Analyzed: 01/24/2012 13:14

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Beryllium	20.6		1.00	ug/L	20.0		103	80-120			

Matrix Spike (2A23028-MS1) Prepared: 01/23/2012 12:56 Analyzed: 01/24/2012 13:22

Source: C114089-11

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Beryllium	20.8		1.00	ug/L	20.0	0.287	102	75-125			

Matrix Spike Dup (2A23028-MSD1) Prepared: 01/23/2012 12:56 Analyzed: 01/24/2012 13:24

Source: C114089-11

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Beryllium	21.0		1.00	ug/L	20.0	0.287	104	75-125	1	20	

Post Spike (2A23028-PS1) Prepared: 01/23/2012 12:56 Analyzed: 01/24/2012 13:26

Source: C114089-11

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Beryllium	0.0203		0.00100	mg/L	0.0200	0.000287	100	80-120			

Classical Chemistry Parameters - Quality Control

Batch 1L09016 - NO PREP

Blank (1L09016-BLK1) Prepared & Analyzed: 12/09/2011 17:38

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 1L09016 - NO PREP

Blank (1L09016-BLK1) Continued Prepared & Analyzed: 12/09/2011 17:38

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 (1L09016-BS1) Prepared & Analyzed: 12/09/2011 17:38

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	970		10	mg/L	970		100	90-110			

Duplicate (1L09016-DUP1) Prepared & Analyzed: 12/09/2011 17:38

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	280000		10000	ug/L		280000			0	10	

Batch 1L11002 - NO PREP

Blank (1L11002-BLK1) Prepared: 12/11/2011 11:39 Analyzed: 12/11/2011 18:26

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	**1400**	**J**	5000	ug/L							
Sulfate as SO4	20	U	5000	ug/L							

LCS (1L11002-BS1) Prepared: 12/11/2011 11:39 Analyzed: 12/11/2011 18:42

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	50	B	5.0	mg/L	50.0		100	90-110			
Sulfate as SO4	49		5.0	mg/L	50.0		97	90-110			

Matrix Spike (1L11002-MS1) Prepared: 12/11/2011 11:39 Analyzed: 12/11/2011 18:59

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	36	B	5.0	mg/L	20.0	15	105	90-110			
Sulfate as SO4	19		5.0	mg/L	20.0	1.7	88	90-110			QM-05

Matrix Spike Dup (1L11002-MSD1) Prepared: 12/11/2011 11:39 Analyzed: 12/11/2011 19:15

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	36	B	5.0	mg/L	20.0	15	102	90-110	2	10	
Sulfate as SO4	19		5.0	mg/L	20.0	1.7	85	90-110	3	10	QM-05

Batch 1L13001 - NO PREP

Blank (1L13001-BLK1) Prepared: 12/13/2011 06:37 Analyzed: 12/13/2011 08:17

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							

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 1L13001 - NO PREP

LCS (1L13001-BS1) Prepared: 12/13/2011 06:37 Analyzed: 12/13/2011 08:18

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Alkalinity as CaCO3	94		15	mg/L	100		94	80-120			

Matrix Spike (1L13001-MS1) Prepared: 12/13/2011 06:37 Analyzed: 12/13/2011 08:20

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Alkalinity as CaCO3	39		15	mg/L	37.8	1.0	100	80-120			

Matrix Spike Dup (1L13001-MSD1) Prepared: 12/13/2011 06:37 Analyzed: 12/13/2011 08:21

Source: C114089-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Alkalinity as CaCO3	39		15	mg/L	37.8	1.0	100	80-120	0.5	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.
QL-02	The associated laboratory control sample exhibited high bias; since the result is ND, the impact on data quality is minimal.
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.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-08	Post-digestion spike did not meet method requirements due to confirmed matrix effects (dilution test).
QS-03	Surrogate recovery outside acceptance limits
QV-01	The associated continuing calibration verification standard exhibited high bias; since the result is ND, the impact on data quality is minimal.

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

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Page 1 of 1

Client Name: Golder Associates, Inc. (GO007)	Project Number: 073-9602411.100
Address: 5B Oak Branch Drive	Project Name/Desc: WCA- Material Recovery, LLC
City/ST/Zip: Greensboro, NC 27407	PO # / Billing Info: 073960241l.100
Tel: (336) 852-4903 Fax: (336) 852-4904	Reporting Contact: Dusty Reedy
Sampler(s) Name, Affiliation (Print): N. Rathjen / B. Freyer	Billing Contact: Dennis Gehle
Sampler(s) Signature: Natt Rott	Site Location / Time Zone: WCA - Wake (Eastern)

Requested Turnaround Times

Note : Rush requests subject to acceptance by the facility

✓ Standard

___ Expedited

Due ___/___/___

Lab Workorder: C114089

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,Ti,V,Zn	Ag,As,Ba,Be,Cd,Co,Cr,Cu,Ni,Pb,Sb,Se,Sn,Ti,V,Zn	Alkalinity 310.2,Chloride 300,TDS SM2540C	Hg	Sulfate 300					Sample Comments
	9231-MW1	12-6-11	1006	G	GW	5	X	X		X	X	X					
	9231-MW2 (MS/MSD)	12-6-11	1035	|	GW	8	X	X		X	X	X					
	9231-MW3	12-6-11	1121	|	GW	5	X	X		X	X	X					
	9231-MW4	12-6-11	1148	|	GW	5	X	X		X	X	X					
	9231-MW5	12-6-11	1256	|	GW	5	X	X		X	X	X					Filtered sample collected, hold pending results
	9231-SW1	12-6-11	1316	|	SW	4	X		X								
	9231-SW2	12-6-11	1202	|	SW	4	X		X								
	9231-SW3	12-6-11	1045	|	SW	4	X		X								
	Field Blank	12-6-11	1305	G	WA	4	X	X			X						
	Trip Blank	—	—	—	WA	2	X										

Preservation (See Codes) (Combine as necessary)

<-- Total # of Containers

Sample Kit Prepared By: ME Stamper	Date/Time: 11/16/11 0957	Relinquished By: Natt Rott	Date/Time: 12-6-11 ~~0530~~ 1530	Received By:	Date/Time:
Comments/Special Reporting Requirements: (1) Please provide a level 2 data report (2) Invoice WCA and send files to Golder		Relinquished By:	Date/Time:	Received By:	Date/Time:
		Relinquished By:	Date/Time:	Received By: ME Stamper	Date/Time: 12/6/11 1530
		Cooler #'s & Temps on Receipt: C.162 1.1°C		Condition Upon Receipt: ✓ Acceptable ___ Unacceptable	

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

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WORK ORDER

Printed: 12/20/2011 8:22:56AM

C114089

ENCO Cary

Sample Receipt Conditions

Client:	**Golder Associates, Inc. (GO007)**	**Lab Project Mgr:**	**Stephanie Franz**
Project:	**WCA- Material Recovery, LLC**	**Project Number:**	**073-9602411.100**
PO #:			

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 Corporation of America - Wake (WA033)
Dennis Gehle
2600 Brown-Field Road
Raleigh, NC 27610
Phone :(919) 838-6973
Fax:

Received By:	Miranda E Stamper	Date Received:	06-Dec-11 15:30
Logged In By:	Briana J Gregory	Date Logged In:	06-Dec-11 16:49

Work Order Comments:

C-162 received at 1.1°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: WCA – Material Recovery C&D Landfill

Project Reference Number: 0739-602411.100

Sampling Event Date: December 6, 2011

Review Date: January 11, 2012 *Initials:* KS

Report #: C114089

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)

___ NC Closed Facility List (.500 Rules)

X NC C & D List (New Rules)

___ NC Appendix I

___ NC Appendix I + Detects

___ NC Appendix II

___ NC Subtitle D Leachate List

Other: _____

1.0 CHAIN OF CUSTODY (COC) REVIEW

X COC was properly signed by all parties.

X Correct project name and number are on the form.

X Sample receipt condition at laboratory was acceptable.

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

2.0 SAMPLE HOLDING TIMES

X 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 and 8011	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
SW-846 Method 9010	Cyanide	14 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

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

X Laboratory blank is interference-free.

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

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

- **Surrogate spike recovery of dibromofluoromethane was outside control limits for an 8260 method blank.**

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

X 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 recovery of Sulfate was of control limits for the MS and MSD samples. The QC batch was approved based on acceptable LCS recovery of this analyte.***

- ***The spike recoveries of Mercury in the MS and MSD samples and Silver in the post spike sample were outside of control limits. The QC batch was approved based on acceptable LCS recovery of these analytes.***

- ***The spike recoveries of 1,1-dichloroethene; benzene; and trichloroethene were outside of control limits for the LCS, MS, and/or MSD samples, indicating a possible high bias; however, these analytes were not detected in the associated samples, reducing the impact of the deviations.***

4.0 ANALYTE LISTS/METHODS

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

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

5.0 DATA REPORTING

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

X 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***
  Selenium @ 2.77ug/L
  Managanese @ 1.46 ug/L

Method Blank:
Chloride @ 1400 J ug/L

X 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.

X The report provides the reporting limit for each constituent.

X The results were reported at or below their proper reporting limits (i.e., MDLs with SWSLs reported). 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.

X No organic constituents were reported above their respective SWSLs, and no inorganic or organic constituents were reported above their respective NC 2L Drinking Water Standards/GWPS in wells, or field/equipment/trip blanks, or above applicable surface water standards in surface water points.

Organic SWSL exceedances:

MW-3: ***Methylene Chloride @ 1.0ug/L (SWSL = 1 ug/L)***
Tetrachloroethene @ 2.9 ug/L (SWSL = 1 ug/L)
Tetrahydrofuran @ 8.5 ug/L (SWSL = NE)
Trichloroethene @ 4.8 ug/L (SWSL = 1 ug/L)
Trichlorofluoromethane @ 1.4 ug/L (SWSL = 1 ug/L)

Inorganic/Organic NC2L or GWPS exceedances:

MW-1: ***Cobalt @ 5.39 ug/L (J) (GWPS = 1 ug/L)***
Manganese @ 67.5 ug/L (NC 2L = 50 ug/L)
Thallium @ 0.319 ug/L (J) (GWPS = 0.28 ug/L)
MW-2: ***Manganese @ 86.9 ug/L (NC 2L = 50 ug/L)***
MW-3: ***Barium @ 1330 ug/L (NC 2L = 700 ug/L)***
Cobalt @ 1.16 u/gL (J) (GWPS = 1 ug/L)
Manganese @ 171 ug/L (NC 2L = 50 ug/L)
Mercury @ 1.03 ug/L (NC 2L = 1.0 ug/L)
Tetrachloroethene @ 2.9 ug/L (NC 2L = 0.7 ug/L)
Trichloroethene @ 4.8 ug/L (NC 2L = 3 ug/L)
MW-4: ***Manganese @ 188 ug/L (NC 2L = 50 ug/L)***
MW-5: ***Beryllium @ 4.75 ug/L (GWPS = 4.0 ug/L)***
Cobalt @ 1.79 ug/L (J) (GWPS = 1 ug/L)
Manganese @ 164 ug/L (NC 2L = 50 ug/L)
Iron @ 41,800 ug/L (NC 2L = 300 ug/L)
Vanadium @ 16.4 ug/L (J) (GWPS = 0.3 ug/L)

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

First-time detections:

- ***Methylene Chloride in MW-3 @ 1.0 ug/L***

Greater than 5X previous detection:

- ***Beryllium in MW-5 @ 4.75 ug/L***
- ***Zinc in SW-2 @ 34.6 ug/L***

X Other report issues/Communications with laboratory/etc.:

APPENDIX C
STATISTICAL EVALUATION WORKSHEETS & SUMMARY TABLES

Summary of Statistical Analysis

WCA-Material Recovery, LLC Construction and Demolition Landfill, Permit No. 92-31

Wake County, North Carolina

December 2011									
Detected Monitoring Constituent/ Analytes	Reporting Units	SWS Reporting Limit	Groundwater Standard		Downgradient Monitoring Well	Constituent/ Analyte Concentration	Statistical Analysis		Statistical Determination
			NC 2L	GWPS			Interwell	Intrawell	
Barium	ug/L	100	700	--	MW-3	1330	796	7257	Not SSI
Beryllium	ug/L	1	--	4	MW-5	4.75	1.41	2.88	SSI
Mercury	ug/L	1	1	--	MW-3	1.03	1.51	NA	Not SSI

Notes:

1. Statistical worksheets are provided as Appendix C.
2. ug/L = micrograms per liter
3. NC 2L = North Carolina 2L Groundwater Standard
4. GWPS = North Carolina Solid Waste Section Groundwater Protection Standard
5. NA = not applicable
6. SSI = statistically significant increase
7. SWS = Solid Waste Section
8. North Carolina Appendix I Inorganic constituents detected above their respective Solid Waste Section Reporting Limit and Groundwater Standard in samples from downgradient monitoring wells were statistically evaluated.

Project Name: Material Recovery, LLC C&D Landfill
Project No: 739-6024011.100
Date: 1/12/11

Analyte: Barium

Sample No.	Sample Date	Location	Concentration (ug/L)	Quantitation Limit (ug/L)
1	08/07/02	MW-1	ND	500
2	06/16/03	MW-1	ND	500
3	12/16/03	MW-1	160	500
4	06/16/04	MW-1	ND	500
5	12/16/04	MW-1	ND	500
6	06/14/05	MW-1	ND	500
7	12/27/05	MW-1	ND	500
8	06/21/06	MW-1	ND	500
9	12/13/06	MW-1	217	100
10	06/29/07	MW-1	269	100
11	12/13/07	MW-1	417	100
12	06/19/08	MW-1	426	100
13	12/02/08	MW-1	488	100
14	06/11/09	MW-1	502	100
15	12/10/09	MW-1	489	100
16	06/15/10	MW-1	359	100
17	12/09/10	MW-1	433	100
18	06/15/11	MW-1	447	100
19	12/06/11	MW-1	521	100

Number of Data	19
Number of Truncated Data	7
Percentage of Truncated Data	37%

Upper Pediction Interval: **796** ug/L

Project Name: Material Recovery, LLC C&D Landfill
Project No: 739-6024011.100
Date: 1/12/11

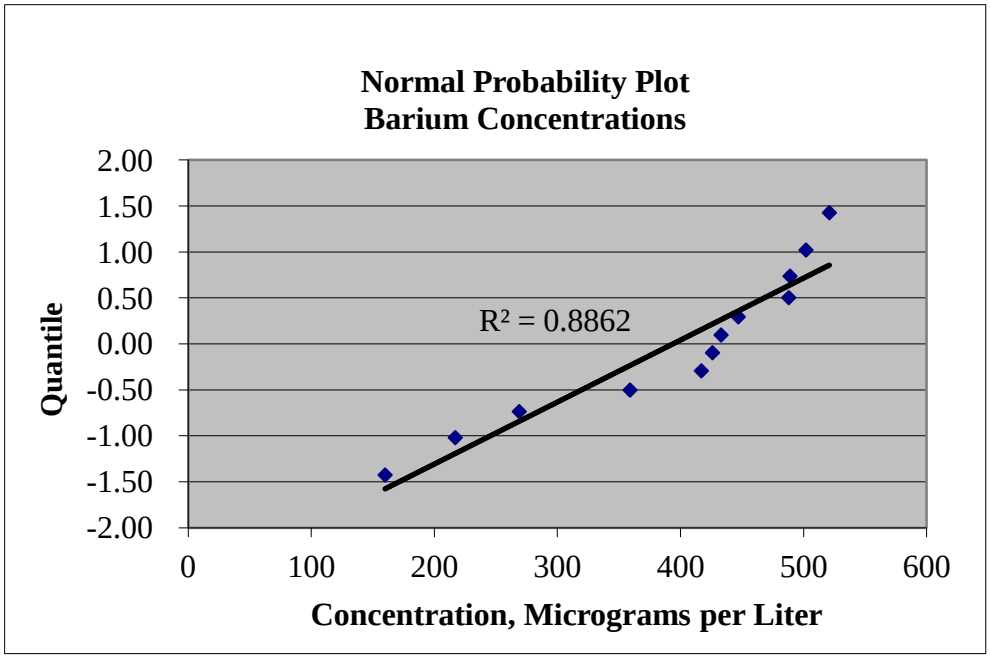
Probability Plots to determine the distribution of Barium

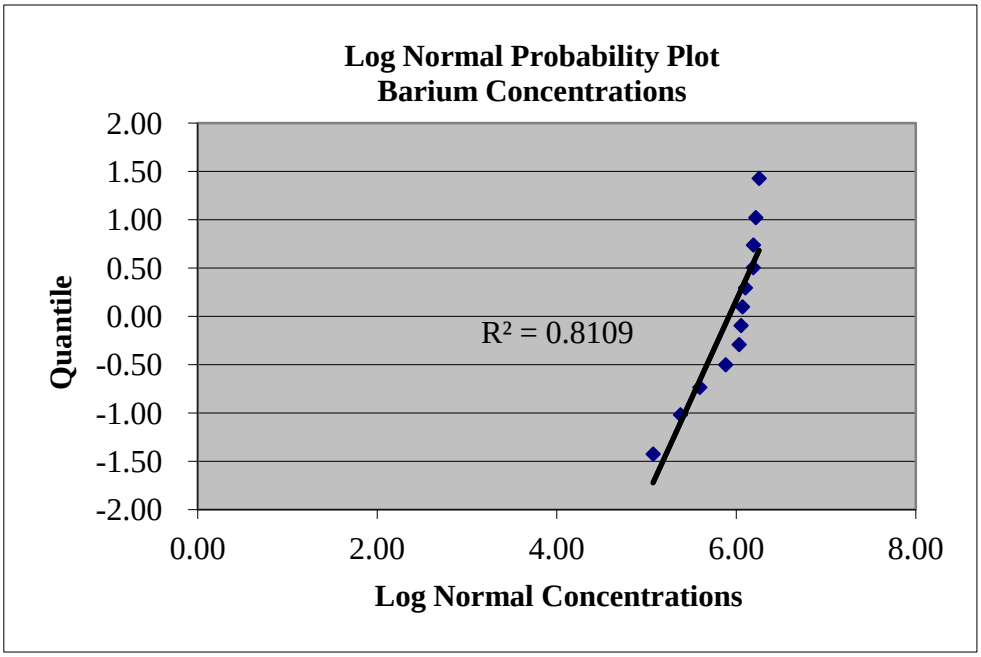
Complete the following table where:

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 = 12

X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
160	5.08	1	1	0.077	-1.43
217	5.38	2	2	0.154	-1.02
269	5.59	3	3	0.231	-0.74
359	5.88	4	4	0.308	-0.50
417	6.03	5	5	0.385	-0.29
426	6.05	6	6	0.462	-0.10
433	6.07	7	7	0.538	0.10
447	6.10	8	8	0.615	0.29
488	6.19	9	9	0.692	0.50
489	6.19	10	10	0.769	0.74
502	6.22	11	11	0.846	1.02
521	6.26	12	12	0.923	1.43

Project Name: Material Recovery, LLC C&D Landfill
Project No: 739-6024011.100
Date: 01/12/11
Probability Plots to determine the distribution of Barium





Project Name: Material Recovery, LLC C&D Landfill
Project No: 739-6024011.100
Date: 1/12/11

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)		B(i)
1	160.00	521.00	361.00	0.5475	197.65
2	217.00	502.00	285.00	0.3325	94.76
3	269.00	489.00	220.00	0.2347	51.63
4	359.00	488.00	129.00	0.1586	20.46
5	417.00	447.00	30.00	0.0922	2.77
6	426.00	433.00	7.00	0.0303	0.21
7	433.00	426.00			
8	447.00	417.00			
9	488.00	359.00			
10	489.00	269.00			
11	502.00	217.00			
12	521.00	160.00			

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) = 367.48
SD = standard deviation of the data group = 118.50
n = number of samples = 12

W = 0.874

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) = 0.859
and the calculated W = 0.874

Therefore the data set is Normal

Project Name: Material Recovery, LLC C&D Landfill
Project No: 739-6024011.100
Date: 1/12/11

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	08/07/02	MW-1	ND	500
2	06/16/03	MW-1	ND	500
3	12/16/03	MW-1	160	500
4	06/16/04	MW-1	ND	500
5	12/16/04	MW-1	ND	500
6	06/14/05	MW-1	ND	500
7	12/27/05	MW-1	ND	500
8	06/21/06	MW-1	ND	500
9	12/13/06	MW-1	217	100
10	06/29/07	MW-1	269	100
11	12/13/07	MW-1	417	100
12	06/19/08	MW-1	426	100
13	12/02/08	MW-1	488	100
14	06/11/09	MW-1	502	100
15	12/10/09	MW-1	489	100
16	06/15/10	MW-1	359	100
17	12/09/10	MW-1	433	100
18	06/15/11	MW-1	447	100
19	12/06/11	MW-1	521	100
		mean =	394	
		STD =	119	

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 = 521.000
mean = 394.000
STD = 118.503

Tn = 1.072

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 = 12
Tc = 2.285

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

Project Name: Material Recovery, LLC C&D Landfill
Project No: 739-6024011.100
Date: 1/12/11

Aitchison's Adjustment for Barium

Background Values (positive detects only)

Sample No.	Sample Date	Location	Concentration (ug/l)
1	08/07/02	MW-1	ND
2	06/16/03	MW-1	ND
3	12/16/03	MW-1	160
4	06/16/04	MW-1	ND
5	12/16/04	MW-1	ND
6	06/14/05	MW-1	ND
7	12/27/05	MW-1	ND
8	06/21/06	MW-1	ND
9	12/13/06	MW-1	217
10	06/29/07	MW-1	269
11	12/13/07	MW-1	417
12	06/19/08	MW-1	426
13	12/02/08	MW-1	488
14	06/11/09	MW-1	502
15	12/10/09	MW-1	489
16	06/15/10	MW-1	359
17	12/09/10	MW-1	433
18	06/15/11	MW-1	447
19	12/06/11	MW-1	521

Mean of detected values = 394.00
Standard Deviation of detected values = 118.50

The adjusted mean can be found using

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

where:
d = number non- detected values = 7
n = total number samples = 19
M = mean detected values = 394.00

M(a) = 248.84

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 = 19
d = number non-detected values = 7
S = std deviation of detected values squared = 14042.91
MM = mean of detected values squared = 155236.00

STD(a) = 46709.92

and the adjusted standard deviation is then

S(a) = SQRT(STD(a)) = 216.12

Project Name: Material Recovery, LLC C&D Landfill
Project No: 739-6024010.100
Date: 1/12/11

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	08/07/02	MW-1	ND	500
2	06/16/03	MW-1	ND	500
3	12/16/03	MW-1	160	500
4	06/16/04	MW-1	ND	500
5	12/16/04	MW-1	ND	500
6	06/14/05	MW-1	ND	500
7	12/27/05	MW-1	ND	500
8	06/21/06	MW-1	ND	500
9	12/13/06	MW-1	217	100
10	06/29/07	MW-1	269	100
11	12/13/07	MW-1	417	100
12	06/19/08	MW-1	426	100
13	12/02/08	MW-1	488	100
14	06/11/09	MW-1	502	100
15	12/10/09	MW-1	489	100
16	06/15/10	MW-1	359	100
17	12/09/10	MW-1	433	100
18	06/15/11	MW-1	447	100
19	12/06/11	MW-1	521	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 = 248.84
adjusted standard deviation = 216.12

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 = 248.842
Std Dev = 216.125
t(n-1,k,.95)*sqrt(1/m+1/n) = 2.530
k = 4
m = 1
n = 19

UPL = 796 ug/L

Project Name: Material Recovery, LLC C&D Landfill
Project No: 739-6024011.100
Date: 1/12/11

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	08/07/02	MW-1	ND	500
2	06/16/03	MW-1	ND	500
3	12/16/03	MW-1	160	500
4	06/16/04	MW-1	ND	500
5	12/16/04	MW-1	ND	500
6	06/14/05	MW-1	ND	500
7	12/27/05	MW-1	ND	500
8	06/21/06	MW-1	ND	500
9	12/13/06	MW-1	217	100
10	06/29/07	MW-1	269	100
11	12/13/07	MW-1	417	100
12	06/19/08	MW-1	426	100
13	12/02/08	MW-1	488	100
14	06/11/09	MW-1	502	100
15	12/10/09	MW-1	489	100
16	06/15/10	MW-1	359	100
17	12/09/10	MW-1	433	100
18	06/15/11	MW-1	447	100
19	12/06/11	MW-1	521	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 = 248.84
adjusted standard deviation = 216.12

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 Groundwater Monitoring, Gibbons, 1994
n = number of background samples

For: K = 2.423
n = 19

UTL = 773 ug/L

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Analyte: Barium - Intrawell

Sample No.	Sample Date	Location	Concentration (ug/L)	Quantitation Limit (ug/L)
1	08/07/02	MW-3	4000	500
2	06/16/03	MW-3	3100	500
3	12/16/03	MW-3	1200	500
4	06/16/04	MW-3	1500	500
5	12/16/04	MW-3	3100	500
6	06/14/05	MW-3	2600	500
7	12/27/05	MW-3	5700	500
8	06/21/06	MW-3	4690	500
9	12/13/06	MW-3	6510	100
10	06/29/07	MW-3	3140	100
11	12/13/07	MW-3	5640	100
12	06/19/08	MW-3	3750	100
13	12/02/08	MW-3	3130	100
14	06/11/09	MW-3	2380	100
15	12/10/09	MW-3	1970	100
16	06/15/10	MW-3	1100	100
17	12/09/10	MW-3	987	100
18	06/15/11	MW-3	1170	100

Number of Data	18
Number of Truncated Data	0
Percentage of Truncated Data	0%

Upper Tolerance Interval: **7257** ug/L

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Probability Plots to determine the distribution of Barium - Intrawell

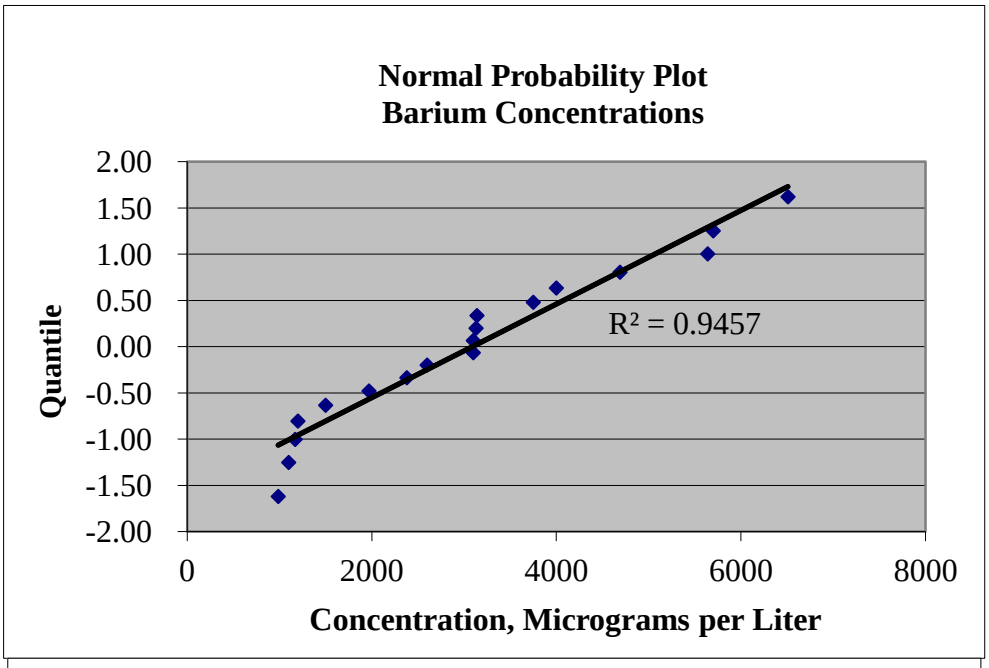
Complete the following table where:

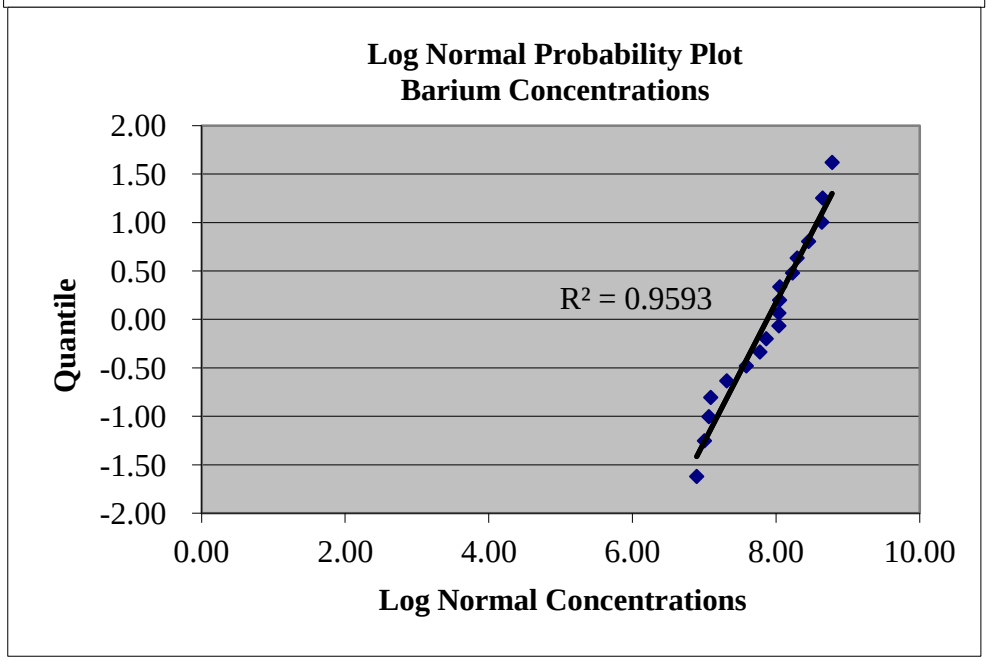
i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
LN[X(i)] = Natural Log Value of sample concentrations arranged from smallest to largest
[i/(n+1)] = Cumulative probability
n = number of samples = 18

X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
987	6.89	1	1	0.053	-1.62
1100	7.00	2	2	0.105	-1.25
1170	7.06	3	3	0.158	-1.00
1200	7.09	4	4	0.211	-0.80
1500	7.31	5	5	0.263	-0.63
1970	7.59	6	6	0.316	-0.48
2380	7.77	7	7	0.368	-0.34
2600	7.86	8	8	0.421	-0.20
3100	8.04	9	9	0.474	-0.07
3100	8.04	10	10	0.526	0.07
3130	8.05	11	11	0.579	0.20
3140	8.05	12	12	0.632	0.34
3750	8.23	13	13	0.684	0.48
4000	8.29	14	14	0.737	0.63
4690	8.45	15	15	0.789	0.80
5640	8.64	16	16	0.842	1.00
5700	8.65	17	17	0.895	1.25
6510	8.78	18	18	0.947	1.62

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 01/12/11

Probability Plots to determine the distribution of Barium - Intrawell





Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Shapiro Wilk Test Statistic (W) for normality of total Barium - 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	987.00	6510.00	5523	0.4886	2698.54
2	1100.00	5700.00	4600	0.3253	1496.38
3	1170.00	5640.00	4470	0.2553	1141.19
4	1200.00	4690.00	3490	0.2027	707.42
5	1500.00	4000.00	2500	0.1587	396.75
6	1970.00	3750.00	1780	0.1197	213.07
7	2380.00	3140.00	760	0.0837	63.61
8	2600.00	3130.00	530	0.0496	26.29
9	3100.00	3100.00	0	0.0163	0.00
10	3100.00	3100.00			
11	3130.00	2600.00			
12	3140.00	2380.00			
13	3750.00	1970.00			
14	4000.00	1500.00			
15	4690.00	1200.00			
16	5640.00	1170.00			
17	5700.00	1100.00			
18	6510.00	987.00			

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) = 6743.25
SD = standard deviation of the data group = 1697.87
n = number of samples = 18

W = 0.928

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

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

W(crit) = 0.897
and the calculated W = 0.928

Therefore the data set is Normal

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Determination of reported background value as an outlier

Analyte: Barium - Intrawell

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	08/07/02	MW-3	4000	500
2	06/16/03	MW-3	3100	500
3	12/16/03	MW-3	1200	500
4	06/16/04	MW-3	1500	500
5	12/16/04	MW-3	3100	500
6	06/14/05	MW-3	2600	500
7	12/27/05	MW-3	5700	500
8	06/21/06	MW-3	4690	500
9	12/13/06	MW-3	6510	100
10	06/29/07	MW-3	3140	100
11	12/13/07	MW-3	5640	100
12	06/19/08	MW-3	3750	100
13	12/02/08	MW-3	3130	100
14	06/11/09	MW-3	2380	100
15	12/10/09	MW-3	1970	100
16	06/15/10	MW-3	1100	100
17	12/09/10	MW-3	987	100
18	06/15/11	MW-3	1170	100

mean = 3092.611
STD = 1697.867

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 = 6510.000
mean = 3092.611
STD = 1697.867

Tn = 2.013

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

Number of samples = 18
Tc = 2.504

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

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Parametric Prediction Interval for normally distributed data

Analyte: Barium - Intrawell

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	08/07/02	MW-3	4000.00	500.00
2	06/16/03	MW-3	3100.00	500.00
3	12/16/03	MW-3	1200.00	500.00
4	06/16/04	MW-3	1500.00	500.00
5	12/16/04	MW-3	3100.00	500.00
6	06/14/05	MW-3	2600.00	500.00
7	12/27/05	MW-3	5700.00	500.00
8	06/21/06	MW-3	4690.00	500.00
9	12/13/06	MW-3	6510.00	100.00
10	06/29/07	MW-3	3140.00	100.00
11	12/13/07	MW-3	5640.00	100.00
12	06/19/08	MW-3	3750.00	100.00
13	12/02/08	MW-3	3130.00	100.00
14	06/11/09	MW-3	2380.00	100.00
15	12/10/09	MW-3	1970.00	100.00
16	06/15/10	MW-3	1100.00	100.00
17	12/09/10	MW-3	987.00	100.00
18	06/15/11	MW-3	1170.00	100.00

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 = 3092.611
Std Dev = 1697.867
t(n-1,k,.95)*sqrt(1/m+1/n) = 1.800
k = 1
m = 1
n = 18

UPL = 6149 ug/L

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Parametric Tolerance Interval for normally distributed data

Analyte: Barium - Intrawell

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	08/07/02	MW-3	4000.00	500.00
2	06/16/03	MW-3	3100.00	500.00
3	12/16/03	MW-3	1200.00	500.00
4	06/16/04	MW-3	1500.00	500.00
5	12/16/04	MW-3	3100.00	500.00
6	06/14/05	MW-3	2600.00	500.00
7	12/27/05	MW-3	5700.00	500.00
8	06/21/06	MW-3	4690.00	500.00
9	12/13/06	MW-3	6510.00	100.00
10	06/29/07	MW-3	3140.00	100.00
11	12/13/07	MW-3	5640.00	100.00
12	06/19/08	MW-3	3750.00	100.00
13	12/02/08	MW-3	3130.00	100.00
14	06/11/09	MW-3	2380.00	100.00
15	12/10/09	MW-3	1970.00	100.00
16	06/15/10	MW-3	1100.00	100.00
17	12/09/10	MW-3	987.00	100.00
18	06/15/11	MW-3	1170.00	100.00

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 = 18
K = 2.453
Mean Conc = 3092.61
STDS = 1697.87

UTL = 7257 ug/L

Golder Associates

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Analyte: Beryllium

Sample No.	Sample Date	Location	Concentration (ug/L)		Quantitation Limit (ug/L)
1	06/29/07	MW-1	ND		1
2	12/13/07	MW-1	ND		1
3	06/19/08	MW-1	ND		1
4	12/02/08	MW-1	0.40	J	1
5	06/11/09	MW-1	1.04		1
6	12/10/09	MW-1	0.633	J	1
7	06/15/10	MW-1	0.435	J	1
8	12/09/10	MW-1	0.531	J	1
9	06/15/11	MW-1	0.592	J	1
10	12/06/11	MW-1	0.585	J	1

Number of Data	10
Number of Truncated Data	3
Percentage of Truncated Data	30%

Upper Tolerance Interval: **1.41** ug/L

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Probability Plots to determine the distribution of Beryllium

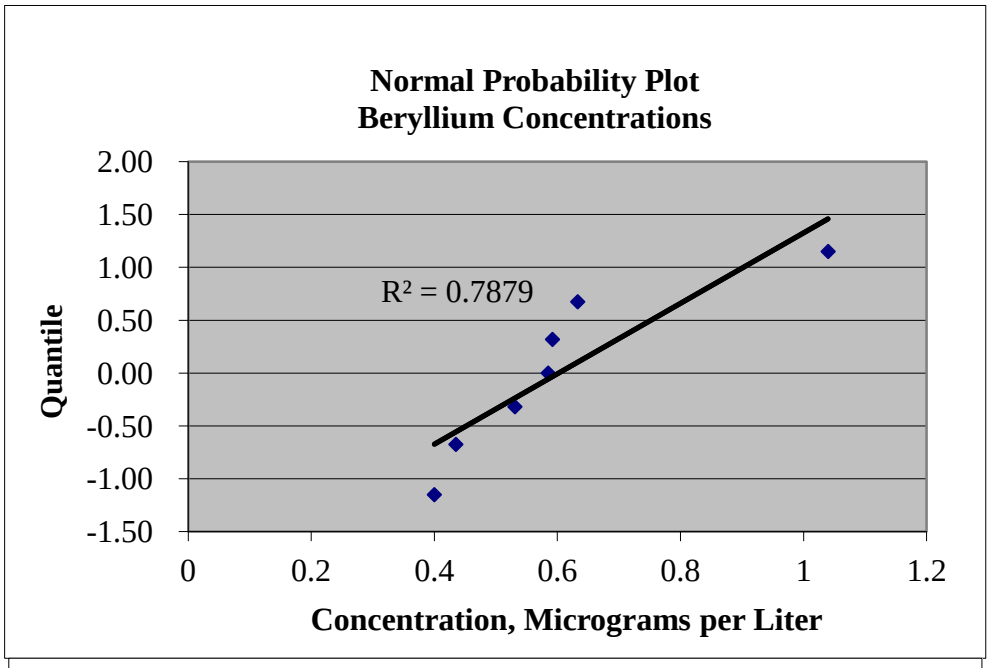
Complete the following table where:

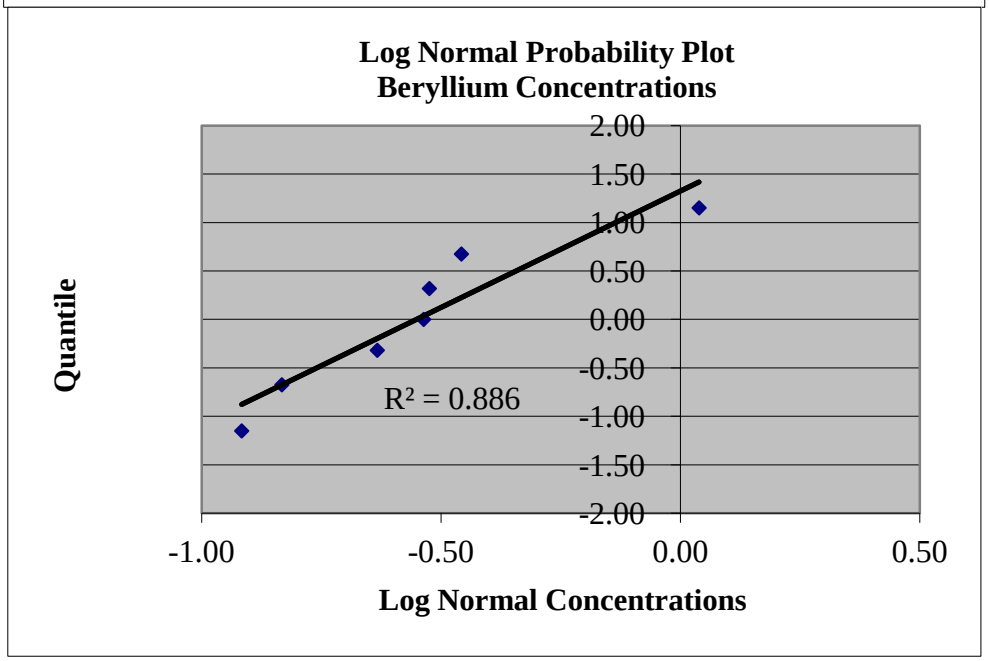
i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
LN[X(i)] = Natural Log Value of sample concentrations arranged from smallest to largest
[i/(n+1)] = Cumulative probability
n = number of samples = 7

X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
0.4	-0.92	1	1	0.125	-1.15
0.435	-0.83	2	2	0.250	-0.67
0.531	-0.63	3	3	0.375	-0.32
0.585	-0.54	4	4	0.500	0.00
0.592	-0.52	5	5	0.625	0.32
0.633	-0.46	6	6	0.750	0.67
1.04	0.04	7	7	0.875	1.15

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 01/12/11

Probability Plots to determine the distribution of Beryllium





The distribution of the data appears to be non-normal since data distribution does not seem to match a normal or a log normal distribution.

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

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

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	0.40	1.04	0.64	0.6233	0.40
2	0.44	0.63	0.198	0.3031	0.06
3	0.53	0.59	0.061	0.1401	0.01
4	0.59	0.59	0	0	0.00
5	0.59	0.53	-0.061		
6	0.63	0.44	-0.198		
7	1.04	0.40	-0.64		

The test statistic W can be found using:

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

where:
B = summation of (X(n-i+1)-X(i))A(n-i+1) = 0.47
SD = standard deviation of the data group = 0.21
n = number of samples = 7

W = 0.819

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) = 0.803
and the calculated W = 0.819

Therefore the data set is Normal

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Determination of reported background value as an outlier

Analyte: Beryllium

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)		Quantitation Limit (ug/l)
1	06/29/07	MW-1	ND		1
2	12/13/07	MW-1	ND		1
3	06/19/08	MW-1	ND		1
4	12/02/08	MW-1	0.40	J	1
5	06/11/09	MW-1	1.04		1
6	12/10/09	MW-1	0.633	J	1
7	06/15/10	MW-1	0.435	J	1
8	12/09/10	MW-1	0.531	J	1
9	06/15/11	MW-1	0.592	J	1
10	12/06/11	MW-1	0.585	J	1
		mean =	0.602		
		STD =	0.211		

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 = 1.040
mean = 0.602
STD = 0.211

Tn = 2.075

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

Number of samples = 10
Tc = 2.176

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

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Aitchison's Adjustment for Beryllium

Background Values (positive detects only)

Sample No.	Sample Date	Location	Concentration (ug/l)
1	06/29/07	MW-1	ND
2	12/13/07	MW-1	ND
3	06/19/08	MW-1	ND
4	12/02/08	MW-1	0.4
5	06/11/09	MW-1	1.04
6	12/10/09	MW-1	0.633
7	06/15/10	MW-1	0.435
8	12/09/10	MW-1	0.531
9	06/15/11	MW-1	0.592
10	12/06/11	MW-1	0.585

Mean of detected values = 0.60
Standard Deviation of detected values = 0.21

The adjusted mean can be found using

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

where:
d = number non- detected values = 3
n = total number samples = 10
M = mean detected values = 0.60

M(a) = 0.42

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 = 10
d = number non-detected values = 3
S = std deviation of detected values squared = 0.04
MM = mean of detected values squared = 0.36

STD(a) = 0.11

and the adjusted standard deviation is then

S(a) = SQRT(STD(a)) = 0.34

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Parametric Prediction Interval for Aitchison's adjusted data

Analyte: Beryllium

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	06/29/07	MW-1	ND	1.00
2	12/13/07	MW-1	ND	1.00
3	06/19/08	MW-1	ND	1.00
4	12/02/08	MW-1	0.40	1.00
5	06/11/09	MW-1	1.04	1.00
6	12/10/09	MW-1	0.63	1.00
7	06/15/10	MW-1	0.44	1.00
8	12/09/10	MW-1	0.53	1.00
9	06/15/11	MW-1	0.59	1.00
10	12/06/11	MW-1	0.59	1.00

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 = 0.42
adjusted standard deviation = 0.34

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 = 0.422
Std Dev = 0.338
t(n-1,k,.95)*sqrt(1/m+1/n) = 2.900
k = 4
m = 1
n = 10

UPL = 1.40 ug/L

Golder Associates

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Parametric Tolerance Interval for Aitchison's adjusted data

Analyte: Beryllium

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)
1	06/29/07	MW-1	ND	1.00
2	12/13/07	MW-1	ND	1.00
3	06/19/08	MW-1	ND	1.00
4	12/02/08	MW-1	0.40	1.00
5	06/11/09	MW-1	1.04	1.00
6	12/10/09	MW-1	0.63	1.00
7	06/15/10	MW-1	0.44	1.00
8	12/09/10	MW-1	0.53	1.00
9	06/15/11	MW-1	0.59	1.00
10	12/06/11	MW-1	0.59	1.00

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 =	0.42
adjusted standard deviation =	0.34

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 Groundwater Monitoring, Gibbons, 1994
n = number of background samples

For: K = 2.911
n = 10

UTL = 1.41 ug/L

Golder Associates

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Analyte: Beryllium - Intrawell

Sample No.	Sample Date	Location	Concentration (ug/L)		Quantitation Limit (ug/L)
1	06/29/07	MW-5	0.80	J	1
2	12/13/07	MW-5	1.00		1
3	06/19/08	MW-5	0.80	J	1
4	12/02/08	MW-5	1.00		1
5	06/11/09	MW-5	2.03		1
6	12/10/09	MW-5	0.895	J	1
7	06/15/10	MW-5	0.597	J	1
8	12/09/10	MW-5	1.37		1
9	06/15/11	MW-5	0.757	J	1

Number of Data	9
Number of Truncated Data	0
Percentage of Truncated Data	0%

Upper Tolerance Interval: **2.88** ug/L

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Probability Plots to determine the distribution of Beryllium - Intrawell

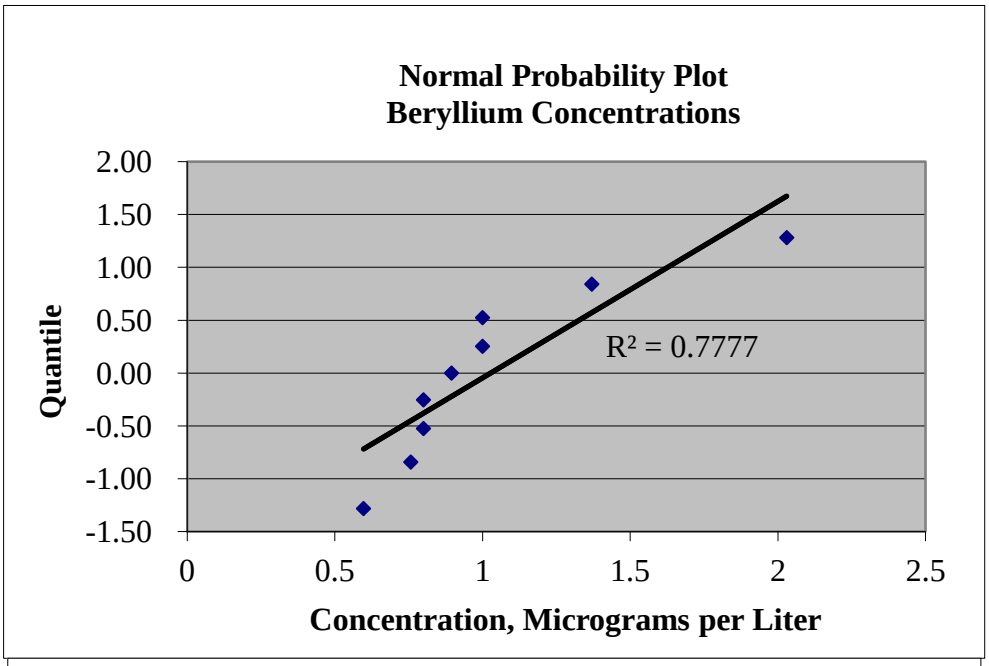
Complete the following table where:

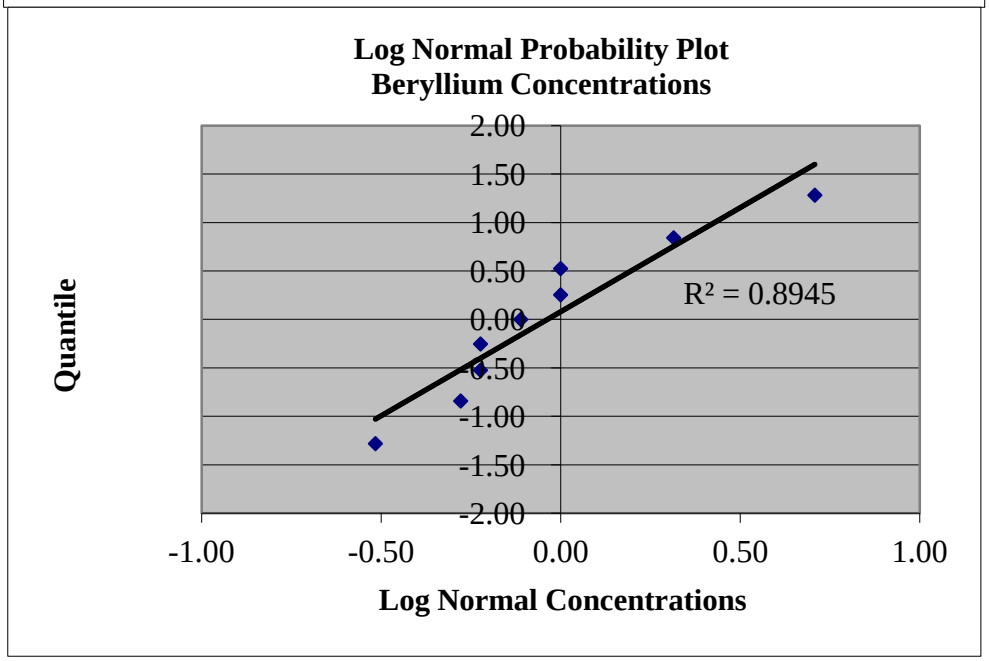
i = ordered value of sample, arranged from smallest to largest
X(i) = sample values arranged from smallest to largest
LN[X(i)] = Natural Log Value of sample concentrations arranged from smallest to largest
[i/(n+1)] = Cumulative probability
n = number of samples = 9

X(i)	LN[X(i)]	i	Rank	[Rank/(n+1)]	Quantiles
0.597	-0.52	1	1	0.100	-1.28
0.757	-0.28	2	2	0.200	-0.84
0.8	-0.22	3	3	0.300	-0.52
0.8	-0.22	4	4	0.400	-0.25
0.895	-0.11	5	5	0.500	0.00
1	0.00	6	6	0.600	0.25
1	0.00	7	7	0.700	0.52
1.37	0.31	8	8	0.800	0.84
2.03	0.71	9	9	0.900	1.28

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 01/12/11

Probability Plots to determine the distribution of Beryllium - Intrawell





Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Shapiro Wilk Test Statistic (W) for normality of total Beryllium - 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	0.60	2.03	1.433	0.5888	0.84
2	0.76	1.37	0.613	0.3244	0.20
3	0.80	1.00	0.2	0.1976	0.04
4	0.80	1.00	0.2	0.0947	0.02
5	0.90	0.90	0	0	0.00
6	1.00	0.80			
7	1.00	0.80			
8	1.37	0.76			
9	2.03	0.60			

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)	=	1.10
	SD =	standard deviation of the data group	=	0.43
	n =	number of samples	=	9

W = 0.806

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) = 0.829
and the calculated W = 0.806

Therefore the data is Non Normal

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Shapiro Wilk Test Statistic (W) for log normality of Beryllium - 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	-0.52	0.71	1.2239	0.5888	0.7206
2	-0.28	0.31	0.5932	0.3244	0.1924
3	-0.22	0.00	0.2231	0.1976	0.0441
4	-0.22	0.00	0.2231	0.0947	0.0211
5	-0.11	-0.11	0.0000	0.0000	0.0000
6	0.00	-0.22			
7	0.00	-0.22			
8	0.31	-0.28			
9	0.71	-0.52			

The test statistic W can be found using:

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

where:
B = summation of (X(n-i+1)-X(i))A(n-i+1) = 0.9783
SD = standard deviation of the data group = 0.3612
n = number of samples = 9

W = 0.9168

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) = 0.829
and the calculated W = 0.917

Therefore the data set is Log Normal

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Determination of reported background value as an outlier

Analyte: Beryllium - Intrawell

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)		Quantitation Limit (ug/l)
1	06/29/07	MW-5	0.800	J	1
2	12/13/07	MW-5	1.000		1
3	06/19/08	MW-5	0.800	J	1
4	12/02/08	MW-5	1.000		1
5	06/11/09	MW-5	2.030		1
6	12/10/09	MW-5	0.895	J	1
7	06/15/10	MW-5	0.597	J	1
8	12/09/10	MW-5	1.370		1
9	06/15/11	MW-5	0.757	J	1
		mean =	1.028		
		STD =	0.434		

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 = 2.030
mean = 1.028
STD = 0.434

Tn = 2.312

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 = 9
Tc = 2.11

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

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Determination of reported background value as an outlier

Analyte: Beryllium - Intrawell

Background Data

Sample No.	Sample Date	Location	ln(Concentration) (ug/l)		Quantitation Limit (ug/l)
1	06/29/07	MW-5	-0.223	J	1
2	12/13/07	MW-5	0.000		1
3	06/19/08	MW-5	-0.223	J	1
4	12/02/08	MW-5	0.000		1
5	06/11/09	MW-5	0.708		1
6	12/10/09	MW-5	-0.111	J	1
7	06/15/10	MW-5	-0.516	J	1
8	12/09/10	MW-5	0.315		1
9	06/15/11	MW-5	-0.278	J	1
		mean =	-0.037		
		STD =	0.361		

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 = 0.708
mean = -0.037
STD = 0.361

Tn = 2.061

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 = 9
Tc = 2.11

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

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Parametric Prediction Interval for log normally distributed data

Analyte: Beryllium - Intrawell

Background Data: Note use of log(concentration)

Sample No.	Sample Date	Location	Concentration (ug/l)	Natural Log Concentration
1	06/29/07	MW-5	0.8	-0.223
2	12/13/07	MW-5	1	0.000
3	06/19/08	MW-5	0.8	-0.223
4	12/02/08	MW-5	1	0.000
5	06/11/09	MW-5	2.03	0.708
6	12/10/09	MW-5	0.895	-0.111
7	06/15/10	MW-5	0.597	-0.516
8	12/09/10	MW-5	1.37	0.315
9	06/15/11	MW-5	0.757	-0.278

Note: All sample concentrations are micrograms per liter

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

Upper Prediction Limit = antilog((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 = -0.037
Std Dev = 0.361
t(n-1,k,.95)*sqrt(1/m+1/n) = 2.010
k = 1
m = 1
n = 9

Antilog UPL = 1.99 ug/L

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Parametric Tolerance Interval for log normally distributed data

Analyte: Beryllium - Intrawell

Background Data: Note use of log(concentration)

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)	Natural Log Concentration
1	06/29/07	MW-5	0.80	1.00	-0.223
2	12/13/07	MW-5	1.00	1.00	0.000
3	06/19/08	MW-5	0.80	1.00	-0.223
4	12/02/08	MW-5	1.00	1.00	0.000
5	06/11/09	MW-5	2.03	1.00	0.708
6	12/10/09	MW-5	0.90	1.00	-0.111
7	06/15/10	MW-5	0.60	1.00	-0.516
8	12/09/10	MW-5	1.37	1.00	0.315
9	06/15/11	MW-5	0.76	1.00	-0.278

Note: All sample concentrations are micrograms per liter

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

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

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

For:
n = 9
K = 3.031
Mean Conc = -0.037
STDS = 0.361

UTL = 2.88 ug/L

Project Name: Material Recovery, LLC C&D Landfill
Project No: 0739-602411
Date: 1/12/11

Analyte: Mercury

Sample No.	Sample Date	Location	Concentration (ug/L)	Quantitation Limit (ug/L)
1	08/07/02	MW-1	ND	0.5
2	06/16/03	MW-1	ND	0.5
3	12/16/03	MW-1	ND	0.5
4	06/16/04	MW-1	ND	0.5
5	12/16/04	MW-1	ND	0.5
6	06/14/05	MW-1	ND	0.5
7	12/27/05	MW-1	ND	0.5
8	06/21/06	MW-1	ND	2
9	12/13/06	MW-1	ND	0.2
10	06/29/07	MW-1	ND	0.2
11	12/13/07	MW-1	ND	0.2
12	06/19/08	MW-1	ND	0.2
13	12/02/08	MW-1	ND	0.2
14	06/11/09	MW-1	ND	0.2
15	12/10/09	MW-1	ND	0.2
16	06/15/10	MW-1	0.201	0.2
17	12/09/10	MW-1	ND	0.2
18	06/15/11	MW-1	ND	0.2
19	12/06/11	MW-1	ND	0.2

Number of Data	19
Number of Truncated Data	18
Percentage of Truncated Data	95%

Poisson's Prediction Interval: **1.51** ug/L

Golder Associates

Date: 1/12/11

Upper Poisson Prediction Limit

Analyte: Mercury

Background Data

Sample No.	Sample Date	Location	Concentration (ug/l)	Quantitation Limit (ug/l)	1/2 Quantitation Limit (ug/l)	10x Discrete Values Conversion
1	08/07/02	MW-1	ND	0.5	0.25	3
2	06/16/03	MW-1	ND	0.5	0.25	3
3	12/16/03	MW-1	ND	0.5	0.25	3
4	06/16/04	MW-1	ND	0.5	0.25	3
5	12/16/04	MW-1	ND	0.5	0.25	3
6	06/14/05	MW-1	ND	0.5	0.25	3
7	12/27/05	MW-1	ND	0.5	0.25	3
8	06/21/06	MW-1	ND	2	1	10
9	12/13/06	MW-1	ND	0.2	0.1	1
10	06/29/07	MW-1	ND	0.2	0.1	1
11	12/13/07	MW-1	ND	0.2	0.1	1
12	06/19/08	MW-1	ND	0.2	0.1	1
13	12/02/08	MW-1	ND	0.2	0.1	1
14	06/11/09	MW-1	ND	0.2	0.1	1
15	12/10/09	MW-1	ND	0.2	0.1	1
16	06/15/10	MW-1	0.201	0.2	0.1	2
17	12/09/10	MW-1	ND	0.2	0.1	1
18	06/15/11	MW-1	ND	0.2	0.1	1
19	12/06/11	MW-1	ND	0.2	0.1	1

Possion Discrete Distribution Adjustment Factor = 10

Note: All sample concentrations are micrograms per liter

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

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

where:

c = k / n
y = Poisson count
t = t(n-1, 0.95), Student's t-distribution
n-1 = degrees of freedom (number of samples - 1)
k = number of downgradient samples per event (4)
.95 = confidence interval
n = number of background samples

For:

c = 0.211
y = 43.00
t = 1.734
n = 19

y* = 15.1

Adjusted y* = 1.51 ug/L

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APPENDIX D
GROUNDWATER MONITORING WELL MAINTENANCE RECORDS

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WELL CONDITION SUMMARY

DATE: 12-6-11

Project Name: WCA - Wake

Project No./Task No.: 0739-602411

Personnel: N. Kathyen / B. Freyer

Page 1 of 1

Well ID	Protective Casing	Well Casing	Label	Lock	Pad Condition	Depth of Well (Feet)	General Turbidity	Comments/ Observations*
MW-1	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Inadequate	☒ Yes ☐ No	☒ OK ☐ Damaged		☐ Clear ☐ Turbid	pad covered by brush
MW-2	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Inadequate	☒ Yes ☐ No	☒ OK ☐ Damaged		☐ Clear ☐ Turbid	pad covered
MW-3	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Inadequate	☒ Yes ☐ No	☒ OK ☐ Damaged		☐ Clear ☐ Turbid	
MW-4	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Inadequate	☒ Yes ☐ No	☒ OK ☐ Damaged		☐ Clear ☐ Turbid	
MW-5	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Inadequate	☒ Yes ☐ No	☒ OK ☐ Damaged		☐ Clear ☐ Turbid	pad covered
MW-6AS	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Inadequate	☒ Yes ☐ No	☒ OK ☐ Damaged		☐ Clear ☐ Turbid	
MW-6AD	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Inadequate	☒ Yes ☐ No	☒ OK ☐ Damaged		☐ Clear ☐ Turbid	
MW-7AS	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Inadequate	☒ Yes ☐ No	☒ OK ☐ Damaged		☐ Clear ☐ Turbid	
MW-7AD	☒ OK ☐ Damaged	☒ OK ☐ Damaged	☒ OK ☐ Inadequate	☒ Yes ☐ No	☒ OK ☐ Damaged		☐ Clear ☐ Turbid	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged		☐ Clear ☐ Turbid	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged		☐ Clear ☐ Turbid	
	☐ OK ☐ Damaged	☐ OK ☐ Damaged	☐ OK ☐ Inadequate	☐ Yes ☐ No	☐ OK ☐ Damaged		☐ Clear ☐ Turbid	

* Note ponding water, weep holes, condition of surrounding area, including any disturbance of the ground since last inspection, evidence of contamination.

Signature: [signature] Date: 12-6-11

[signature] 1-27-12

GROUNDWATER MONITORING WELL MAINTENANCE RECORD

FACILITY: *WCA - Material Recovery, LLC* **PERMIT NO.:** *92-31*

LOCATION: *MW-1* **DATE:** *December 6, 2011*

INSPECTOR: *N. Rathjen / B. Freyer* **COMPANY:** *Golder Associates NC, Inc.*

---

1. Is surface water diverted away from the wellhead? *YES*
2. Is the concrete pad still intact and free of cracks? *YES*
3. Has surface water runoff undercut the concrete pad? *NO*
4. Is the outer casing still secure and locked? *YES*
5. Is the well identification tag present and is it legible? *YES*

   5a. Does the well identification tag provide the following information:

   - The well identification number? *YES*
   - Drilling contractor and registration number? *YES*
   - Total well depth? *YES*
   - Depth to screen? *YES*
   - A warning that the well is not for water supply and that the ground water may contain hazardous materials? *YES*

6. Is the grout between the inner and outer well casings all the way to the ground surface? *YES*
7. Is the inner casing firmly grouted in place? *YES*
8. Are the inner and outer casings upright and unobstructed? *YES*
9. Is water collecting in the outer casing? Does a weep hole need to be bored in the outer casing to provide drainage? *NO*
10. Is the monitoring well accessible by a four-wheel drive vehicle? *YES*
11. Have brush and weeds been trimmed so that the well is easy to locate and access? *YES*
12. Does the inner well casing have a vented cap? *YES*
13. Is the monitoring well visible and adequately protected from moving equipment? *YES*

GROUNDWATER MONITORING WELL MAINTENANCE RECORD

FACILITY: *WCA - Material Recovery, LLC* **PERMIT NO.:** *92-31*

LOCATION: *MW-2* **DATE:** *December 6, 2011*

INSPECTOR: *N. Rathjen / B. Freyer* **COMPANY:** *Golder Associates NC, Inc.*

---

1. Is surface water diverted away from the well head? *YES*
2. Is the concrete pad still intact and free of cracks? *YES*
3. Has surface water runoff undercut the concrete pad? *NO*
4. Is the outer casing still secure and locked? *YES*
5. Is the well identification tag present and is it legible? *YES*

   5a. Does the well identification tag provide the following information:

   - The well identification number? *YES*
   - Drilling contractor and registration number? *YES*
   - Total well depth? *YES*
   - Depth to screen? *YES*
   - A warning that the well is not for water supply and that the ground water may contain hazardous materials? *YES*

6. Is the grout between the inner and outer well casings all the way to the ground surface? *YES*
7. Is the inner casing firmly grouted in place? *YES*
8. Are the inner and outer casings upright and unobstructed? *YES*
9. Is water collecting in the outer casing? Does a weep hole need to be bored in the outer casing to provide drainage? *NO*
10. Is the monitoring well accessible by a four-wheel drive vehicle? *YES*
11. Have brush and weeds been trimmed so that the well is easy to locate and access? *YES*
12. Does the inner well casing have a vented cap? *YES*
13. Is the monitoring well visible and adequately protected from moving equipment? *YES*

GROUNDWATER MONITORING WELL MAINTENANCE RECORD

FACILITY: *WCA - Material Recovery, LLC* **PERMIT NO.:** *92-31*

LOCATION: *MW-3* **DATE:** *December 6, 2011*

INSPECTOR: *N. Rathjen / B. Freyer* **COMPANY:** *Golder Associates NC, Inc.*

---

1. Is surface water diverted away from the well head? *YES*

2. Is the concrete pad still intact and free of cracks? *YES*

3. Has surface water runoff undercut the concrete pad? *NO*

4. Is the outer casing still secure and locked? *YES*

5. Is the well identification tag present and is it legible? *YES*

   5a. Does the well identification tag provide the following information:

   - The well identification number? *YES*
   - Drilling contractor and registration number? *YES*
   - Total well depth? *YES*
   - Depth to screen? *YES*
   - A warning that the well is not for water supply and that the ground water may contain hazardous materials? *YES*

6. Is the grout between the inner and outer well casings all the way to the ground surface? *YES*

7. Is the inner casing firmly grouted in place? *YES*

8. Are the inner and outer casings upright and unobstructed? *YES*

9. Is water collecting in the outer casing? Does a weep hole need to be bored in the outer casing to provide drainage? *NO*

10. Is the monitoring well accessible by a four-wheel drive vehicle? *YES*

11. Have brush and weeds been trimmed so that the well is easy to locate and access? *YES*

12. Does the inner well casing have a vented cap? *YES*

13. Is the monitoring well visible and adequately protected from moving equipment? *YES*

GROUNDWATER MONITORING WELL MAINTENANCE RECORD

FACILITY: *WCA - Material Recovery, LLC* **PERMIT NO.:** *92-31*

LOCATION: *MW-4* **DATE:** *December 6, 2011*

INSPECTOR: *N. Rathjen / B. Freyer* **COMPANY:** *Golder Associates NC, Inc.*

---

1. Is surface water diverted away from the well head? *YES*
2. Is the concrete pad still intact and free of cracks? *YES*
3. Has surface water runoff undercut the concrete pad? *NO*
4. Is the outer casing still secure and locked? *YES*
5. Is the well identification tag present and is it legible? *YES*

   5a. Does the well identification tag provide the following information:

   - The well identification number? *YES*
   - Drilling contractor and registration number? *YES*
   - Total well depth? *YES*
   - Depth to screen? *YES*
   - A warning that the well is not for water supply and that the ground water may contain hazardous materials? *YES*

6. Is the grout between the inner and outer well casings all the way to the ground surface? *YES*
7. Is the inner casing firmly grouted in place? *YES*
8. Are the inner and outer casings upright and unobstructed? *YES*
9. Is water collecting in the outer casing? Does a weep hole need to be bored in the outer casing to provide drainage? *NO*
10. Is the monitoring well accessible by a four-wheel drive vehicle? *YES*
11. Have brush and weeds been trimmed so that the well is easy to locate and access? *YES*
12. Does the inner well casing have a vented cap? *YES*
13. Is the monitoring well visible and adequately protected from moving equipment? *YES*

GROUNDWATER MONITORING WELL MAINTENANCE RECORD

FACILITY: *WCA - Material Recovery, LLC* **PERMIT NO.:** *92-31*

LOCATION: *MW-5* **DATE:** *December 6, 2011*

INSPECTOR: *N. Rathjen / B. Freyer* **COMPANY:** *Golder Associates NC, Inc.*

---

1. Is surface water diverted away from the well head? *YES*
2. Is the concrete pad still intact and free of cracks? *YES*
3. Has surface water runoff undercut the concrete pad? *NO*
4. Is the outer casing still secure and locked? *YES*
5. Is the well identification tag present and is it legible? *YES*

   5a. Does the well identification tag provide the following information:

   - The well identification number? *YES*
   - Drilling contractor and registration number? *YES*
   - Total well depth? *YES*
   - Depth to screen? *YES*
   - A warning that the well is not for water supply and that the ground water may contain hazardous materials? *YES*

6. Is the grout between the inner and outer well casings all the way to the ground surface? *YES*
7. Is the inner casing firmly grouted in place? *YES*
8. Are the inner and outer casings upright and unobstructed? *YES*
9. Is water collecting in the outer casing? Does a weep hole need to be bored in the outer casing to provide drainage? *NO*
10. Is the monitoring well accessible by a four-wheel drive vehicle? *YES*
11. Have brush and weeds been trimmed so that the well is easy to locate and access? *YES*
12. Does the inner well casing have a vented cap? *YES*
13. Is the monitoring well visible and adequately protected from moving equipment? *YES*

GROUNDWATER MONITORING WELL MAINTENANCE RECORD

FACILITY: *WCA - Material Recovery, LLC* **PERMIT NO.:** *92-31*

LOCATION: *MW-6AS* **DATE:** *December 6, 2011*

INSPECTOR: *N. Rathjen / B. Freyer* **COMPANY:** *Golder Associates NC, Inc.*

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1. Is surface water diverted away from the well head? *YES*
2. Is the concrete pad still intact and free of cracks? *YES*
3. Has surface water runoff undercut the concrete pad? *NO*
4. Is the outer casing still secure and locked? *YES*
5. Is the well identification tag present and is it legible? *YES*

   5a. Does the well identification tag provide the following information:

   - The well identification number? *YES*
   - Drilling contractor and registration number? *YES*
   - Total well depth? *YES*
   - Depth to screen? *YES*
   - A warning that the well is not for water supply and that the ground water may contain hazardous materials? *YES*

6. Is the grout between the inner and outer well casings all the way to the ground surface? *YES*
7. Is the inner casing firmly grouted in place? *YES*
8. Are the inner and outer casings upright and unobstructed? *YES*
9. Is water collecting in the outer casing? Does a weep hole need to be bored in the outer casing to provide drainage? *NO*
10. Is the monitoring well accessible by a four-wheel drive vehicle? *YES*
11. Have brush and weeds been trimmed so that the well is easy to locate and access? *YES*
12. Does the inner well casing have a vented cap? *YES*
13. Is the monitoring well visible and adequately protected from moving equipment? *YES*

GROUNDWATER MONITORING WELL MAINTENANCE RECORD

FACILITY: *WCA - Material Recovery, LLC* **PERMIT NO.:** *92-31*

LOCATION: *MW-6AD* **DATE:** *December 6, 2011*

INSPECTOR: *N. Rathjen / B. Freyer* **COMPANY:** *Golder Associates NC, Inc.*

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1. Is surface water diverted away from the well head? *YES*
2. Is the concrete pad still intact and free of cracks? *YES*
3. Has surface water runoff undercut the concrete pad? *NO*
4. Is the outer casing still secure and locked? *YES*
5. Is the well identification tag present and is it legible? *YES*

   5a. Does the well identification tag provide the following information:

   - The well identification number? *YES*
   - Drilling contractor and registration number? *YES*
   - Total well depth? *YES*
   - Depth to screen? *YES*
   - A warning that the well is not for water supply and that the ground water may contain hazardous materials? *YES*

6. Is the grout between the inner and outer well casings all the way to the ground surface? *YES*
7. Is the inner casing firmly grouted in place? *YES*
8. Are the inner and outer casings upright and unobstructed? *YES*
9. Is water collecting in the outer casing? Does a weep hole need to be bored in the outer casing to provide drainage? *NO*
10. Is the monitoring well accessible by a four-wheel drive vehicle? *YES*
11. Have brush and weeds been trimmed so that the well is easy to locate and access? *YES*
12. Does the inner well casing have a vented cap? *YES*
13. Is the monitoring well visible and adequately protected from moving equipment? *YES*

GROUNDWATER MONITORING WELL MAINTENANCE RECORD

FACILITY: *WCA - Material Recovery, LLC* **PERMIT NO.:** *92-31*

LOCATION: *MW-7AS* **DATE:** *December 6, 2011*

INSPECTOR: *N. Rathjen / B. Freyer* **COMPANY:** *Golder Associates NC, Inc.*

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1. Is surface water diverted away from the well head? *YES*
2. Is the concrete pad still intact and free of cracks? *YES*
3. Has surface water runoff undercut the concrete pad? *NO*
4. Is the outer casing still secure and locked? *YES*
5. Is the well identification tag present and is it legible? *YES*

   5a. Does the well identification tag provide the following information:

   - The well identification number? *YES*
   - Drilling contractor and registration number? *YES*
   - Total well depth? *YES*
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12. Does the inner well casing have a vented cap? *YES*
13. Is the monitoring well visible and adequately protected from moving equipment? *YES*

GROUNDWATER MONITORING WELL MAINTENANCE RECORD

FACILITY: *WCA - Material Recovery, LLC* **PERMIT NO.:** *92-31*

LOCATION: *MW-7AD* **DATE:** *December 6, 2011*

INSPECTOR: *N. Rathjen / B. Freyer* **COMPANY:** *Golder Associates NC, Inc.*

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1. Is surface water diverted away from the well head? *YES*
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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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