Golder Associates NC, Inc.

4900 Koger Boulevard, Suite 140
Greensboro, NC 27407
Telephone (336) 852-4903
Fax (336) 852-4904

November 5, 2007 Project No. 0739602407.100

Waste Corporation of America
625 Spencer Drive
Ft. Walton Beach, FL 32547

Attention: Mr. Nick Marotta, P.E.
Regional Engineer

Re: Material Recovery, LLC Construction and Demolition Landfill, Permit No. 92-31
Wake County, North Carolina
Alternate Source Demonstration

Dear Nick:

On behalf of Material Recovery, LLC, a subsidiary of Waste Corporation of America (WCA), Golder Associates NC, Inc. (Golder) is submitting this *Alternate Source Demonstration* (ASD), which evaluates the presence of a volatile organic compound (VOC) detected in groundwater samples collected during the first semiannual event of 2007, conducted on June 28-29, 2007 at the Permit No. 92-31 Construction and Demolition (C&D) Landfill. The results of the first semiannual routine monitoring event are submitted under separate cover.

On June 28-29, 2007, groundwater samples from the site monitoring wells were voluntarily analyzed for the parameters listed in Title 15A NCAC 13B.0544 of the North Carolina Solid Waste Management Rules (NCSWMR). The facility is currently subject to Title 15A NCAC 13B.0601 under its existing approved Water Quality Monitoring Plan prepared by Joyce Engineering, Inc. (JEI) in 2001. Currently no groundwater corrective action for Phase 1 of the landfill is required under the old C&D Rules and the facility's approved Water Quality Monitoring Plan, under which the facility is permitted.

The results of the June 2007 sampling event indicated that TCFM is present in the groundwater sample collected from monitoring well MW-3 at a concentration that is greater than its Solid Waste Section Limit (SWSL). Confirmation sampling for TCFM was conducted for MW-3 on August 9, 2007. At that time, groundwater samples from MW-3 were also collected for analysis of additional water quality parameters; samples were also collected from background well MW-1 for water quality parameters. The re-sampling results confirmed the presence of TCFM in MW-3 at a concentration that exceeds the SWSL.

The purpose of this ASD is to determine the source of trichlorofluoromethane (TCFM) detected in the groundwater samples. The two possible sources of TCFM evaluated as part of this ASD are landfill-derived leachate and landfill gas.

Using the data collected during the June and August 2007 sampling events, this ASD was conducted to evaluate the potential sources of the TCFM concentrations observed in groundwater samples collected from MW-3, which is located downgradient of Phase 1 of the landfill. The following sections discuss the data evaluations that were completed as part of this ASD in consideration of the two sources that were identified as potential sources of the TCFM observed in MW-3.

LANDFILL GAS SOURCE EVALUATION

Although no site-specific data on VOC concentrations in landfill gas are available, Golder evaluated the highest and lowest TCFM concentrations observed in samples collected from the affected monitoring well to determine the landfill gas concentration of TCFM required to achieve the concentrations observed in the groundwater, assuming landfill gas-to-groundwater transfer of the TCFM (Table 1). The evaluation was performed using the dimensionless form of the Henry's Law Constant (H) for TCFM, since the dimensionless form of H is a gas-water partitioning coefficient. In the example below, the lowest observed TCFM concentration was used to evaluate the landfill gas concentration required to create the lowest dissolved phase concentrations of TCFM.

Analytical Solution: H = Concentration in gas / Concentration in water
or:
Concentration in gas = H * Concentration in water

Where: H (dimensionless)
Concentration in gas [parts per billion (ppb)]
Concentration in water [micrograms per liter (ug/L)]

Observed constituent of concern concentration in groundwater:

TCFM concentration = 11.0 ug/L
H_{TCFM} = 3.955
Mole conversion factor for TCFM = 1ppm:5.614 mg/m^3

Estimated gas concentration necessary to obtain observed groundwater concentrations:

$$TCFM_{gas} = \frac{3.955 \mid 11\text{ ug} \mid 1000\text{ L} \mid 1\text{mg}}{\mid \text{L} \mid \text{m}^3 \mid 1000\text{ ug}}$$

$$TCFM_{gas} = 43.51\text{ mg/m}^3$$

To express in ppm:

$$TCFM_{gas} = \frac{43.51\text{ mg} \mid \text{m}^3}{\text{m}^3 \mid 5.614\text{ mg}}$$

$$TCFM_{gas} = 7.75\text{ ppm}$$

As presented, the theoretical landfill gas concentration required to produce the lowest concentration of TCFM reported in groundwater is approximately 43.51 milligrams per cubic meter (mg/m^3). Headspace samples obtained from the column of air above the groundwater table in MW-3 were collected on September 6, 2007, and analyzed using analytical method TO-15 for

VOCs. Golder made an attempt to collect a headspace sample in MW-3 on August 9, 2007; however, a viable sample was not obtained due to sample matrix interferences. A groundwater sample was also collected from MW-3 for the analysis of TCFM on August 9, 2007.

The analytical results indicated that TCFM was not detected in the headspace sample from MW-3 at a concentration greater than the method detection limit of 0.006 (mg/m^3). Therefore, it is unlikely that landfill gas concentrations are sufficient to partition into the groundwater phase based on these results alone. However, this conclusion assumes that the concentrations observed in the headspace sample collected from MW-3 are representative of landfill gas concentrations. It is likely that the concentrations of landfill gas generated within the waste footprint are higher and therefore may contain higher concentrations of VOCs as compared to well headspace samples. MW-3 is located approximately 100 feet north and downgradient of the limits of waste.

LEACHATE SOURCE EVALUATION

To evaluate landfill leachate as a potential source of TCFM concentrations detected in groundwater samples collected from MW-3, Golder prepared a series of scatter graphs, Piper Diagrams, and Stiff Diagrams to illustrate the variability in the geochemistry of the water for the various monitoring points of interest.

Golder compared the major anion and cation concentrations of groundwater samples collected from an upgradient and a downgradient well, and compared those concentrations through leachate mixing scenarios. As this facility is unlined and does not have a leachate collection system, site-specific leachate samples were not available for laboratory analysis. Various literature sources are cited where typical leachate concentrations for C&D landfills have been compiled and are used in this ASD to represent a typical leachate sample (Table 2). Comparisons to typical C&D leachate values have been made using standard Piper and Stiff Diagrams of the major anion and cation concentrations.

A summary of the data used to prepare the graphs and diagrams is presented in Appendix A (Summary of Analytical Results) and Appendix B (Sample Summary Reports).

Piper Diagram Analysis

Figure 1 is a Piper Diagram illustrating the variations in the geochemical facies for the monitoring points sampled as part of this investigation; it also shows a typical facies for C&D landfill leachate. As presented in Figure 1, the typical leachate composition exhibits a calcium-magnesium-sodium-potassium-bicarbonate-sulfate geochemical facies. Upgradient monitoring well MW-1 exhibits a sodium-potassium-chloride geochemical facies. Downgradient monitoring well MW-3 exhibits a calcium-magnesium-sodium-potassium-chloride facies.

Review of Figure 1 suggests that it is unlikely that a mixture of leachate and upgradient waters (MW-1) will yield geochemistry similar to MW-3, since MW-3 would need to plot between the upgradient waters and the leachate, assuming a conservative mixing scenario with no precipitation interference. Note that the sample cation and anion concentrations presented in the Sample Summary Reports in Appendix B are well below saturation concentrations for normal temperature and pH conditions in most shallow groundwater environments; therefore, we would expect conservative mixing to occur.

Stiff Diagram Analysis

Figure 2 presents a fixed-scale Stiff Diagram for the monitoring points sampled as part of this investigation; it also shows a typical facies for C&D landfill leachate. As presented in Figure 2, the groundwater signatures are generally overwhelmed by the leachate sample on the fixed-scale Stiff Diagrams (set to the scale used to plot the leachate), due to the relatively low cation and anion concentrations in MW-1 and MW-3 relative to the leachate, making the shape signatures difficult to observe.

Figure 3 shows sliding-scale Stiff Diagrams, which better present the shape signatures for these groundwater samples relative to the typical leachate composition. As presented, groundwater samples from MW-1 and MW-3 do not exhibit a geochemical signature similar to that of the typical leachate composition. MW-1, the upgradient well, exhibits a markedly dissimilar shape, with major differences in the calcium and bicarbonate area relative to the other cation-anion pairs. The sample collected from monitoring well MW-3 exhibits a shape signature that is more similar to the leachate signature for the cations; however, the bicarbonate and sulfate are depleted relative to the typical leachate composition.

If a single source (i.e., leachate) were the source of the detected TCFM concentrations in MW-3, we would expect the shape for the affected monitoring well to bear some resemblance to, or a general morphology trending towards, the leachate shape. Based on the morphological changes in the shape of the Stiff Diagrams from the upgradient well (MW-1) to the downgradient well (MW-3), and considering that the general groundwater flow path between MW-1 and MW-3 transects the Northern Disposal Area, an increase in major ion concentration is apparent; however, this increase in major ion chemistry could be related to the accumulation of ions along the groundwater flow path through the dissolution of aquifer materials.

One potential explanation for the increase in major cation geochemistry may have to do with the composition of feldspar minerals in the aquifer material. The granitic bedrock present on site, which is rich in feldspar mineralogies, has been described in the Hydrogeologic Report submitted as part of the permit application (JEI, 2000). Feldspar compositions are generally of two varieties: alkali feldspars having a composition that comprises a solid solution series between potassium and sodium rich varieties; and plagioclase feldspars having a composition that comprises a solid solution series between calcium and sodium rich varieties. Consequently, it is possible that monitoring wells MW-1 and MW3 are screened in areas rich with one or more sodium and calcium rich feldspar minerals, and the variation in cation concentration may be due to local variations related to the dissolution of the parent aquifer material. Thus, the fact that the cation shape of the stiff diagram for MW-3 is somewhat similar to that for typical leachate does not necessarily indicate leachate impacts.

Simulated Leachate Impacts

In addition to analyzing the existing variations in aquifer geochemistry at the site, Golder modeled potential leachate impacts to the affected downgradient well at the facility using an analytical solution. Two models were run. The first model was based on simple mixing, where selected proportions of the leachate (1%, 2%, 3%, 4%, and 5%) and upgradient MW-1 water (99%, 98%, 97%, 96%, and 95%) were mixed to evaluate the potential evolution of groundwater that was hypothetically being impacted by leachate. The simulated simple mixing model results are summarized in Table 3.

The data summarized in Table 3 are shown graphically on Figures 4, 5, 6, and 7 by the symbols representing percentages of leachate in the mixture (1%, 2%, 3%, 4%, and 5%). These plots illustrate the likely trend that a downgradient well would follow as the geochemistry of the affected well changes due to impacts from leachate, on the basis that the geochemistry for un-impacted downgradient wells is similar to that observed in the upgradient water. As presented, with the exception of Figure 6 (Chloride vs. Na+K Scatter Plot), MW-3 does not plot within an acceptable range of the mixing line between MW-1 and the leachate composition. Major ion concentrations increase in the downgradient direction; however, based on the typical C&D landfill leachate composition used in this evaluation, one would expect a downgradient accumulation of the anions (bicarbonate, sulfate and chloride).

The second model was run using an equally weighted parameter optimization criterion based on the lowest achievable Euclidean distance between the calculated mixture and the specified sample to simulate the optimum mixing proportions of leachate and the selected upgradient groundwater for achieving the specified sample (i.e., each affected downgradient well). The mixing scenario involved the upgradient water from MW-1 based on the August 2007 results. The simulated optimized model results are summarized in Table 3, and illustrated on scatter graphs (Figures 4 through 7).

As presented in Table 3, the model results indicate that the optimum mixing proportions for leachate and MW-1 waters to achieve the closest approximation to MW-3 waters is 6% leachate and 94% MW-1 waters, based on the August 2007 data. The results of the simulated mixing are presented graphically on sliding-scale Stiff Diagrams in Figure 8.

As presented on Figure 8, the optimized MW-3 sample partially resembles the leachate (i.e., similar cation distribution); however, the lack of bicarbonate and sulfate significantly alter the shape of the Stiff plot for MW-3. Based on these results, it is apparent that the geochemistry of MW-3 cannot be replicated by a simulated leachate release of typical C&D landfill composition using the facility's upgradient groundwater chemistry as the base solution for the simulations, assuming that there is no precipitation of the ions of interest.

CONCLUSIONS

The potential sources evaluated for the TCFM concentrations detected in downgradient monitoring well MW-3 include potential groundwater impacts from soil gas and leachate derived from the waste disposal area. An evaluation of the potential for soil gas impacts to groundwater was carried out by back calculating, based on Henry's Law, the necessary soil gas concentration required to produce the observed dissolved concentration of TCFM in the groundwater. The results indicated that a significantly high concentration of TCFM in soil gas would be required. Headspace analysis of accumulated vapors in affected downgradient well MW-3 indicated that TCFM was not present at levels greater than the detection limit of 0.006 mg/m^3.

However, the concentrations of VOCs are expected to be much higher in and around the waste footprint and the air sample collected in the headspace of MW-3 may not be representative of typical concentrations. Without a source area sample from the within the waste footprint (i.e., a sample from a landfill gas extraction well), landfill gas impacts to groundwater cannot be ruled out as a potential source of the TCFM. Methane was measured in the headspace of MW-3 at a concentration of 1% by volume during the June 2007 sampling event and can significantly vary daily based on precipitation and barometric pressure.

The leachate source evaluation is also inconclusive since it is based on the assumption that the typical leachate composition used in the evaluation is representative of the leachate that may be present in the subsurface at the facility. Provided that the typical leachate composition is representative, then the variation in ion concentrations between the upgradient monitoring well MW-1 and the downgradient monitoring well MW-3 cannot be adequately explained by mixing the typical leachate composition with the groundwater composition observed in samples collected from MW-1. This finding does not support the hypothesis that the TCFM observed in MW-3 is derived from leachate impacts to the groundwater system.

The simplest explanation of the variation between cation concentrations in the groundwater samples collected from MW-1 and MW-3 may be the dissolution of the aquifer materials and the subsequent downgradient accumulation of dissolved ions. In our opinion, this accumulation of dissolved ions leached from the aquifer matrix is the most likely explanation of the geochemical variation observed between samples from MW-1 and MW-3. Figure 9 illustrates a similar example from a collaborative project, located in Wake County, NC, between the USGS and NCDENR. Figure 9 shows Stiff diagrams between an upgradient well cluster and a downgradient one that illustrate an increase in ion concentrations.

Crushed wallboard is a common component of the waste at this facility and has been used as part of the facility's weekly cover. Wallboard contains gypsum (calcium sulfate). Leachate from the facility would therefore be expected to have a high sulfate component. There was not a significant sulfate component detected in the groundwater sample from MW-3, and sulfate values for background well MW-1 and MW-3 are similar. Since sulfate is expected to be a conservative tracer for leachate impacts in an aerobic environment, such as the conditions present below the water table at this facility, any groundwater impacted by leachate would be expected to contain a significant sulfate component. The sulfate data further support that leachate impacts for MW-3 are unlikely.

Based on the data, analysis, interpretations, and assumptions on leachate composition presented in this report, the most likely sources for the TCFM detected in MW-3 are not landfill-derived leachate. Soil gas impacts to groundwater may be a possible source, although not supported by the concentrations measured in the headspace sample for MW-3. Also, previous land uses at the site in the vicinity of MW-3 include land application of wastewater treatment sludge, which may also be a potential source of VOCs. Therefore, while this ASD has not verified the source of TCFM impacts to groundwater in the vicinity of MW-3, this evaluation has ruled out leachate as a likely source.

Based on this finding and on behalf of WCA, Golder requests that the facility be allowed to continue monitoring groundwater for the parameter listed in Title 15A NCAC 13B.0544 of the NCSWMR. Headspace methane concentrations will continue to be monitored with a methane detection meter in MW-3 during future sampling events to continue to evaluate potential landfill gas impacts to groundwater. Also, in an effort to minimize landfill gas impacts, WCA is evaluating the use of low-flow micropurge sampling techniques for future sampling events. Golder appreciates your review and consideration of this ASD. If you have any questions or require further information, please do not hesitate to contact the undersigned.

Sincerely,
GOLDER ASSOCIATES NC, INC.

Charles G. Pippin, P.G.
Project Geologist

Rachel P. Kirkman, P.G.
Senior Project Geologist

Attachments:

TABLES
- Table 1: Groundwater to Soil Gas Partitioning
- Table 2: Typical C&D Landfill Leachate Values
- Table 3: Leachate Mixing Model

FIGURES
- Figure 1. Piper Diagram
- Figure 2. Fixed Scale Stiff Diagram
- Figure 3. Sliding Scale Stiff Diagram
- Figure 4. Piper Diagram with Modeled Concentrations
- Figure 5. HCO_3 vs. Ca Scatter Plot
- Figure 6. Na+K vs. Cl Scatter Plot
- Figure 7. SO_4 vs. Mg Scatter Plot
- Figure 8. Stiff Diagrams Showing Geochemical Facies under Varying Modeling Scenarios
- Figure 9. Stiff Diagrams Illustrating Varying Ion Concentrations.

APPENDICES
- Appendix A: Summary of Analytical Results; August 9, 2007 Groundwater Analytical Results; September 6, 2007 Groundwater Analytical Results, September 6, 2007 MW-3 Headspace Analytical Results, and Field Sampling Forms.
- Appendix B: Sample Summary Reports

cc: Dennis Gehle, General Manager, Material Recovery, LLC, 2600 Brown-Field Road, Raleigh, North Carolina, 27610, 919-838-6973. (letter only)
Vernon Smith, Regional Vice President, WCA of North Carolina, 40 Estes Plant Road, Piedmont, South Carolina, 29673, 864-845-8355. (letter only)

G:\Projects\WCA\Wake\Environmental\MW-3 ASD Evaluation\WCA - ASD Report\Final WCA Wake County ASD.doc

TABLES

Table 1
Material Recovery, LLC
C&D Landfill

Groundwater to Soil Gas

Well	Date	Dissolved TCFM (ug/L)	Henry's Law	Calculated Gas Con. (ug/L) or (mg/m^3)	Mole Conversion Factor ug/L to ppb (gas)	Gas Con. (ppb)	Gas Con. (ppm)
MW-3	8/9/07	34	3.955	134.470	0.005614	23952.224	23.952
MW-3 (Dup)	8/9/07	11	3.955	43.505	0.005614	7749.249	7.749
MW-3	9/6/07	31	3.955	122.605	0.005614	21838.792	21.839

Notes:
1. TCFM = Trichlorofluoromethane
2. mg/m^3 = milligrams per cubic meter
3. ug/L = microgram per liter
4. ug/mg = microgram per milligram
5. ppb = parts per billion
6. ppm = parts per million
7. Con. = Concentration
8. Dup = duplicate

Table 2
Material Recovery, LLC
C&D Landfill

Typical C&D Landfill Leachate Values

Source	A	B	C	D	E (site)	E (test cell)	E (simulated avg.)	F	Geometric Mean
Sodium (mg/L)	--	--	ND to 1510	--	--	43.3	114	360	191.4
Potassium (mg/L)	--	--	ND to 618	--	--	7.5	23.6	82	46.0
Magnesium (mg/L)	--	--	ND to 460	--	--	20.9	24.6	150	64.9
Calcium (mg/L)	299 to 691	280 to 600	ND to 600	274	140 to 740	530	536	430	419.7
Chloride (mg/L)	12.5 to 62.7	100 to 460	ND to 2400	158	10 to 5720	5.1	16.2	230	134.7
Sulfate (mg/L)	313 to 1138	690 to 1700	ND to 2700	254	1 to 1300	720	794	170	608.5
Alkalinity (mg/L)	--	--	ND to 6520	--	--	850	852	2100	1492.2
Manganese (mg/L)	0.2 to 2.3	80 to 9800	ND to 258	8.7	--	0.7	1	--	13.0
Iron (mg/L)	0.3 to 4.6	20 to 14000	ND to 172	36.8	--	<0.1	1	--	35.2
TDS (mg/L)	1360 to 3310	1700 to 5740	ND to 8400	2263	752 to 6000	1900	2300	8600	3180.7
pH (SU)	6.1 to 7.9	6.8 to 7.1	6.2 to 8.0	7	5.9 to 7.8	--	--	--	7.0

Notes:
1. -- = indicates no data reported from that source.
2. ND = Non detect
3. mg/L = milligram per liter
4. SU = standard units
5. Geometric Mean = A geometric mean, unlike an arithmetic mean, tends to dampen the effect of very high or low values, which might bias the mean if a straight average (arithmetic mean) were calculated.
6. Sources:
   a. Walsh, P. and P. O'Leary, 2002. Landfilling Demolition and High Volume Industrial Wastes, *Waste Age*. pp. 68-74. October.
   b. National Association of Demolition Contractors. C&D Waste Landfills, Leachate Quality Data, Volume 1, Specific State by State Response. Prepared by Gersham, Brickner & Bratton, Inc., Falls Church, Virginia. February 18, 1994.
   c. Melendez, B.A., 1996. A study of Leachate Generated from Construction and Demolition Debris Landfills, 144 pp.
   d. EPA, 1995. Construction and Demolition Waste Landfills. Office of Solid Waste. Prepared by ICF Inc., Contract No. 68-W3-0008
   e. Townsend, T.G., et al., 2000. Continued Research into the Characteristics of Leachate from Construction and Demolition Waste Landfills. Florida Center for Solid and Hazardous Waste Management, Report No. 00-04. State University System of Florida. 62 pp.
   f. Golder Associates Inc., 2007. Private CDD Landfill, Virginia. Annual Leachate Sampling Results

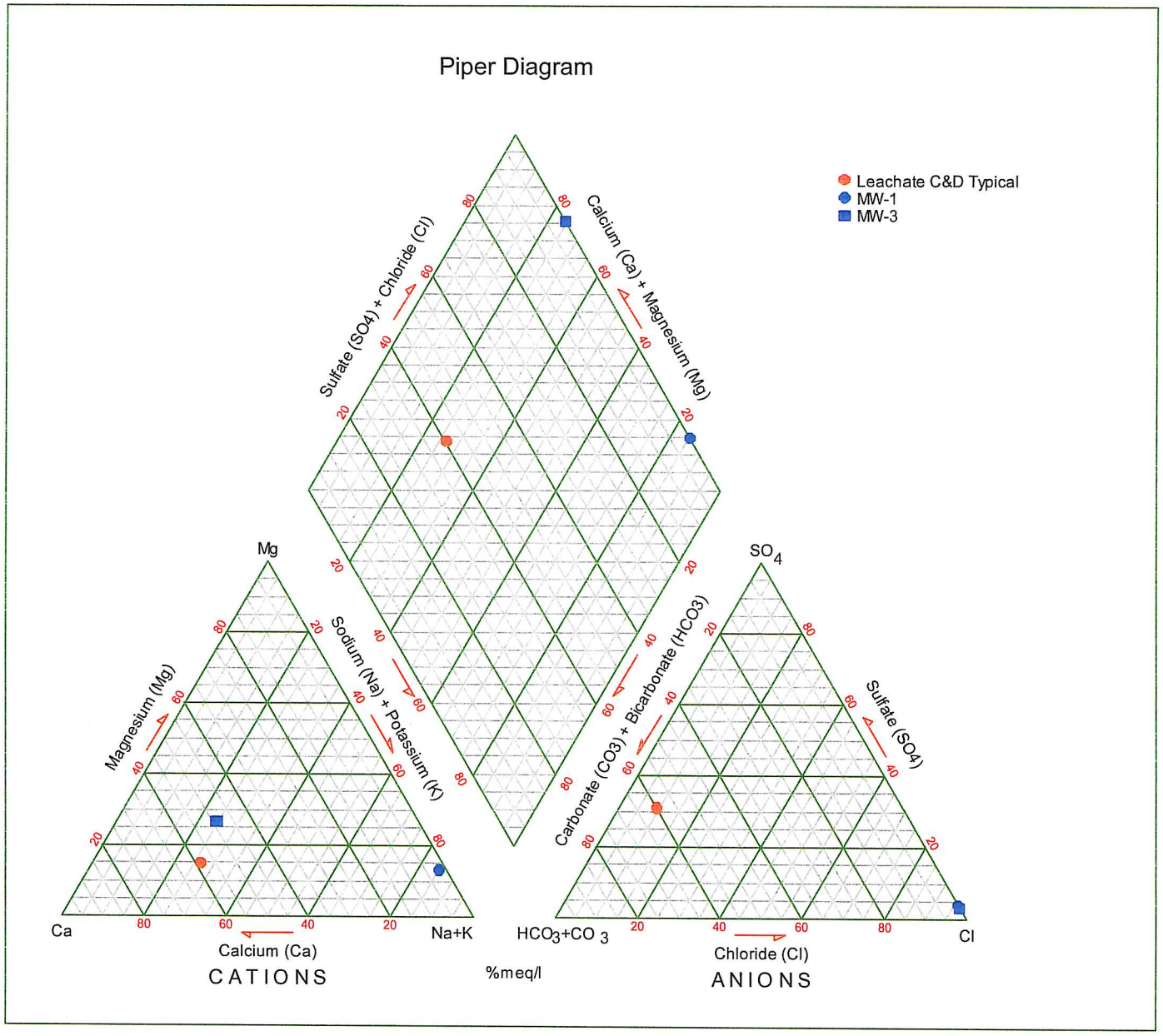
Table 3
Material Recovery, LLC
C&D Landfill

Leachate Mixing Model

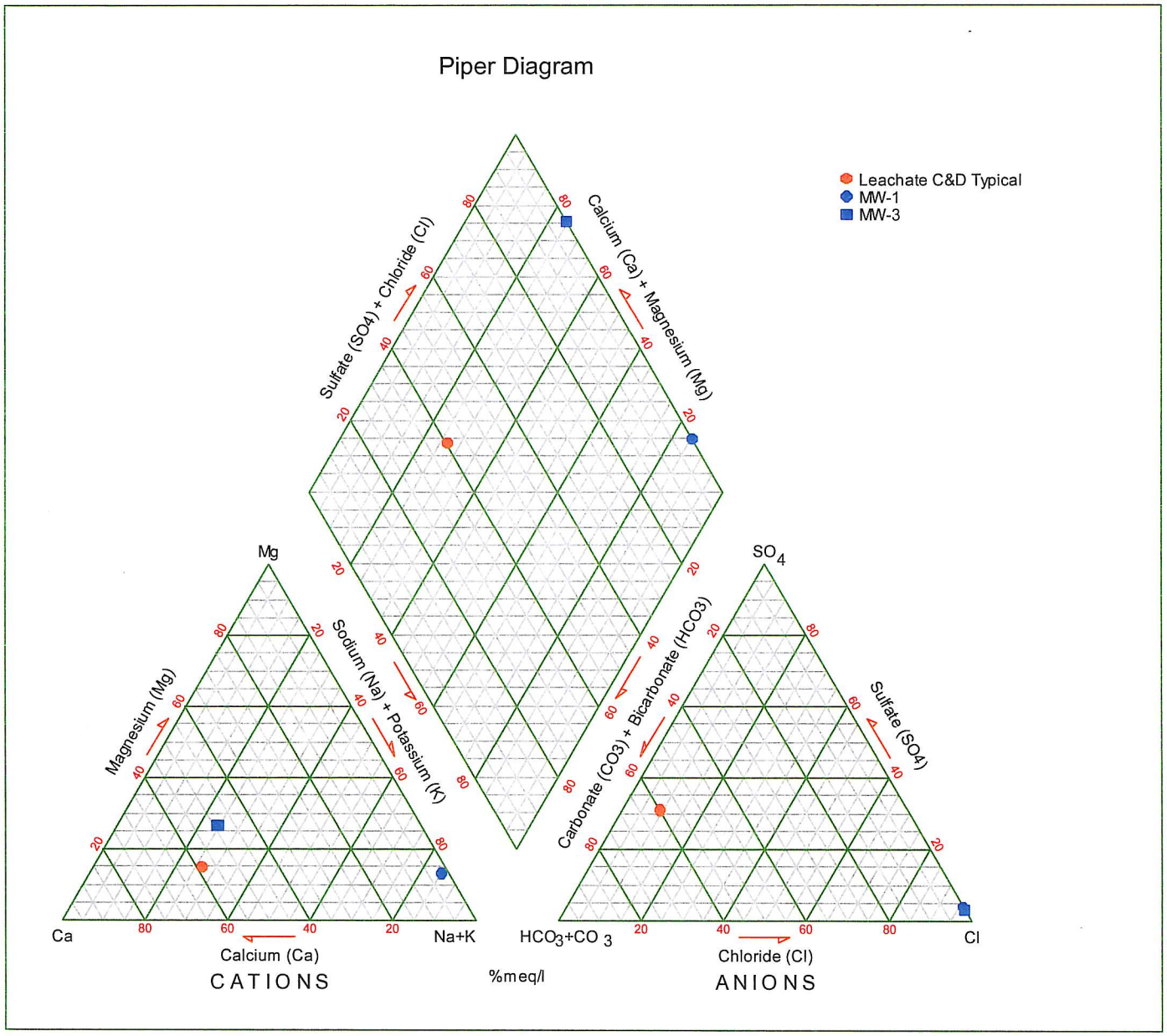
Parameter	Na	K	Ca	Mg	Cl	HCO_3	SO_4
Leachate C&D Typical	191.40	46.00	419.70	64.90	134.70	1492.20	608.50
MW-1	13.20	4.21	0.24	1.29	24.00	<5.00	1.40
1% Leachate	14.98	4.63	4.43	1.93	25.11	14.92	7.47
2% Leachate	16.76	5.05	8.63	2.56	26.21	29.84	13.54
3% Leachate	18.55	5.46	12.82	3.20	27.32	44.77	19.61
4% Leachate	20.33	5.88	17.02	3.83	28.43	59.69	25.68
5% Leachate	22.11	6.30	21.21	4.47	29.54	74.61	31.76
MW-3	28.40	13.00	63.20	20.80	39.00	<5.20	1.80
Optimized MW-3	23.89	6.72	25.41	5.11	30.64	89.53	37.83

Notes:
1. C&D = construction and demolition debris
2. % = percent
3. Parameters: Na=Sodium, K=potassium, Ca=calcium, Mg=magnesium, Cl=chloride, HCO_3=bicarbonate, SO_4=sulfate
4. All units in milligrams per liter (mg/L).
5. Optimized MW-3 based on a 6% leachate and 94% MW-1 groundwater mixing scenario.
6. HCO_3 = reported values for alkalinity used for Leachate and for MW-3
7. < = less than

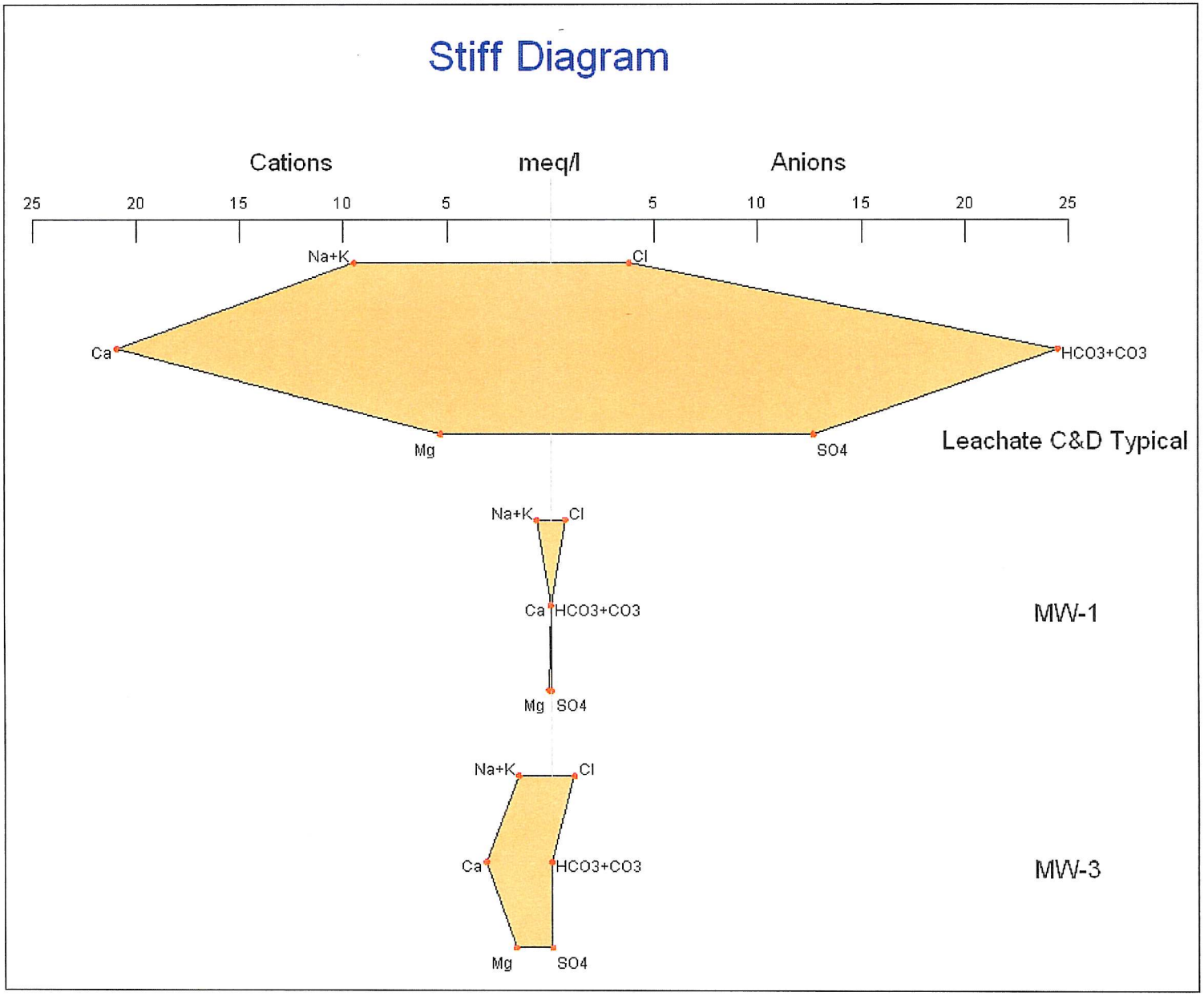
FIGURES



Golder Associates	DATE: 10-01-07	Title:	Figure No.
	Project #: 739602407	**PIPER DIAGRAM**	1
	Prepared By: CGP	Material Recovery, LLC	
	Reviewed By:	C&D Landfill	

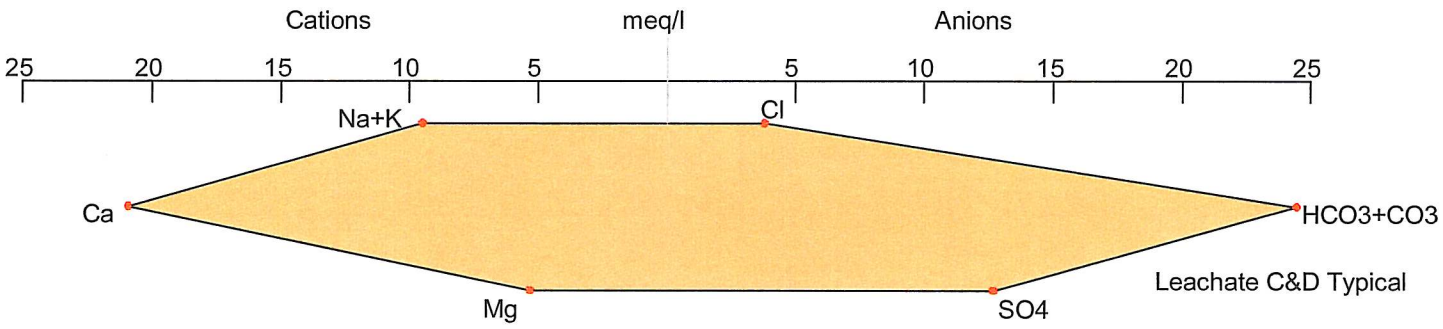


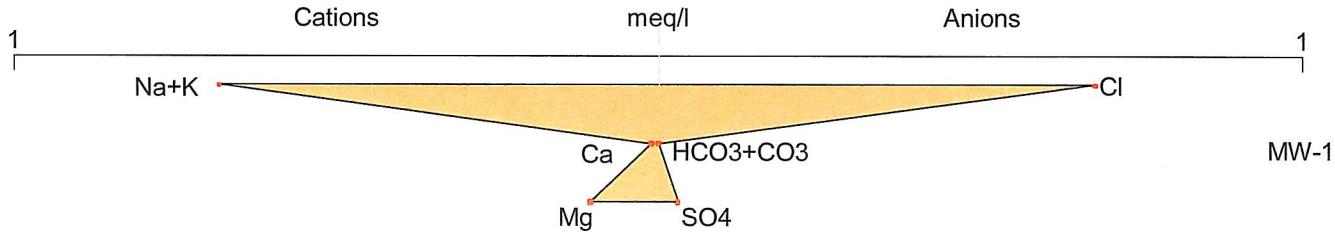
Golder Associates	DATE: 10-01-07 Project #: 739602407 Prepared By: CGP Reviewed By:	Title: **PIPER DIAGRAM** Material Recovery, LLC C&D Landfill	**Figure No.** **1**

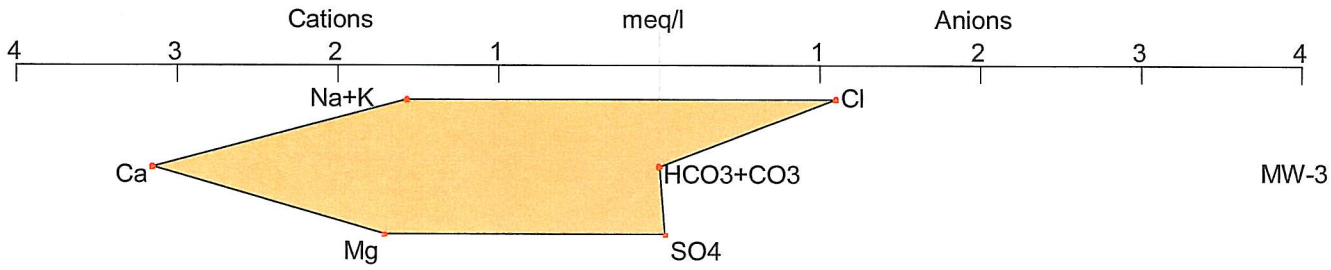


Golder Associates	DATE: 10/01/07 Project #: 739602407 Prepared By: CGP Reviewed By:	Title: **FIXED SCALE STIFF DIAGRAM** Material Recovery, LLC C&D Landfill	**Figure No.** **2**

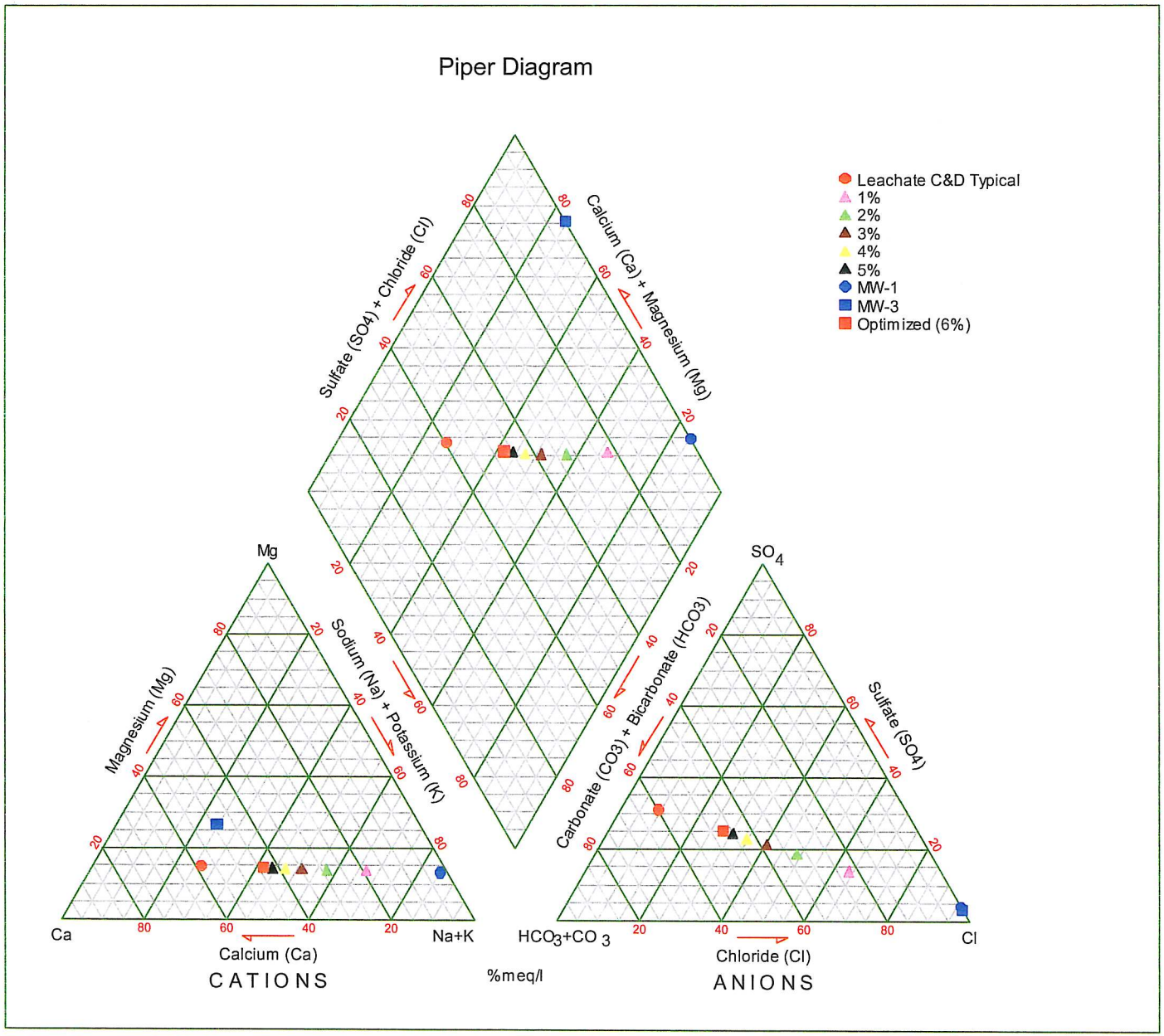
Stiff Diagrams
Sliding Scale





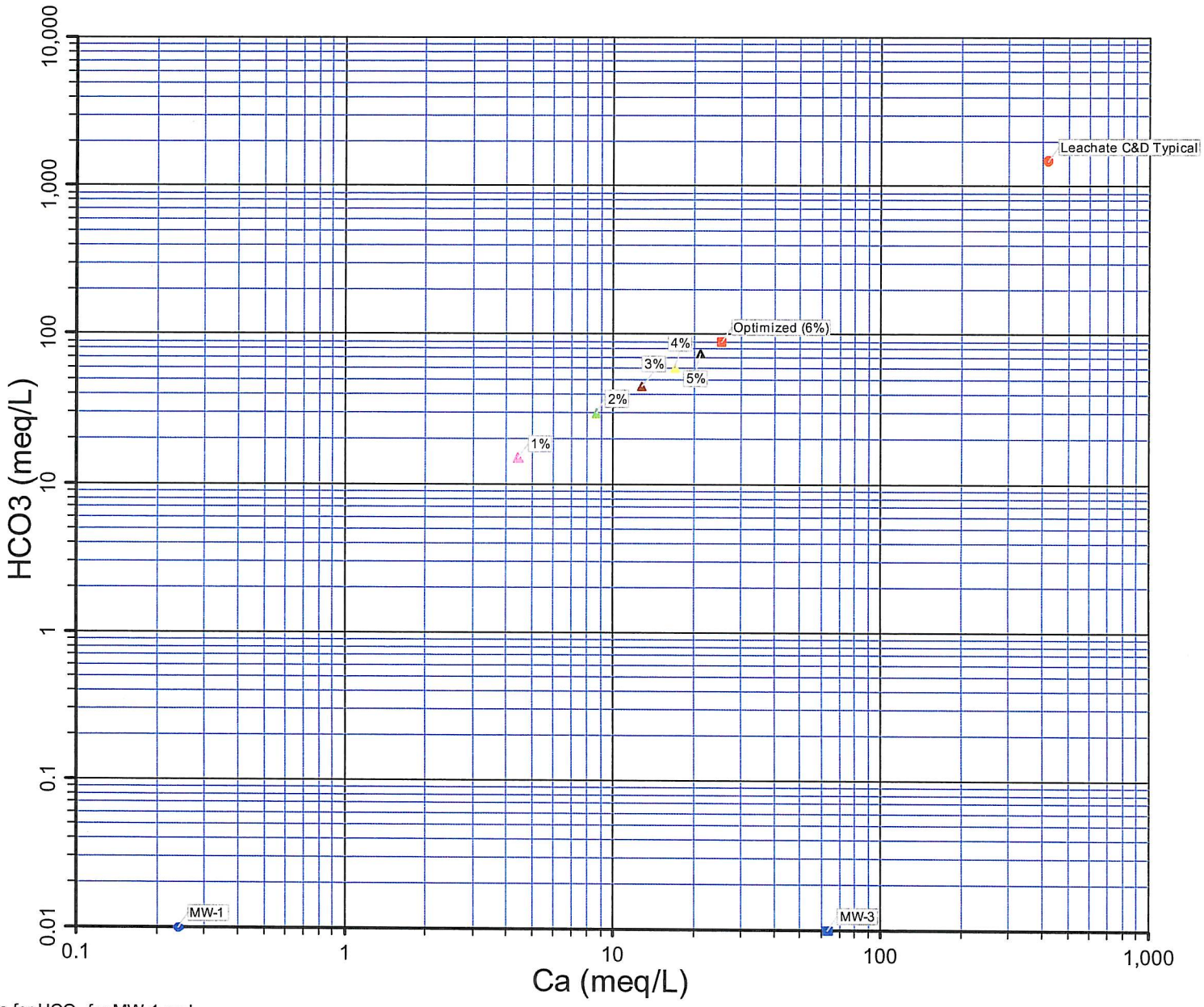


Golder Associates	DATE: 10/01/07 Project #: 739602407 Prepared By: CGP Reviewed By:	Title: **SLIDING SCALE STIFF DIAGRAMS** Material Recovery, LLC C&D Landfill	**Figure No.** **3**



Golder Associates	DATE: 10-01-07	Title:
	Project #: 739602407	**PIPER DIAGRAM WITH MODELED CONCENTRATIONS**
	Prepared By: CGP	Material Recovery, LLC
	Reviewed By:	C&D Landfill

Figure No. 4



Note: Concentrations for HCO_3 for MW-1 and MW-3 were non-detect in the analytical results. An arbitrary value of 0.01 meq/L was assigned to the data to allow representation on the log/log scatter plot.

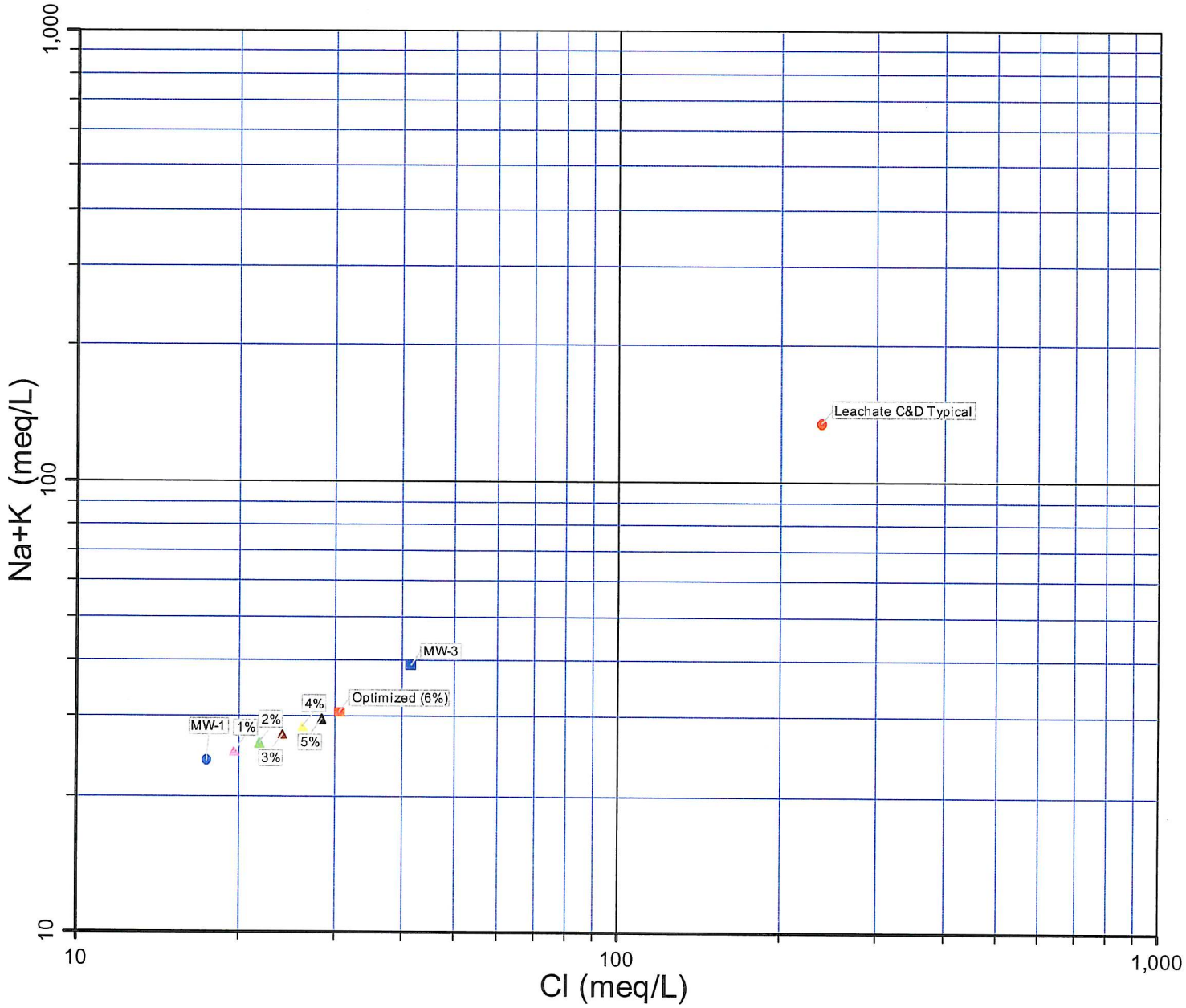
Golder Associates

DATE: 10-01-07	
Project #: 739602407	
Prepared By: CGP	
Reviewed By:	

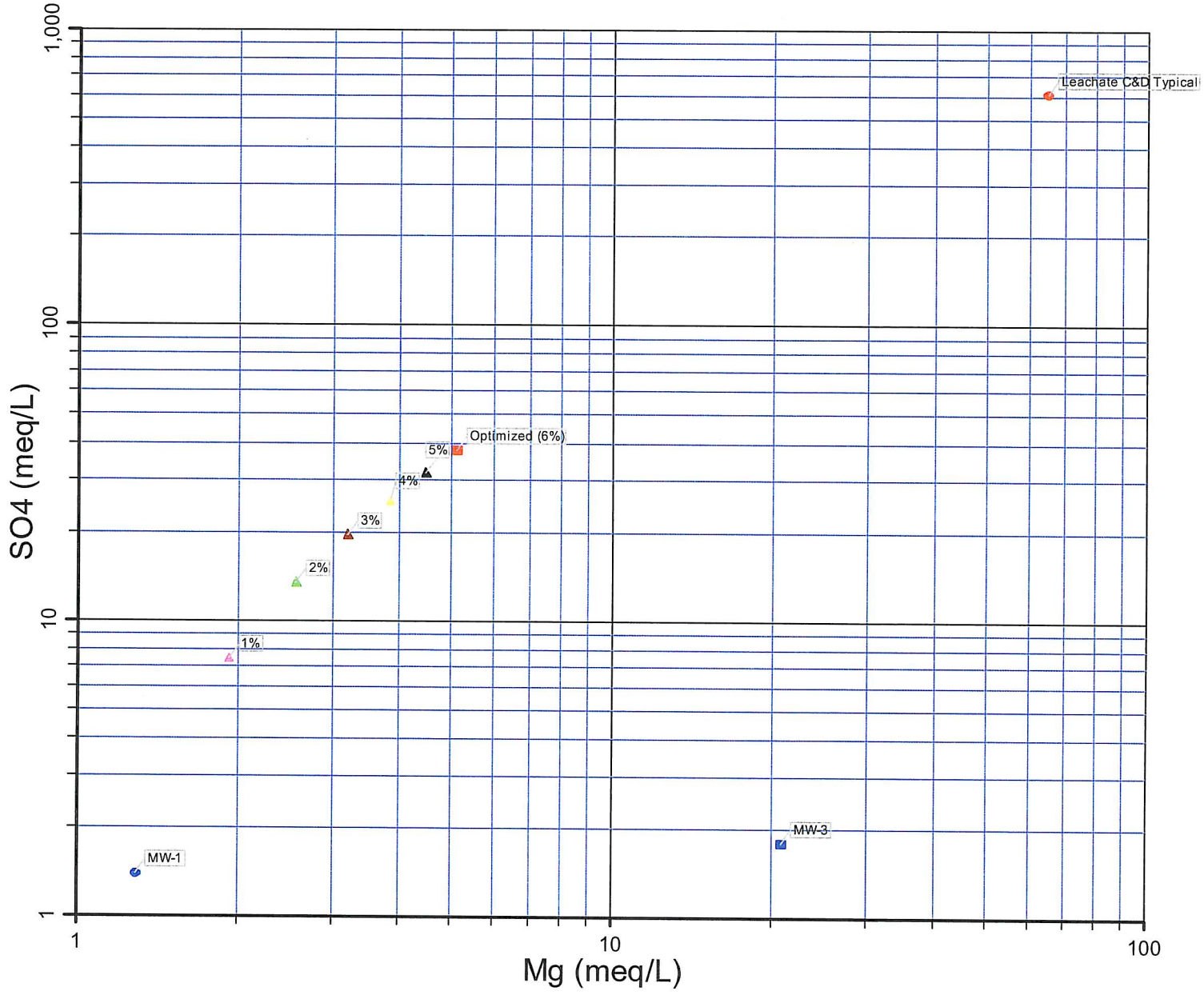
Title:

HCO_3 vs Ca SCATTER PLOT
Material Recovery, LLC
C&D Landfill

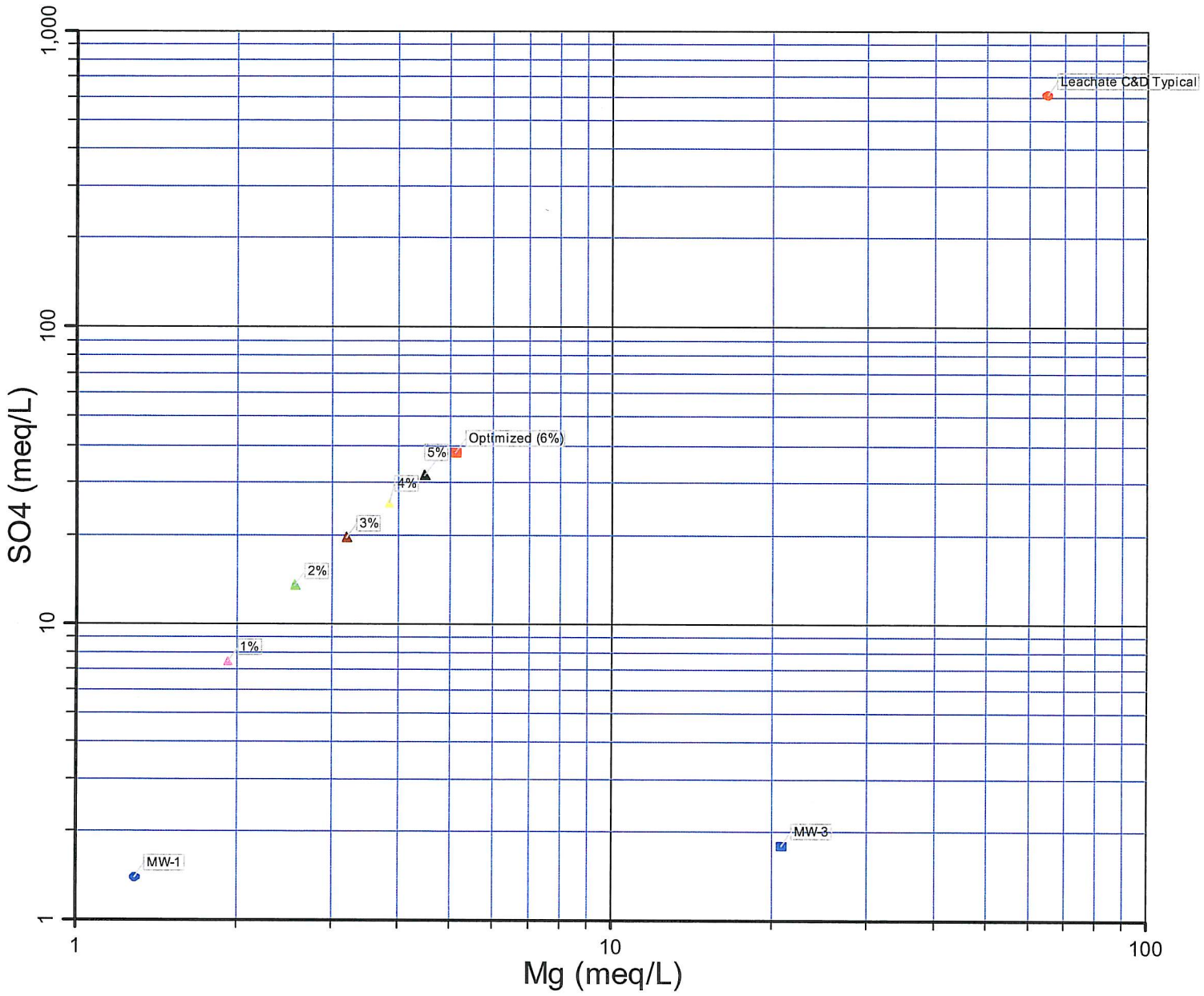
Figure No. 5



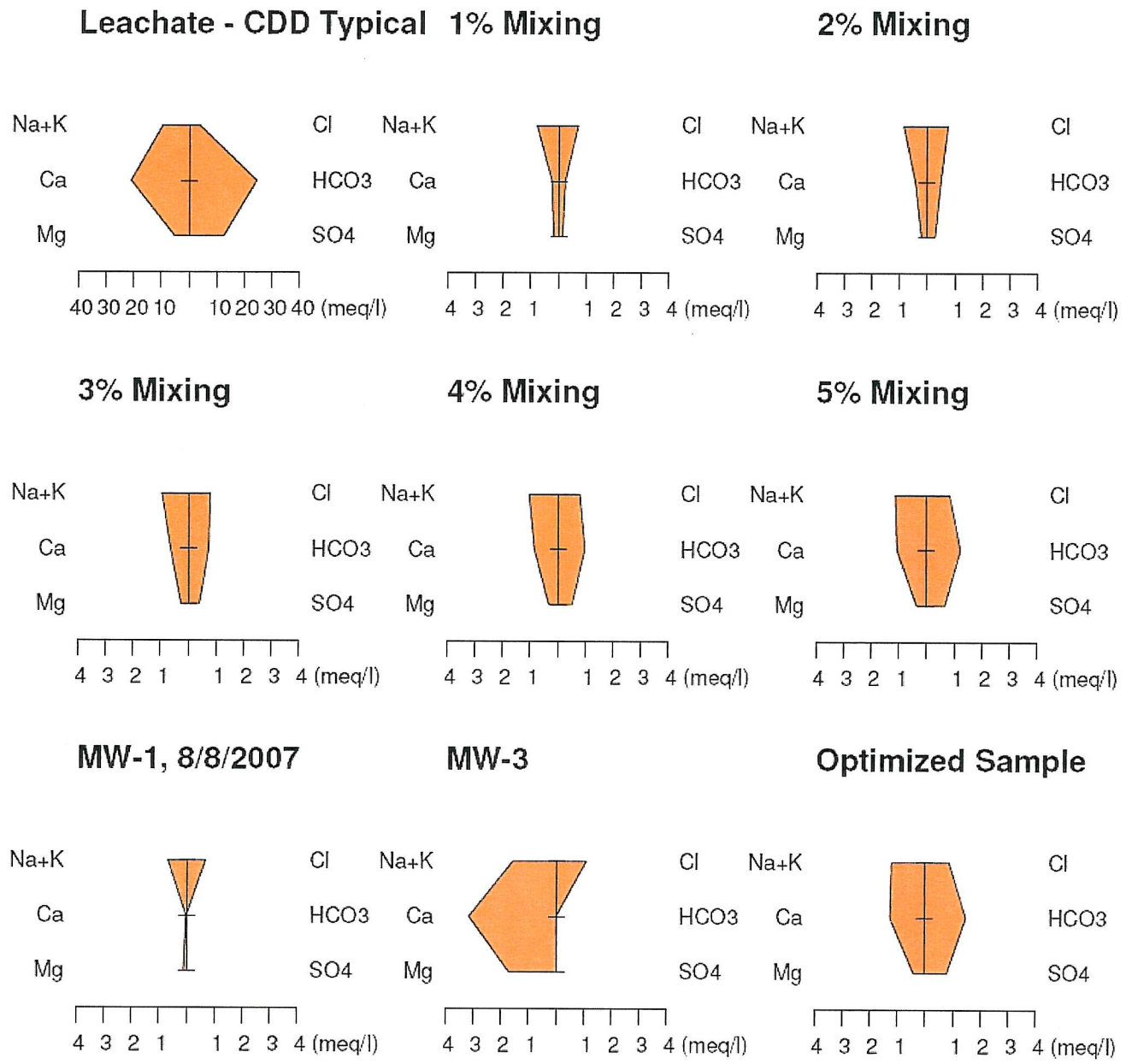
Golder Associates	DATE: 10-01-07	Title: **Na+K vs Cl SCATTER PLOT** Material Recovery, LLC C&D Landfill	**Figure No. 6**
	Project #: 739602407		
	Prepared By: CGP		
	Reviewed By:		



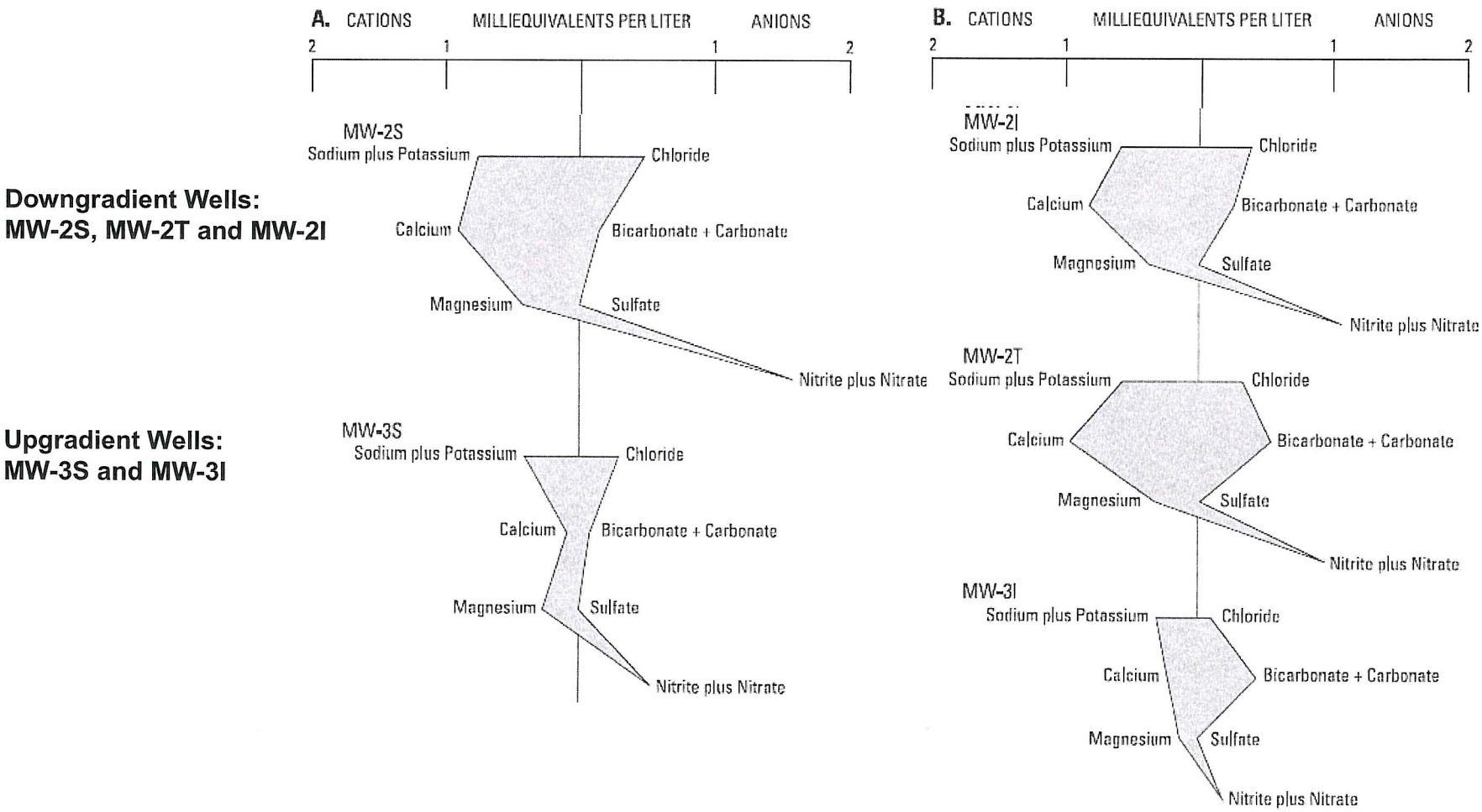
Golder Associates	DATE: 10-01-07	Title:	Figure No.
	Project #: 739602407	**SO_4 vs Mg SCATTER PLOT**	7
	Prepared By: CGP	Material Recovery, LLC	
	Reviewed By:	C&D Landfill	



Golder Associates	DATE: 10-01-07 Project #: 739602407 Prepared By: CGP Reviewed By:	Title: **SO_4 vs Mg SCATTER PLOT** Material Recovery, LLC C&D Landfill	**Figure No.** **7**



Golder Associates	DATE: 10-01-07 Project #: 739602407 Prepared By: CGP Reviewed By:	Title: **STIFF DIAGRAMS SHOWING GEOCHEMICAL FACIES UNDER VARYING MODELING SCENARIOS** Material Recovery, LLC C&D Landfill	**Figure No.** **8**



The Stiff diagrams shown in this figure are from a the Lake Wheeler Road Hydrogeologic Research Station, a collaborative project by the NCDENR and the USGS. The monitoring well MW-3S and MW-3I are approximately 600 feet upgradient from MW-2S, MW-2I and MW-2T. The increase in ion concentrations, particularly the cations are of similar magnitude as that observed in the Material Recovery, LLC landfill. Image modified from: Chapman, M.J., Bolich, R.E., and Huffman, B.A., 2005, Hydrogeologic setting, ground-water flow, and ground-water quality at the Lake Wheeler Road research station, 2001–03, North Carolina Piedmont and Mountains Resource Evaluation Program: U.S. Geological Survey Scientific Investigations Report 2005–5166, 85 p.

Golder Associates	DATE: 10-01-07 Project #: 739602407 Prepared By: CGP Reviewed By:	**Title:** **STIFF DIAGRAMS ILLUSTRATING VARYING ION CONCENTRATIONS**	**Client:** Material Recovery, LLC C&D Landfill	**Figure No. 9**

APPENDICES

APPENDIX A

Appendix A
Summary of Analytical Results

WELL ID #	COLLECT DATE	Matrix	PARAMETER	RESULT	UNITS	QUALIFIER
MW-1	08/09/2007	GW	Ammonia as N	0.035	mg/L	J
MW-1	08/09/2007	GW	Calcium	236	ug/L	
MW-1	08/09/2007	GW	Chloride	24	mg/L	
MW-1	08/09/2007	GW	Iron	364	ug/L	
MW-1	08/09/2007	GW	Magnesium	1290	ug/L	
MW-1	08/09/2007	GW	Nitrate as N	2.2	mg/L	J
MW-1	08/09/2007	GW	Nitrate/Nitrite as N	2.2	mg/L	B
MW-1	08/09/2007	GW	Potassium	4210	ug/L	
MW-1	08/09/2007	GW	Sodium	13200	ug/L	
MW-1	08/09/2007	GW	Sulfate	1.4	mg/L	J
MW-1	08/09/2007	GW	Total Dissolved Solids	82	mg/L	
MW-3	08/09/2007	GW	Ammonia as N	0.037	mg/L	J
MW-3	08/09/2007	GW	Calcium	63200	ug/L	
MW-3	08/09/2007	GW	Chloride	39	mg/L	
MW-3	08/09/2007	GW	Iron	2920	ug/L	
MW-3	08/09/2007	GW	Magnesium	20800	ug/L	
MW-3	08/09/2007	GW	Mercury	1.28	ug/L	
MW-3	08/09/2007	GW	Nitrate as N	2.3	mg/L	J
MW-3	08/09/2007	GW	Nitrate/Nitrite as N	2.3	mg/L	B
MW-3	08/09/2007	GW	Nitrite as N	0.0064	mg/L	J
MW-3	08/09/2007	GW	Potassium	13000	ug/L	
MW-3	08/09/2007	GW	Sodium	28400	ug/L	
MW-3	08/09/2007	GW	Sulfate	1.8	mg/L	J
MW-3	08/09/2007	GW	Total Dissolved Solids	620	mg/L	
MW-3	08/09/2007	GW	Trichlorofluoromethane	34	ug/L	
MW-3(Dup)	08/09/2007	GW	Trichlorofluoromethane	11	ug/L	
MW-3(Dup)	08/09/2007	GW	Mercury	1.3	ug/L	
MW-3	09/06/2007	GW	Trichlorofluoromethane	31	ug/L	
MW-3	09/06/2007	Air	Acetone	0.045	mg/m3	J
MW-3	09/06/2007	Air	Methylene Chloride	0.164	mg/m3	
MW-3	09/06/2007	Air	Toluene	0.007	mg/m3	J
MW-3	09/06/2007	Air	Trichlorofluoromethane	<0.006	mg/m3	

Notes:

1. GW = Groundwater
2. mg/L = milligram per liter
3. ug/L = micrograms per liter
4. mg/m3 = milligram per cubic meter
5. < = less than
6. Dup = Duplicate Sample
7. J = The reported value is between the laboratory method detection limit and the laboratory method reporting limit.
8. B = The analyte was detected in the associated method, field and or trip blanks.

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

www.encolabs.com

Monday, September 10, 2007

Golder Associates, Inc. (GO007)

Attn: Rachel Kirkman

The Wingate Building 4900 Koger Blvd., Suite 140

Greensboro, NC 27407

RECEIVED SEP 13 2007

RE: Laboratory Results for
Project Number: 0739602407.200, Project Name/Desc: Material Recovery, LLC, LF
ENCO Workorder: C711259

Dear Rachel Kirkman,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Friday, August 10, 2007.

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 28.

CASE NARRATIVE

Date: 10 September 2007
Client: Golder Associates
Project #: Material Recovery
Lab ID: C711259

Overview

This report is an amendment to the original report dated 29 August 2007 for this work order. This report was revised to include analyses not available when this report was originally generated.

All samples submitted were analyzed by Environmental Conservation Laboratories, Inc. in accordance with the methods referenced in the laboratory report. Any particular difficulties encountered during sample handling by Environmental Conservation Laboratories, Inc. will be discussed in the QC Remarks section below.

Quality Control Samples

The Method Blank for the Metals analysis showed contamination of Calcium and Iron. However, the Blank contamination is less than 10% of the analyte in question for the associated samples. This minimizes the impact on data quality.

The Method Blanks for the Nitrite, Ammonia and Nitrate/Nitrite (NOx) analyses all had slight contamination above the MDL but less than half of the MRL. Because of this, the impact on the data is negligible. The associated samples had detects of Nitrate/ Nitrite, but the detections are well over ten times the contamination in the Method Blank, minimizing the effect on the sample data.

Due to analyst error, the MS and MSD for the Chloride analysis were not spiked. Steps have been taken to prevent this in the future, and the Quality Assurance department has reviewed and approved all data for this analysis.

Quality Control Remarks

The Sulfide analysis was not performed within the EPA's recommended hold time due to laboratory oversight. The results are reported with the appropriate qualifier (Q-Flag).

Other Comments

All samples associated with this work order arrived in acceptable conditions. The samples were not checked for residual chlorine, as it is not required for ground water testing.

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.

Released By:
Environmental Conservation Laboratories, Inc.

Stephanie Franz
Project Manager

www.encolabs.com

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: 9231-MW-1 **Lab ID: C711259-01** **Sampled: 08/09/07 13:20** **Received: 08/10/07 10:15**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 160.1	08/16/07	08/13/07 07:45	8/15/2007 16:00
EPA 300.0	09/06/07	08/28/07 11:55	8/30/2007 11:37
EPA 310.2	08/23/07	08/15/07 09:10	8/15/2007 14:42
EPA 350.3	09/06/07	08/16/07 07:20	8/16/2007 13:54
EPA 353.2	08/11/07 13:20	08/10/07 22:50	8/11/2007 00:23
EPA 353.2	09/06/07	08/22/07 16:50	8/24/2007 13:52
EPA 353.2	09/06/07	08/30/07 17:10	8/30/2007 17:11
EPA 376.1	08/16/07	09/06/07 16:00	9/6/2007 16:50
EPA 6010B	02/05/08	08/13/07 10:02	8/15/2007 12:17
SM 4500 CO2/D	08/23/07	08/15/07 14:42	8/15/2007 14:42
SM4500-Cl/E	09/06/07	08/14/07 10:54	8/14/2007 12:35

Client ID: 9231-MW-3 **Lab ID: C711259-02** **Sampled: 08/09/07 11:48** **Received: 08/10/07 10:15**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 160.1	08/16/07	08/13/07 07:45	8/15/2007 16:00
EPA 300.0	09/06/07	08/28/07 11:55	8/30/2007 11:55
EPA 310.2	08/23/07	08/15/07 09:10	8/15/2007 14:43
EPA 350.3	09/06/07	08/16/07 07:20	8/16/2007 13:54
EPA 353.2	08/11/07 11:48	08/10/07 22:50	8/11/2007 00:24
EPA 353.2	09/06/07	08/22/07 13:58	8/24/2007 14:03
EPA 353.2	09/06/07	08/30/07 17:10	8/30/2007 17:11
EPA 376.1	08/16/07	09/06/07 16:00	9/6/2007 16:50
EPA 6010B	02/05/08	08/13/07 10:02	8/15/2007 12:49
EPA 7470A	09/06/07	08/20/07 09:45	8/21/2007 15:03
EPA 8260B	08/23/07	08/15/07 11:29	8/15/2007 20:05
SM4500-Cl/E	09/06/07	08/14/07 10:54	8/14/2007 12:37

Client ID: Field Blank **Lab ID: C711259-03** **Sampled: 08/09/07 13:45** **Received: 08/10/07 10:15**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 7470A	09/06/07	08/20/07 09:45	8/21/2007 15:05
EPA 8260B	08/23/07	08/15/07 11:29	8/15/2007 19:38

Client ID: Trip Blank **Lab ID: C711259-04** **Sampled: 08/09/07 00:00** **Received: 08/10/07 10:15**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	08/23/07	08/15/07 11:29	8/15/2007 19:11

www.encolabs.com

NORTH CAROLINA SWS SAMPLE DETECTION SUMMARY

Client ID: 9231-MW-1 **Lab ID: C711259-01**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Ammonia as N	0.035		1	0.030	0.10	NE	mg/L	EPA 350.3	
Calcium	236		1	7.0	100	NE	ug/L	EPA 6010B	
Chloride	24		1	2.0	5.0	NE	mg/L	SM4500-Cl/E	
Iron	364		1	20	50	300	ug/L	EPA 6010B	
Magnesium	1290		1	20	100	NE	ug/L	EPA 6010B	
Nitrate as N	2.2	J	1	0.0066	0.10	10	mg/L	EPA 353.2	
Nitrate/Nitrite as N	2.2		1	0.0066	0.10	NE	mg/L	EPA 353.2	B
Potassium	4210		1	50	500	NE	ug/L	EPA 6010B	
Sodium	13200		1	200	500	NE	ug/L	EPA 6010B	
Sulfate	1.4	J	1	0.03	2.0	250	mg/L	EPA 300.0	
Total Dissolved Solids	82		1	10	10	NE	mg/L	EPA 160.1	

Client ID: 9231-MW-3 **Lab ID: C711259-02**

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Ammonia as N	0.037		1	0.030	0.10	NE	mg/L	EPA 350.3	
Calcium	63200		1	7.0	100	NE	ug/L	EPA 6010B	
Chloride	39		1	2.0	5.0	NE	mg/L	SM4500-Cl/E	
Iron	2920		1	20	50	300	ug/L	EPA 6010B	
Magnesium	20800		1	20	100	NE	ug/L	EPA 6010B	
Mercury	1.28		1	0.11	0.20	0.2	ug/L	EPA 7470A	
Nitrate as N	2.3	J	1	0.0066	0.10	10	mg/L	EPA 353.2	
Nitrate/Nitrite as N	2.3		1	0.0066	0.10	NE	mg/L	EPA 353.2	B
Nitrite as N	0.0064		1	0.0059	0.10	NE	mg/L	EPA 353.2	
Potassium	13000		1	50	500	NE	ug/L	EPA 6010B	
Sodium	28400		1	200	500	NE	ug/L	EPA 6010B	
Sulfate	1.8	J	1	0.03	2.0	250	mg/L	EPA 300.0	
Total Dissolved Solids	620		1	10	10	NE	mg/L	EPA 160.1	
Trichlorofluoromethane	34		1	0.16	1.0	1	ug/L	EPA 8260B	

www.encolabs.com

ANALYTICAL RESULTS

Description: 9231-MW-1
Matrix: Water
Project: Material Recovery, LLC, LF

Lab Sample ID: C711259-01
Sampled: 08/09/07 13:20
Sampled By: Ben Draper

Received: 08/10/07 10:15
Work Order: C711259

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
Calcium [7440-70-2] *	**236**		ug/L	1	7.0	100	NE	EPA 6010B	08/15/07 12:17	JDH	
Iron [7439-89-6] *	**364**		ug/L	1	20	50	300	EPA 6010B	08/15/07 12:17	JDH	
Magnesium [7439-95-4] *	**1290**		ug/L	1	20	100	NE	EPA 6010B	08/15/07 12:17	JDH	
Potassium [7440-09-7] *	**4210**		ug/L	1	50	500	NE	EPA 6010B	08/15/07 12:17	JDH	
Sodium [7440-23-5] *	**13200**		ug/L	1	200	500	NE	EPA 6010B	08/15/07 12:17	JDH	

www.encolabs.com

Description: 9231-MW-1
Matrix: Water
Project: Material Recovery, LLC, LF

Lab Sample ID: C711259-01
Sampled: 08/09/07 13:20
Sampled By: Ben Draper

Received: 08/10/07 10:15
Work Order: C711259

Classical Chemistry Parameters

** - ENCO Cary certified analyte [NC 591]*

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Ammonia as N [NA] *	**0.035**		mg/L	1	0.030	0.10	NE	EPA 350.3	08/16/07 13:54	CKN	
Bicarbonate (as CaCO3) [71-52-3]	5	U	mg/L	1	5	15	NE	SM 4500 CO2/D	08/15/07 14:42	ALT	
Carbonate (as CaCO3) [NA]	5	U	mg/L	1	5	15	NE	SM 4500 CO2/D	08/15/07 14:42	ALT	
Chloride [16887-00-6] *	**24**		mg/L	1	2.0	5.0	NE	SM4500-Cl/E	08/14/07 12:35	MJF	
Nitrate as N [14797-55-8] *	**2.2**	J	mg/L	1	0.0066	0.10	10	EPA 353.2	08/30/07 17:11	ALT	
Nitrate/Nitrite as N [NA] *	**2.2**		mg/L	1	0.0066	0.10	NE	EPA 353.2	08/24/07 13:52	MJF	B
Nitrite as N [14797-65-0] *	0.0059	U	mg/L	1	0.0059	0.10	NE	EPA 353.2	08/11/07 00:23	RWH	
Total Alkalinity [NA] *	5.2	U	mg/L	1	5.2	15	NE	EPA 310.2	08/15/07 14:42	MJF	
Total Dissolved Solids [NA] *	**82**		mg/L	1	10	10	NE	EPA 160.1	08/15/07 16:00	JOC	

www.encolabs.com

Description: 9231-MW-1
Matrix: Water
Project: Material Recovery, LLC, LF

Lab Sample ID: C711259-01
Sampled: 08/09/07 13:20
Sampled By: Ben Draper

Received: 08/10/07 10:15
Work Order: C711259

Classical Chemistry Parameters

** - ENCO Orlando certified analyte [NC 424]*

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Sulfate [14808-79-8] *	**1.4**	J	mg/L	1	0.03	2.0	250	EPA 300.0	08/30/07 11:37	RSA	
Sulfide [18496-25-8] *	0.45	U	mg/L	1	0.45	1.0	1	EPA 376.1	09/06/07 16:50	AH	Q

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

www.encolabs.com

Description: 9231-MW-3
Matrix: Water
Project: Material Recovery, LLC, LF

Lab Sample ID: C711259-02
Sampled: 08/09/07 11:48
Sampled By: Ben Draper

Received: 08/10/07 10:15
Work Order: C711259

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
Trichlorofluoromethane [75-69-4] *	**34**		ug/L	1	0.16	1.0	1	EPA 8260B	08/15/07 20:05	jkg	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*45*	*1*	*50.0*	*89 %*	*53-138*	*7H15014*	*EPA 8260B*	*08/15/07 20:05*	*jkg*	
Dibromofluoromethane	*50*	*1*	*50.0*	*100 %*	*65-110*	*7H15014*	*EPA 8260B*	*08/15/07 20:05*	*jkg*	
Toluene-d8	*50*	*1*	*50.0*	*99 %*	*72-114*	*7H15014*	*EPA 8260B*	*08/15/07 20:05*	*jkg*	

www.encolabs.com

Description: 9231-MW-3
Matrix: Water
Project: Material Recovery, LLC, LF

Lab Sample ID: C711259-02
Sampled: 08/09/07 11:48
Sampled By: Ben Draper

Received: 08/10/07 10:15
Work Order: C711259

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
Calcium [7440-70-2] *	**63200**		ug/L	1	7.0	100	NE	EPA 6010B	08/15/07 12:49	JDH	
Iron [7439-89-6] *	**2920**		ug/L	1	20	50	300	EPA 6010B	08/15/07 12:49	JDH	
Magnesium [7439-95-4] *	**20800**		ug/L	1	20	100	NE	EPA 6010B	08/15/07 12:49	JDH	
Mercury [7439-97-6] *	**1.28**		ug/L	1	0.11	0.20	0.2	EPA 7470A	08/21/07 15:03	JDH	
Potassium [7440-09-7] *	**13000**		ug/L	1	50	500	NE	EPA 6010B	08/15/07 12:49	JDH	
Sodium [7440-23-5] *	**28400**		ug/L	1	200	500	NE	EPA 6010B	08/15/07 12:49	JDH	

www.encolabs.com

Description: 9231-MW-3
Matrix: Water
Project: Material Recovery, LLC, LF

Lab Sample ID: C711259-02
Sampled: 08/09/07 11:48
Sampled By: Ben Draper

Received: 08/10/07 10:15
Work Order: C711259

Classical Chemistry Parameters

** - ENCO Cary certified analyte [NC 591]*

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Ammonia as N [NA] *	**0.037**		mg/L	1	0.030	0.10	NE	EPA 350.3	08/16/07 13:54	CKN	
Chloride [16887-00-6] *	**39**		mg/L	1	2.0	5.0	NE	SM4500-Cl/E	08/14/07 12:37	MJF	
Nitrate as N [14797-55-8] *	**2.3**	J	mg/L	1	0.0066	0.10	10	EPA 353.2	08/30/07 17:11	ALT	
Nitrate/Nitrite as N [NA] *	**2.3**		mg/L	1	0.0066	0.10	NE	EPA 353.2	08/24/07 14:03	MJF	B
Nitrite as N [14797-65-0] *	**0.0064**		mg/L	1	0.0059	0.10	NE	EPA 353.2	08/11/07 00:24	RWH	
Total Alkalinity [NA] *	5.2	U	mg/L	1	5.2	15	NE	EPA 310.2	08/15/07 14:43	MJF	
Total Dissolved Solids [NA] *	**620**		mg/L	1	10	10	NE	EPA 160.1	08/15/07 16:00	JOC	

www.encolabs.com

Description: 9231-MW-3
Matrix: Water
Project: Material Recovery, LLC, LF

Lab Sample ID: C711259-02
Sampled: 08/09/07 11:48
Sampled By: Ben Draper

Received: 08/10/07 10:15
Work Order: C711259

Classical Chemistry Parameters

** - ENCO Orlando certified analyte [NC 424]*

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Sulfate [14808-79-8] *	**1.8**	J	mg/L	1	0.03	2.0	250	EPA 300.0	08/30/07 11:55	RSA	
Sulfide [18496-25-8] *	0.45	U	mg/L	1	0.45	1.0	1	EPA 376.1	09/06/07 16:50	AH	Q

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

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 7H15014 - EPA 5030B_MS

Blank (7H15014-BLK1) Prepared: 08/15/2007 11:29 Analyzed: 08/15/2007 13:12

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloromethane	0.18	U	1.0	ug/L							
Vinyl chloride	0.15	U	1.0	ug/L							
Bromomethane	0.21	U	1.0	ug/L							
Chloroethane	0.40	U	1.0	ug/L							
Trichlorofluoromethane	0.16	U	1.0	ug/L							
1,1-Dichloroethene	0.14	U	1.0	ug/L							
Acetone	0.90	U	5.0	ug/L							
Iodomethane	0.23	U	2.0	ug/L							
Carbon disulfide	0.12	U	5.0	ug/L							
Methylene chloride	0.088	U	1.0	ug/L							
Acrylonitrile	2.0	U	5.0	ug/L							
trans-1,2-Dichloroethene	0.10	U	1.0	ug/L							
1,1-Dichloroethane	0.090	U	1.0	ug/L							
Vinyl acetate	0.19	U	2.0	ug/L							
2-Butanone	0.56	U	5.0	ug/L							
cis-1,2-Dichloroethene	0.14	U	1.0	ug/L							
Bromochloromethane	0.19	U	1.0	ug/L							
Chloroform	0.16	U	1.0	ug/L							
1,1,1-Trichloroethane	0.24	U	1.0	ug/L							
Carbon tetrachloride	0.38	U	1.0	ug/L							
1,2-Dichloroethane	0.36	U	1.0	ug/L							
Benzene	0.12	U	1.0	ug/L							
Trichloroethene	0.23	U	1.0	ug/L							
1,2-Dichloropropane	0.18	U	1.0	ug/L							
Dibromomethane	0.14	U	1.0	ug/L							
Bromodichloromethane	0.19	U	0.40	ug/L							
cis-1,3-Dichloropropene	0.16	U	0.20	ug/L							
4-Methyl-2-pentanone	0.36	U	5.0	ug/L							
Toluene	0.15	U	1.0	ug/L							
trans-1,3-Dichloropropene	0.18	U	0.20	ug/L							
1,1,2-Trichloroethane	0.24	U	1.0	ug/L							
Tetrachloroethene	0.25	U	1.0	ug/L							
2-Hexanone	0.24	U	5.0	ug/L							
Dibromochloromethane	0.18	U	1.0	ug/L							
1,2-Dibromoethane	0.19	U	1.0	ug/L							
Chlorobenzene	0.16	U	1.0	ug/L							
1,1,1,2-Tetrachloroethane	0.16	U	1.0	ug/L							
Ethylbenzene	0.17	U	1.0	ug/L							
Styrene	0.12	U	1.0	ug/L							
Bromoform	0.36	U	1.0	ug/L							
1,1,2,2-Tetrachloroethane	0.27	U	1.0	ug/L							
1,2,3-Trichloropropane	0.32	U	1.0	ug/L							
trans-1,4-Dichloro-2-butene	0.60	U	1.0	ug/L							
1,4-Dichlorobenzene	0.15	U	1.0	ug/L							
1,2-Dichlorobenzene	0.17	U	1.0	ug/L							
1,2-Dibromo-3-chloropropane	0.19	U	1.0	ug/L							
Surrogate: Dibromofluoromethane	*51*			*ug/L*	*50.0*		*102*	*65-110*			
Surrogate: Toluene-d8	*51*			*ug/L*	*50.0*		*102*	*72-114*			

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 7H15014 - EPA 5030B_MS

Blank (7H15014-BLK1) Continued Prepared: 08/15/2007 11:29 Analyzed: 08/15/2007 13:12

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Surrogate: 4-Bromofluorobenzene	*43*			*ug/L*	*50.0*		*87*	*53-138*			

Blank (7H15014-BLK2) Prepared: 08/15/2007 11:29 Analyzed: 08/16/2007 00:32

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloromethane	0.18	U	1.0	ug/L							
Vinyl chloride	0.15	U	1.0	ug/L							
Bromomethane	0.21	U	1.0	ug/L							
Chloroethane	0.40	U	1.0	ug/L							
Trichlorofluoromethane	0.16	U	1.0	ug/L							
1,1-Dichloroethene	0.14	U	1.0	ug/L							
Acetone	0.90	U	5.0	ug/L							
Iodomethane	0.23	U	2.0	ug/L							
Carbon disulfide	0.12	U	5.0	ug/L							
Methylene chloride	0.088	U	1.0	ug/L							
Acrylonitrile	2.0	U	5.0	ug/L							
trans-1,2-Dichloroethene	0.10	U	1.0	ug/L							
1,1-Dichloroethane	0.090	U	1.0	ug/L							
Vinyl acetate	0.19	U	2.0	ug/L							
2-Butanone	0.56	U	5.0	ug/L							
cis-1,2-Dichloroethene	0.14	U	1.0	ug/L							
Bromochloromethane	0.19	U	1.0	ug/L							
Chloroform	0.16	U	1.0	ug/L							
1,1,1-Trichloroethane	0.24	U	1.0	ug/L							
Carbon tetrachloride	0.38	U	1.0	ug/L							
1,2-Dichloroethane	0.36	U	1.0	ug/L							
Benzene	0.12	U	1.0	ug/L							
Trichloroethene	0.23	U	1.0	ug/L							
1,2-Dichloropropane	0.18	U	1.0	ug/L							
Dibromomethane	0.14	U	1.0	ug/L							
Bromodichloromethane	0.19	U	0.40	ug/L							
cis-1,3-Dichloropropene	0.16	U	0.20	ug/L							
4-Methyl-2-pentanone	0.36	U	5.0	ug/L							
Toluene	0.15	U	1.0	ug/L							
trans-1,3-Dichloropropene	0.18	U	0.20	ug/L							
1,1,2-Trichloroethane	0.24	U	1.0	ug/L							
Tetrachloroethene	0.25	U	1.0	ug/L							
2-Hexanone	0.24	U	5.0	ug/L							
Dibromochloromethane	0.18	U	1.0	ug/L							
1,2-Dibromoethane	0.19	U	1.0	ug/L							
Chlorobenzene	0.16	U	1.0	ug/L							
1,1,1,2-Tetrachloroethane	0.16	U	1.0	ug/L							
Ethylbenzene	0.17	U	1.0	ug/L							
Styrene	0.12	U	1.0	ug/L							
Bromoform	0.36	U	1.0	ug/L							
1,1,2,2-Tetrachloroethane	0.27	U	1.0	ug/L							
1,2,3-Trichloropropane	0.32	U	1.0	ug/L							
trans-1,4-Dichloro-2-butene	0.60	U	1.0	ug/L							

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 7H15014 - EPA 5030B_MS

Blank (7H15014-BLK2) Continued Prepared: 08/15/2007 11:29 Analyzed: 08/16/2007 00:32

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,4-Dichlorobenzene	0.15	U	1.0	ug/L							
1,2-Dichlorobenzene	0.17	U	1.0	ug/L							
1,2-Dibromo-3-chloropropane	0.19	U	1.0	ug/L							
Surrogate: Dibromofluoromethane	*50*			*ug/L*	*50.0*		*101*	*65-110*			
Surrogate: Toluene-d8	*51*			*ug/L*	*50.0*		*103*	*72-114*			
Surrogate: 4-Bromofluorobenzene	*45*			*ug/L*	*50.0*		*90*	*53-138*			

LCS (7H15014-BS1) Prepared: 08/15/2007 11:29 Analyzed: 08/15/2007 13:39

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	14		1.0	ug/L	20.0		71	43-131			
Benzene	22		1.0	ug/L	20.0		109	73-127			
Trichloroethene	22		1.0	ug/L	20.0		109	76-128			
Toluene	19		1.0	ug/L	20.0		93	71-112			
Chlorobenzene	20		1.0	ug/L	20.0		99	75-114			

LCS (7H15014-BS2) Prepared: 08/15/2007 11:29 Analyzed: 08/16/2007 00:59

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	15		1.0	ug/L	20.0		76	43-131			
Benzene	22		1.0	ug/L	20.0		110	73-127			
Trichloroethene	23		1.0	ug/L	20.0		113	76-128			
Toluene	20		1.0	ug/L	20.0		98	71-112			
Chlorobenzene	21		1.0	ug/L	20.0		104	75-114			

Matrix Spike (7H15014-MS1) Prepared: 08/15/2007 11:29 Analyzed: 08/15/2007 14:05

Source: C711861-09

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	15		1.0	ug/L	20.0	0.14 U	77	43-131			
Benzene	22		1.0	ug/L	20.0	0.12 U	110	73-127			
Trichloroethene	22		1.0	ug/L	20.0	0.23 U	111	76-128			
Toluene	20		1.0	ug/L	20.0	0.15 U	98	71-112			
Chlorobenzene	21		1.0	ug/L	20.0	0.16 U	103	75-114			

Matrix Spike (7H15014-MS2) Prepared: 08/15/2007 11:29 Analyzed: 08/16/2007 01:25

Source: C711861-08

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	15		1.0	ug/L	20.0		76	43-131			
Benzene	24		1.0	ug/L	20.0		121	73-127			
Trichloroethene	23		1.0	ug/L	20.0		114	76-128			
Toluene	20		1.0	ug/L	20.0		99	71-112			
Chlorobenzene	21		1.0	ug/L	20.0		106	75-114			

Matrix Spike Dup (7H15014-MSD1) Prepared: 08/15/2007 11:29 Analyzed: 08/15/2007 14:33

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 7H15014 - EPA 5030B_MS

Matrix Spike Dup (7H15014-MSD1) Continued Prepared: 08/15/2007 11:29 Analyzed: 08/15/2007 14:33

Source: C711861-09

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	15		1.0	ug/L	20.0	0.14 U	75	43-131	3	16	
Benzene	23		1.0	ug/L	20.0	0.12 U	115	73-127	4	18	
Trichloroethene	22		1.0	ug/L	20.0	0.23 U	110	76-128	0.7	17	
Toluene	18		1.0	ug/L	20.0	0.15 U	89	71-112	10	23	
Chlorobenzene	19		1.0	ug/L	20.0	0.16 U	93	75-114	10	17	

Matrix Spike Dup (7H15014-MSD2) Prepared: 08/15/2007 11:29 Analyzed: 08/16/2007 01:52

Source: C711861-08

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	16		1.0	ug/L	20.0		78	43-131	3	16	
Benzene	22		1.0	ug/L	20.0		111	73-127	8	18	
Trichloroethene	22		1.0	ug/L	20.0		109	76-128	4	17	
Toluene	20		1.0	ug/L	20.0		100	71-112	1	23	
Chlorobenzene	21		1.0	ug/L	20.0		104	75-114	1	17	

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 7H13009 - EPA 3005A

Blank (7H13009-BLK1) Prepared: 08/13/2007 10:02 Analyzed: 08/15/2007 11:59

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	**16.1**	**J**	100	ug/L							QB-01
Iron	**23**	**J**	50	ug/L							QB-01
Magnesium	20	U	100	ug/L							

LCS (7H13009-BS1) Prepared: 08/13/2007 10:02 Analyzed: 08/16/2007 10:47

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	5.3		0.1	mg/L	5.00		107	81-111			
Iron	5		0.05	mg/L	5.00		108	84-133			
Magnesium	6		0.1	mg/L	5.00		113	81-117			
Potassium	25		0.5	mg/L	25.0		102	84-112			
Sodium	26		0.5	mg/L	25.0		103	81-120			

Matrix Spike (7H13009-MS1) Prepared: 08/13/2007 10:02 Analyzed: 08/15/2007 12:24

Source: C711259-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	5.8		0.1	mg/L	5.00	0.2	111	63-131			
Iron	6		0.05	mg/L	5.00	0.4	112	48-144			
Magnesium	7		0.1	mg/L	5.00	1	117	59-129			
Potassium	33		0.5	mg/L	25.0	4	114	53-121			
Sodium	42		0.5	mg/L	25.0	13	115	29-171			

QUALITY CONTROL

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 7H13009 - EPA 3005A

Matrix Spike Dup (7H13009-MSD1) Prepared: 08/13/2007 10:02 Analyzed: 08/15/2007 12:31

Source: C711259-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Calcium	5.5		0.1	mg/L	5.00	0.2	105	63-131	5	22	
Iron	6		0.05	mg/L	5.00	0.4	107	48-144	4	23	
Magnesium	7		0.1	mg/L	5.00	1	113	59-129	3	22	
Potassium	31		0.5	mg/L	25.0	4	108	53-121	4	20	
Sodium	41		0.5	mg/L	25.0	13	111	29-171	2	21	

Batch 7H20007 - EPA 7470A

Blank (7H20007-BLK1) Prepared: 08/20/2007 09:45 Analyzed: 08/21/2007 14:14

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	0.11	U	0.20	ug/L							

LCS (7H20007-BS1) Prepared: 08/20/2007 09:45 Analyzed: 08/21/2007 14:16

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.53		0.20	ug/L	5.00		111	87-123			

Matrix Spike (7H20007-MS1) Prepared: 08/20/2007 09:45 Analyzed: 08/21/2007 14:21

Source: C711545-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.95		0.20	ug/L	5.00	0.11 U	119	63-132			

Matrix Spike Dup (7H20007-MSD1) Prepared: 08/20/2007 09:45 Analyzed: 08/21/2007 14:24

Source: C711545-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.65		0.20	ug/L	5.00	0.11 U	113	63-132	5	10	

Post Spike (7H20007-PS1) Prepared: 08/20/2007 09:45 Analyzed: 08/21/2007 14:27

Source: C711545-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	4.99		0.20	ug/L	5.00	0.09	98	85-115			

Classical Chemistry Parameters - Quality Control

Batch 7H10033 - NO PREP

Blank (7H10033-BLK1) Prepared: 08/10/2007 22:50 Analyzed: 08/11/2007 00:21

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	**0.014**	**J**	0.10	mg/L							

LCS (7H10033-BS1) Prepared: 08/10/2007 22:50 Analyzed: 08/11/2007 00:22

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 7H10033 - NO PREP

LCS (7H10033-BS1) Continued Prepared: 08/10/2007 22:50 Analyzed: 08/11/2007 00:22

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	0.74		0.10	mg/L	0.750		99	80-120			

Matrix Spike (7H10033-MS1) Prepared: 08/10/2007 22:50 Analyzed: 08/11/2007 00:51
Source: C711259-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	0.78		0.10	mg/L	0.750	0.0064	103	80-120			

Matrix Spike Dup (7H10033-MSD1) Prepared: 08/10/2007 22:50 Analyzed: 08/11/2007 00:52
Source: C711259-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	0.76		0.10	mg/L	0.750	0.0064	101	80-120	2	25	

Batch 7H13005 - NO PREP

Blank (7H13005-BLK1) Prepared: 08/13/2007 07:45 Analyzed: 08/15/2007 16:00

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	10	U	10	mg/L							

LCS (7H13005-BS1) Prepared: 08/13/2007 07:45 Analyzed: 08/15/2007 16:00

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	310		10	mg/L	300		103	90-110			

Duplicate (7H13005-DUP1) Prepared: 08/13/2007 07:45 Analyzed: 08/15/2007 16:00
Source: C710700-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Dissolved Solids	150		10	mg/L		160			8	10	

Batch 7H14007 - NO PREP

Blank (7H14007-BLK1) Prepared: 08/14/2007 10:54 Analyzed: 08/14/2007 12:30

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	2.0	U	5.0	mg/L							

LCS (7H14007-BS1) Prepared: 08/14/2007 10:54 Analyzed: 08/14/2007 12:31

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	50		5.0	mg/L	50.0		99	80-120			

Matrix Spike (7H14007-MS1) Prepared: 08/14/2007 10:54 Analyzed: 08/14/2007 12:40
Source: C711882-02

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 7H14007 - NO PREP

Matrix Spike (7H14007-MS1) Continued Prepared: 08/14/2007 10:54 Analyzed: 08/14/2007 12:40

Source: C711882-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	65		5.0	mg/L	625	71	NR	80-120			

Matrix Spike Dup (7H14007-MSD1) Prepared: 08/14/2007 10:54 Analyzed: 08/14/2007 12:40

Source: C711882-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chloride	68		5.0	mg/L	625	71	NR	80-120	4	25	

Batch 7H15007 - NO PREP

Blank (7H15007-BLK1) Prepared: 08/15/2007 09:10 Analyzed: 08/15/2007 14:20

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Alkalinity	5.2	U	15	mg/L							

LCS (7H15007-BS1) Prepared: 08/15/2007 09:10 Analyzed: 08/15/2007 14:21

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Alkalinity	100		15	mg/L	100		101	80-120			

Matrix Spike (7H15007-MS1) Prepared: 08/15/2007 09:10 Analyzed: 08/15/2007 14:24

Source: C710700-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Alkalinity	140		15	mg/L	97.3	96	47	80-120			QM-07

Matrix Spike Dup (7H15007-MSD1) Prepared: 08/15/2007 09:10 Analyzed: 08/15/2007 14:25

Source: C710700-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Alkalinity	140		15	mg/L	97.3	96	41	80-120	4	25	QM-07

Batch 7H16002 - NO PREP

Blank (7H16002-BLK1) Prepared: 08/16/2007 07:20 Analyzed: 08/16/2007 13:54

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Ammonia as N	**0.047**	**J**	0.10	mg/L							

LCS (7H16002-BS1) Prepared: 08/16/2007 07:20 Analyzed: 08/16/2007 13:54

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Ammonia as N	48		0.10	mg/L	50.0		97	80-120			

Matrix Spike (7H16002-MS1) Prepared: 08/16/2007 07:20 Analyzed: 08/16/2007 13:54

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 7H16002 - NO PREP

Matrix Spike (7H16002-MS1) Continued Prepared: 08/16/2007 07:20 Analyzed: 08/16/2007 13:54

Source: C709157-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Ammonia as N	44		0.10	mg/L	50.0	0.12	87	80-120			

Matrix Spike Dup (7H16002-MSD1) Prepared: 08/16/2007 07:20 Analyzed: 08/16/2007 13:54

Source: C709157-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Ammonia as N	43		0.10	mg/L	50.0	0.12	86	80-120	1	25	

Batch 7H22025 - NO PREP

Blank (7H22025-BLK1) Prepared: 08/22/2007 13:58 Analyzed: 08/22/2007 20:32

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	**0.020**	**J**	0.10	mg/L							

LCS (7H22025-BS1) Prepared: 08/22/2007 13:58 Analyzed: 08/22/2007 20:34

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	1.3		0.10	mg/L	1.25		102	80-120			

Matrix Spike (7H22025-MS1) Prepared: 08/22/2007 13:58 Analyzed: 08/22/2007 21:20

Source: C712264-03

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	5.1		0.10	mg/L	1.25	3.6	118	80-120			

Matrix Spike Dup (7H22025-MSD1) Prepared: 08/22/2007 13:58 Analyzed: 08/22/2007 21:21

Source: C712264-03

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	4.9		0.10	mg/L	1.25	3.6	106	80-120	3	25	

Batch 7H22027 - NO PREP

Blank (7H22027-BLK1) Prepared: 08/22/2007 16:50 Analyzed: 08/22/2007 23:41

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	0.0066	U	0.10	mg/L							

LCS (7H22027-BS1) Prepared: 08/22/2007 16:50 Analyzed: 08/22/2007 23:43

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	1.2		0.10	mg/L	1.25		94	80-120			

Matrix Spike (7H22027-MS1) Prepared: 08/22/2007 16:50 Analyzed: 08/23/2007 00:24

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 7H22027 - NO PREP

Matrix Spike (7H22027-MS1) Continued Prepared: 08/22/2007 16:50 Analyzed: 08/23/2007 00:24

Source: C712270-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	4.4		0.10	mg/L	1.25	3.5	72	80-120			QM-02

Matrix Spike Dup (7H22027-MSD1) Prepared: 08/22/2007 16:50 Analyzed: 08/23/2007 00:26

Source: C712270-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	4.0		0.10	mg/L	1.25	3.5	40	80-120	10	25	QM-02

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 7H28005 - NA

Blank (7H28005-BLK1) Prepared: 08/28/2007 11:55 Analyzed: 08/30/2007 03:55

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	0.03	U	2.0	mg/L							

LCS (7H28005-BS1) Prepared: 08/28/2007 11:55 Analyzed: 08/30/2007 04:13

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	250		2.0	mg/L	250		100	90-115			

Matrix Spike (7H28005-MS1) Prepared: 08/28/2007 11:55 Analyzed: 08/30/2007 04:31

Source: A704726-05

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	250		2.0	mg/L	255	2.9	96	90-115			

Matrix Spike Dup (7H28005-MSD1) Prepared: 08/28/2007 11:55 Analyzed: 08/30/2007 04:49

Source: A704726-05

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate	250		2.0	mg/L	255	2.9	96	90-115	0.5	10	

Batch 7I06022 - NO PREP

Blank (7I06022-BLK1) Prepared: 09/06/2007 16:00 Analyzed: 09/06/2007 16:04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfide	0.45	U	1.0	mg/L							

LCS (7I06022-BS1) Prepared: 09/06/2007 16:00 Analyzed: 09/06/2007 16:04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfide	4.0		1.0	mg/L	4.01		101	84-106			

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 7I06022 - NO PREP

Matrix Spike (7I06022-MS1) Prepared: 09/06/2007 16:00 Analyzed: 09/06/2007 16:50

Source: A705038-03

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfide	3.7		1.0	mg/L	4.01	0.45 U	93	84-106			

Matrix Spike Dup (7I06022-MSD1) Prepared: 09/06/2007 16:00 Analyzed: 09/06/2007 16:50

Source: A705038-03

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfide	3.6		1.0	mg/L	4.01	0.45 U	91	84-106	2	10	

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.
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.
Q	Analysis performed outside of method - specified holding time.
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 is allowable under NELAC guidelines.
QM-02	The RPD and/or percent recovery for this QC spike sample cannot be accurately calculated due to the high concentration of analyte inherent in the sample.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.

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 211
Jacksonville, FL 32216-6069
(904) 296-3007 Fax (904) 296-6210

1015 Passport Way
Cary, NC 27513
(919) 677-1669 Fax (919) 677-9848

Page ____ of ____

Client Name: Golder Associates, Inc. (GO007)	Project Number: 0739602407.200
Address: The Wingate Building 4900 Koger Blvd., Suite 140	Project Name/Desc: Material Recovery, LLC
City/ST/Zip: Greensboro, NC 27407	PO # / Billing Info:
Tel: (336) 852-4903 / Fax: (336) 852-4904	Reporting Contact: Rachel Kirkman
Sampler(s) Name, Affiliation (Print): B. Draper	Billing Contact: Accounts Payable
Sampler(s) Signature:	Facility # (if required): 92-31

Requested Turnaround Times

Note: Rush requests subject to acceptance by the facility

✓ Standard

___ Expedited

Due ___/___/___

Lab Workorder: C711259

Requested Analyses / Preservation (See Codes) (Combine as necessary)

Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers	8260B Appendix 1	8260B Extended	Alkalinity 310.2, Nitrite as N 353.2, Sulfate 375.4, TDS 160.1	Ammonia 350.3, NOX 353.2	Bicarbonate SM 4500 CO2/D Carbonate SM 4500 CO2/D	Ca,Fe,Hg,K,Mg,Na	Ca,Fe,K,Mg,Na	Chloride SM4500-Cl/E	Hg	Nitrate Calc 353.2	Sample Comments
	9231-MW-1	8-9-2007	13:20	G	Water	7			X	X	X		X	X		X	Alkalinity (bicarb, carb) Chloride, TDS, SO4, S, Nitrate, Nitrite, Na
	9231-MW-3	8-9-2007	11:40	G	Water	10		X	X	X		X		X		X	Same + Trichlorofluoromethane + Mercury
	Field Blank	8-9-2007	13:45	G	Water	4		X							X		Trichlorofluoromethane, Hg
	Trip Blank	—	—	G	Water	2	X										NC App. I VOCs

<-- Total # of Containers

Sample Kit Prepared By: CARY	Date/Time: 8/3/07	Relinquished By:	Date/Time: 8-9-2007 / 17:00	Received By:	Date/Time:
Comments: 1. Please provide "Level 2" Data Report 2. Use Rates per "Basic Ordering Agreement for Laboratory Services" dated April 9, 2004 + 2007 ENCO Price List. 3. Estimated fee: $484		Relinquished By:	Date/Time:	Received By:	Date/Time:
		Relinquished By:	Date/Time:	Received By: JOHN LONTA	Date/Time: 8/10/07 1015
		Cooler #'s & Temps on Receipt: C-179 .9		Condition Upon Receipt: X Acceptable ___ Unacceptable	

Matrix: GW-Groundwater SO-Soil SE-Sediment SW-Surface Water WW-Wastewater A-Air O-Other (detail in comments)

Preservation: H-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.

LOA per Ben Draper

Approved By: ___

www.encolabs.com

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 211
Jacksonville, FL 32216-6069
(904) 296-3007 Fax (904) 296-6210

1015 Passport Way
Cary, NC 27513
(919) 677-1669 Fax (919) 677-9846

Page ____ of ____

Client Name: Golder Associates, Inc. (GO007)	Project Number: 0739602407.200
Address: The Wingate Building 4900 Koger Blvd., Suite 140	Project Name/Desc: Material Recovery, LLC
City/ST/Zip: Greensboro, NC 27407	PO # / Billing Info:
Tel: (336) 852-4903 / Fax: (336) 852-4904	Reporting Contact: Rachel Kirkman
Sampler(s) Name, Affiliation (Print): B. Draper	Billing Contact: Accounts Payable
Sampler(s) Signature:	Facility # (if required): 92-31

Requested Turnaround Times

Note : Rush requests subject to acceptance by the facility

✓ Standard

___ Expedited

Due ___/___/___

Lab Workorder: C711259

Requested Analyses / Preservation (See Codes) (Combine as necessary)

Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers	8260B Appendix 1	8260B Extended	Alkalinity 310.2,Nitrite as N 353.2, Sulfate 375.4,TDS 160.1	Ammonia 350.3,NOX 353.2	Bicarbonate SM 4500 CO2/D, Carbonate SM 4500 CO2/D	Ca,Fe,Hg,K,Mg,Na	Ca,Fe,K,Mg,Na	Chloride SM4500-Cl/E	Hg	Nitrate Calc 353.2	Sample Comments
	9231-MW-1	8-9-2007	13:20	G	Water	7			X	X	X		X	X		X	Alkalinity (bicARB, CARB) Chloride, TDS, SO4, S, Nitrate, Nitrite, Na, K, Ca, Mg, Fe
	9231-MW-3	8-9-2007	11:48	G	Water	8 ~~10~~ JWL		X	X	X		X		X		X	Same + Trichlorofluoromethane + Mercury
	Field Blank	8-9-2007	13:45	G	Water	4		X							X		Trichlorofluoromethane, Hg
	Trip Blank	—	—	G	Water	2	X										NC App. I VOCs

<-- Total # of Containers

Sample Kit Prepared By: CARY	Date/Time: 8/3/07	Relinquished By:	Date/Time: 8-9-2007 / 17:00	Received By:	Date/Time:
Comments: 1. Please provide "Level 2" Data Report 2. Unit Rates per "Basic Ordering Agreement for Laboratory Services" dated April 9, 2004 + 2007 ENCO Price List. 3. Estimated fee: $484		Relinquished By:	Date/Time:	Received By:	Date/Time:
		Relinquished By:	Date/Time:	Received By: JOHN LOWTON	Date/Time: 8/10/07 1015
		Cooler #'s & Temps on Receipt: C-179 .9		Condition Upon Receipt: X Acceptable ___ Unac	

Matrix : GW-Groundwater SO-Soil 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

LOA per Ben Draper

Approved By:

WORK ORDER

Printed: 9/10/2007 1:45:04PM

C711259

ENCO Cary

Sample Receipt Conditions

Client:	**Golder Associates, Inc. (GO007)**	**Lab Project Mgr:**	**Stephanie Franz**
Project:	**Material Recovery, LLC, LF**	**Project Number:**	**0739602407.200**
PO #:			

Report To:
Golder Associates, Inc. (GO007)
Rachel Kirkman
The Wingate Building 4900 Koger Blvd., Suite 140
Greensboro, NC 27407
Phone: (336) 852-4903
Fax: (336) 852-4904

Invoice To:
Golder Associates, Inc. (GO007)
Accounts Payable
The Wingate Building 4900 Koger Blvd., Suite 140
Greensboro, NC 27407
Phone :(804) 358-7900
Fax: 804-358-2900

Received By:	John W. Lowther	Date Received:	10-Aug-07 10:15
Logged In By:	Derek Williams	Date Logged In:	10-Aug-07 13:47

Work Order Comments:

Default Cooler received at 0.9°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

Reviewed By

Date

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

Project Name: Material Recovery, LLC Landfill

Project Reference Number: 0739602407.100

Sampling Event Date: 8/9/07

Review Date: 9-14-07 *Initials:* KYH

Review Date: 10-2-07 *Initials:* JAD

Report #: C711259

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

KH JD COC was properly signed by all parties.

KH JD Correct project name and number are on the form.

- ***The Project # on the COC is 0739602407.200 and it should be 0739602407.100***

KH JD Sample receipt condition at laboratory was acceptable.

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

Notes: _____

2.0 SAMPLE HOLDING TIMES

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

- ***The Holding time for analysis was not met for Sulfide Analysis EPA Method 376.1 for MW-1 and MW-3. (Hold Date 8/16/07, Analysis Date/Time 9/6/07 16:50)***

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

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

KH JD Laboratory blank is interference-free.

- ***Calcium @ 16.1 ug/L (J)***
- ***Iron @ 23 ug/L (J)***

For Calcium and Iron, 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 is allowable under NELAC guidelines.

- ***Nitrite as N @ 0.014 mg/L (J)***
- ***Nitrate/Nitrate as N @ 0.02 mg/L (J)***

- ***Ammonia as N @ 0.047 mg/L (J)***

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

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

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

- ***Due to an analyst error, the MS and MSD for the Chloride analysis were not spiked. The lab's QA department reviewed and approved all data for this analysis.***

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

- ***The percent recovery for the MS of Nitrate/Nitrite as N cannot be accurately calculated due to the high concentration of analyte inherent in the sample (flagged with QM-02).***
- ***The RPD and percent recovery for the MSD of Nitrate/Nitrite as N cannot be accurately calculated due to the high concentration of analyte inherent in the sample (flagged with QM-02).***
- ***The spike recovery was outside acceptance limits for the MS and MSD for Total Alkalinity. The batch was accepted based on acceptable LCS recovery (flagged with QM-07).***

Notes: _____

4.0 ANALYTE LISTS/METHODS

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

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

Notes: _____

5.0 DATA REPORTING

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

KH JD 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.

Lab Blank:

- ***Calcium @ 16.1 ug/L (J)***
- ***Iron @ 23 ug/L (J)***
- ***Nitrate as N @ 0.014 mg/L (J)***
- ***Nitrate/Nitrite as N @ 0.020 mg/L (J)***
- ***Ammonia as N @ 0.047 mg/L (J)***

No "B" flags are needed.

KH JD 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.

KH JD The report provides the reporting limit for each constituent.

KH JD 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.

KH JD 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.

The following constituents were reported above their respective SWSL and NC 2L.

- ***Iron in MW-1 and MW-3 at 364 ug/L and 2920 ug/L, respectively.***
- ***Mercury in MW-3 @ 1.28 ug/L.***

The following constitutent was reported above its respective SWSL.

- ***Trichlorofluoromethane in MW -3 @ 34 ug/L***

KH JD 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).

- ***Trichlorofluoromethane was detected outside of its historical range.***

KH JD Other report issues/Communications with laboratory/etc.:

Notes: _____

Environmental Conservation Laboratories, Inc.
4810 Executive Park Court, Suite 211
Jacksonville FL, 32216-6069
Phone: 904.296.3007 FAX: 904.296.6210

www.encolabs.com

Wednesday, August 29, 2007

Golder Associates, Inc. (GO007)

Attn: Rachel Kirkman

The Wingate Building 4900 Koger Blvd., Suite 140

Greensboro, NC 27407

RE: Laboratory Results for
Project Number: 073-9602407.200, Project Name/Desc: Wake Material Recovery
ENCO Workorder: B707163

Dear Rachel Kirkman,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Friday, August 10, 2007.

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 Jacksonville. 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,

Chris Tompkins

Project Manager

Enclosure(s)

The total number of pages in this report, including this page is 9.

CASE NARRATIVE

Date: August 11, 2007
Client: Golder Associates, Inc.
Project: Wake Material Recovery
Lab ID: B707163

Overview

All samples submitted were analyzed by Environmental Conservation Laboratories, Inc. in accordance with the methods referenced in the laboratory report. Any particular difficulties encountered during sample handling by Environmental Conservation Laboratories, Inc. will be discussed in the QC Remarks section below.

Quality Control Remarks

There were no quality control anomalies present.

Other Comments

Sample Receipt Conditions: The samples were recieved in appropriate condition. The samples were not checked for residual chlorine, as it is not required for ground water samples. Samples were not logged in from a prelog.

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. Should there be any questions regarding this package, please feel free to contact the undersigned for additional information.

Released By:
Environmental Conservation Laboratories, Inc.

Chris Tompkins
Project Manager

www.encolabs.com

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID:	MW-3 (Dup)	Lab ID:	B707163-01	Sampled:	08/08/07 11:48	Received:	08/10/07 09:30

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 7470A	09/05/07	08/17/07 05:01	8/17/2007 12:01
EPA 8260B	08/22/07	08/16/07 09:00	8/17/2007 00:03

www.encolabs.com

NORTH CAROLINA SWS SAMPLE DETECTION SUMMARY

Client ID: MW-3 (Dup) **Lab ID:** B707163-01

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Mercury	1.30		1	0.11	0.20	0.2	ug/L	EPA 7470A	
Trichlorofluoromethane	11		1	0.30	1.0	5	ug/L	EPA 8260B	HDSP

www.encolabs.com

ANALYTICAL RESULTS

Description: MW-3 (Dup)
Matrix: Water
Project: Wake Material Recovery

Lab Sample ID: B707163-01
Sampled: 08/08/07 11:48
Sampled By: Client

Received: 08/10/07 09:30
Work Order: B707163

Volatile Organic Compounds by GCMS

** - ENCO Jacksonville certified analyte [NC 442]*

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Trichlorofluoromethane [75-69-4] *	**11**		ug/L	1	0.30	1.0	5	EPA 8260B	08/17/07 00:03	ds	HDSP

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*53*	*1*	*50.0*	*106 %*	*60-130*	*7H17007*	*EPA 8260B*	*08/17/07 00:03*	*ds*	*HDSP*
Dibromofluoromethane	*53*	*1*	*50.0*	*107 %*	*66-131*	*7H17007*	*EPA 8260B*	*08/17/07 00:03*	*ds*	*HDSP*
Toluene-d8	*46*	*1*	*50.0*	*93 %*	*67-139*	*7H17007*	*EPA 8260B*	*08/17/07 00:03*	*ds*	*HDSP*

www.encolabs.com

Description: MW-3 (Dup)
Matrix: Water
Project: Wake Material Recovery

Lab Sample ID: B707163-01
Sampled: 08/08/07 11:48
Sampled By: Client

Received: 08/10/07 09:30
Work Order: B707163

Metals by EPA 6000/7000 Series Methods

** - ENCO Jacksonville certified analyte [NC 442]*

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Mercury [7439-97-6] *	**1.30**		ug/L	1	0.11	0.20	0.2	EPA 7470A	08/17/07 12:01	SMA	

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

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 7H17007 - EPA 5030B_MS

Blank (7H17007-BLK1) Prepared: 08/16/2007 09:00 Analyzed: 08/16/2007 16:35

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Trichlorofluoromethane	0.30	U	1.0	ug/L							
Surrogate: Dibromofluoromethane	*48*			*ug/L*	*50.0*		*95*	*66-131*			
Surrogate: Toluene-d8	*44*			*ug/L*	*50.0*		*89*	*67-139*			
Surrogate: 4-Bromofluorobenzene	*50*			*ug/L*	*50.0*		*100*	*60-130*			

Blank (7H17007-BLK2) Prepared: 08/16/2007 09:00 Analyzed: 08/17/2007 05:21

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Trichlorofluoromethane	0.30	U	1.0	ug/L							
Surrogate: Dibromofluoromethane	*46*			*ug/L*	*50.0*		*92*	*66-131*			
Surrogate: Toluene-d8	*45*			*ug/L*	*50.0*		*89*	*67-139*			
Surrogate: 4-Bromofluorobenzene	*49*			*ug/L*	*50.0*		*99*	*60-130*			

LCS (7H17007-BS1) Prepared: 08/16/2007 09:00 Analyzed: 08/16/2007 17:07

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		105	70-130			
Benzene	19		1.0	ug/L	20.0		96	80-120			
Trichloroethene	18		1.0	ug/L	20.0		92	70-125			
Toluene	19		1.0	ug/L	20.0		97	75-120			
Chlorobenzene	21		1.0	ug/L	20.0		106	80-120			

Matrix Spike (7H17007-MS1) Prepared: 08/16/2007 09:00 Analyzed: 08/16/2007 17:41

Source: B707130-06

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	0.20 U	110	70-130			
Benzene	21		1.0	ug/L	20.0	0.20 U	103	80-120			
Trichloroethene	20		1.0	ug/L	20.0	0.30 U	99	70-125			
Toluene	21		1.0	ug/L	20.0	0.20 U	104	75-120			
Chlorobenzene	22		1.0	ug/L	20.0	0.20 U	111	80-120			

Matrix Spike Dup (7H17007-MSD1) Prepared: 08/16/2007 09:00 Analyzed: 08/16/2007 18:12

Source: B707130-06

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	24		1.0	ug/L	20.0	0.20 U	118	70-130	7	26	
Benzene	21		1.0	ug/L	20.0	0.20 U	105	80-120	1	22	
Trichloroethene	20		1.0	ug/L	20.0	0.30 U	102	70-125	3	24	
Toluene	21		1.0	ug/L	20.0	0.20 U	106	75-120	1	24	
Chlorobenzene	24		1.0	ug/L	20.0	0.20 U	118	80-120	6	11	

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 7H17001 - EPA 7470A

Blank (7H17001-BLK1) Prepared: 08/17/2007 05:01 Analyzed: 08/17/2007 11:17

QUALITY CONTROL

Metals by EPA 6000/7000 Series Methods - Quality Control

Batch 7H17001 - EPA 7470A

Blank (7H17001-BLK1) Continued Prepared: 08/17/2007 05:01 Analyzed: 08/17/2007 11:17

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	0.11	U	0.20	ug/L							

LCS (7H17001-BS1) Prepared: 08/17/2007 05:01 Analyzed: 08/17/2007 11:19

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	5.37		0.20	ug/L	5.00		107	85-115			

Matrix Spike (7H17001-MS1) Prepared: 08/17/2007 05:01 Analyzed: 08/17/2007 11:21

Source: B707196-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	56.6		2.00	ug/L	50.0	1.10 U	113	75-125			

Matrix Spike Dup (7H17001-MSD1) Prepared: 08/17/2007 05:01 Analyzed: 08/17/2007 11:24

Source: B707196-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Mercury	56.4		2.00	ug/L	50.0	1.10 U	113	75-125	0.4	20	

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.
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.
HDSP	Sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).

QSARF #_____

ENVIRONMENTAL CONSERVATION LABORATORIES

4810 Executive Park Court, Suite 211
Jacksonville, Florida 32216-6069
Ph. (904) 296-3007 • Fax (904) 296-6210

10207 General Drive
Orlando, Florida 32824-8529
Ph. (407) 826-5314 • Fax (407) 850-6945

1015 Passport Way
Cary, North Carolina 27513
Ph. (919) 677-1669 • Fax (919) 677-9846

ENCO CompQAP No.: 960038G/0

CHAIN OF CUSTODY RECORD

PROJECT REFERENCE	PROJECT NO.	P.O. NUMBER
WCA - Wake Material Recovery	073-9602407.200	

PROJECT LOC. (State)	SAMPLER(s) NAME	PHONE / FAX
NC	B. Drayton	PHONE (336) 852-4903 FAX (336) 852-4904

CLIENT NAME	CLIENT PROJECT MANAGER
[signature]	R. Kirkman

CLIENT ADDRESS (CITY, STATE, ZIP): 4500 Koger Blvd, Suite 140, Greensboro, NC 27407

PAGE 1 OF 1

☑ STANDARD REPORT DELIVERY

☐ EXPEDITED REPORT DELIVERY (surcharge)

Date Due:_____

STATION	SAMPLE DATE	SAMPLE TIME	GRAB	COMP	SAMPLE IDENTIFICATION	SURFACE WATER	GROUND WATER	WASTEWATER	DRINKING WATER	SOIL/SOLID/SEDIMENT	NONAQUEOUS LIQUID (oil, solvent, etc.)	AIR	SLUDGE	OTHER	Trichlorofluoromethane	Hg							REMARKS
						PRESERVATIVE																	
						NUMBER OF CONTAINERS SUBMITTED																	
1	8-9-2007	11:48	G		MW-3(DUP)										X	X							Trichlorofluoromethane, Hg
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							
11																							
12																							
13																							
14																							

SAMPLE KIT PREPARED BY: ☐JACKSONVILLE ☐ORLANDO	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME
			[signature]	8-9-2007	17:00			
RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME
RECEIVED BY (SIGNATURE)	DATE	TIME	RELINQUISHED BY: (SIGNATURE)	DATE	TIME	RECEIVED BY: (SIGNATURE)	DATE	TIME

RECEIVED FOR LABORATORY BY: (SIGNATURE)	DATE	TIME	CUSTODY INTACT	ENCO LOG NO.	REMARKS
[signature] ☐ Jacksonville ☐ Orlando	8/10/07	930	☒ YES ☐ NO	B707163	1. Please provide "Level 2" Data Reports 2. Unit Rates per "Basic Ordering Agreement for Laboratory Services" dated April 9, 2004 [illegible] Price List

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

Project Name: Material Recovery, LLC Landfill

Project Reference Number: 0739602407.100

Sampling Event Date: 9/6/07

Review Date: 10/9/07 *Initials:* JD

Report #: B707163

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)

__ NC C & D List (New Rules)

___ NC Appendix I

___ NC Appendix I + Detects

___ NC Appendix II

___ NC Subtitle D Leachate List

Other: EPA Method 8260B for trichlorofluoromethane and EPA method 7470A for mercury

1.0 CHAIN OF CUSTODY (COC) REVIEW

JD COC was properly signed by all parties.

JD Correct project name and number are on the form.

- ***The Project # on the COC is 0739602407.200 and it should be 0739602407.100***

JD Sample receipt condition at laboratory was acceptable.

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

Notes: _____

2.0 SAMPLE HOLDING TIMES

JD 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

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

JD Laboratory blank is interference-free.

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

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

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

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

Notes: _____

4.0 ANALYTE LISTS/METHODS

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

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

Notes: _____

5.0 DATA REPORTING

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

JD 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.

JD 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.

JD The report provides the reporting limit for each constituent.

JD 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.

JD 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.

JD 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).

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

Notes: _____

Environmental Conservation Laboratories, Inc.
4810 Executive Park Court, Suite 211
Jacksonville FL, 32216-6069
Phone: 904.296.3007 FAX: 904.296.6210

www.encolabs.com

Monday, September 17, 2007

Golder Associates, Inc. (GO007)

Attn: Rachel Kirkman

The Wingate Building 4900 Koger Blvd., Suite 140

Greensboro, NC 27407

RE: Laboratory Results for
Project Number: 0739602407.100, Project Name/Desc: Material Recovery, LLC
ENCO Workorder: B708018

Dear Rachel Kirkman,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Saturday, September 8, 2007.

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 Jacksonville. 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,

Lorraine Strong For Chris Tompkins

Project Manager

Enclosure(s)

The total number of pages in this report, including this page is 9.

www.encolabs.com

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID:	9231-MW-3	Lab ID:	B708018-01	Sampled:	09/06/07 14:30	Received:	09/08/07 09:00

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	09/20/07	09/12/07 09:00	9/13/2007 01:58

Client ID:	Field Blank	Lab ID:	B708018-02	Sampled:	09/06/07 14:55	Received:	09/08/07 09:00

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	09/20/07	09/12/07 09:00	9/13/2007 02:29

Client ID:	TRIP BLANK	Lab ID:	B708018-03	Sampled:	09/07/07 00:00	Received:	09/08/07 09:00

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	09/21/07	09/12/07 09:00	9/12/2007 17:31

www.encolabs.com

NORTH CAROLINA SWS SAMPLE DETECTION SUMMARY

Client ID: 9231-MW-3 **Lab ID:** B708018-01

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
Trichlorofluoromethane	31		1	0.30	1.0	1	ug/L	EPA 8260B	

www.encolabs.com

ANALYTICAL RESULTS

Description: 9231-MW-3
Matrix: Water
Project: Material Recovery, LLC

Lab Sample ID: B708018-01
Sampled: 09/06/07 14:30
Sampled By: Ben Draper

Received: 09/08/07 09:00
Work Order: B708018

Volatile Organic Compounds by GCMS

** - ENCO Jacksonville certified analyte [NC 442]*

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Trichlorofluoromethane [75-69-4] *	**31**		ug/L	1	0.30	1.0	1	EPA 8260B	09/13/07 01:58	ds	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*49*	*1*	*50.0*	*99 %*	*60-130*	*7I13014*	*EPA 8260B*	*09/13/07 01:58*	*ds*	
Dibromofluoromethane	*50*	*1*	*50.0*	*100 %*	*66-131*	*7I13014*	*EPA 8260B*	*09/13/07 01:58*	*ds*	
Toluene-d8	*48*	*1*	*50.0*	*96 %*	*67-139*	*7I13014*	*EPA 8260B*	*09/13/07 01:58*	*ds*	

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

www.encolabs.com

Description: Field Blank
Matrix: Water
Project: Material Recovery, LLC

Lab Sample ID: B708018-02
Sampled: 09/06/07 14:55
Sampled By: Ben Draper

Received: 09/08/07 09:00
Work Order: B708018

Volatile Organic Compounds by GCMS

** - ENCO Jacksonville certified analyte [NC 442]*

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Trichlorofluoromethane [75-69-4] *	0.30	U	ug/L	1	0.30	1.0	1	EPA 8260B	09/13/07 02:29	ds	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*49*	*1*	*50.0*	*97 %*	*60-130*	*7I13014*	*EPA 8260B*	*09/13/07 02:29*	*ds*	
Dibromofluoromethane	*49*	*1*	*50.0*	*99 %*	*66-131*	*7I13014*	*EPA 8260B*	*09/13/07 02:29*	*ds*	
Toluene-d8	*49*	*1*	*50.0*	*97 %*	*67-139*	*7I13014*	*EPA 8260B*	*09/13/07 02:29*	*ds*	

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

www.encolabs.com

Description: TRIP BLANK
Matrix: Water
Project: Material Recovery, LLC

Lab Sample ID: B708018-03
Sampled: 09/07/07 00:00
Sampled By:

Received: 09/08/07 09:00
Work Order: B708018

Volatile Organic Compounds by GCMS

** - ENCO Jacksonville certified analyte [NC 442]*

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Trichlorofluoromethane [75-69-4] *	0.30	U	ug/L	1	0.30	1.0	1	EPA 8260B	09/12/07 17:31	ds	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*49*	*1*	*50.0*	*98 %*	*60-130*	*7I13014*	*EPA 8260B*	*09/12/07 17:31*	*ds*	
Dibromofluoromethane	*49*	*1*	*50.0*	*98 %*	*66-131*	*7I13014*	*EPA 8260B*	*09/12/07 17:31*	*ds*	
Toluene-d8	*49*	*1*	*50.0*	*98 %*	*67-139*	*7I13014*	*EPA 8260B*	*09/12/07 17:31*	*ds*	

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

www.encolabs.com

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 7I13014 - EPA 5030B_MS

Blank (7I13014-BLK1) Prepared: 09/12/2007 09:00 Analyzed: 09/12/2007 17:00

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Trichlorofluoromethane	0.30	U	1.0	ug/L							
Surrogate: Dibromofluoromethane	*50*			*ug/L*	*50.0*		*99*	*66-131*			
Surrogate: Toluene-d8	*49*			*ug/L*	*50.0*		*98*	*67-139*			
Surrogate: 4-Bromofluorobenzene	*48*			*ug/L*	*50.0*		*97*	*60-130*			

LCS (7I13014-BS1) Prepared: 09/12/2007 09:00 Analyzed: 09/12/2007 23:51

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	17		1.0	ug/L	20.0		86	70-130			
Benzene	20		1.0	ug/L	20.0		98	80-120			
Trichloroethene	19		1.0	ug/L	20.0		96	70-125			
Toluene	19		1.0	ug/L	20.0		93	75-120			
Chlorobenzene	19		1.0	ug/L	20.0		94	80-120			

Matrix Spike (7I13014-MS1) Prepared: 09/12/2007 09:00 Analyzed: 09/13/2007 00:23

Source: B707838-20

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	18		1.0	ug/L	20.0	0.20 U	90	70-130			
Benzene	21		1.0	ug/L	20.0	0.20 U	105	80-120			
Trichloroethene	20		1.0	ug/L	20.0	0.30 U	101	70-125			
Toluene	20		1.0	ug/L	20.0	0.20 U	98	75-120			
Chlorobenzene	21		1.0	ug/L	20.0	0.20 U	103	80-120			

Matrix Spike Dup (7I13014-MSD1) Prepared: 09/12/2007 09:00 Analyzed: 09/13/2007 00:54

Source: B707838-20

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	17		1.0	ug/L	20.0	0.20 U	86	70-130	4	26	
Benzene	19		1.0	ug/L	20.0	0.20 U	95	80-120	10	22	
Trichloroethene	19		1.0	ug/L	20.0	0.30 U	97	70-125	5	24	
Toluene	18		1.0	ug/L	20.0	0.20 U	91	75-120	7	24	
Chlorobenzene	19		1.0	ug/L	20.0	0.20 U	95	80-120	8	11	

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.
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.

ENVIRONMENTAL CONSERVATION LABORATORIES CHAIN-OF-CUSTODY RECORD

10775 Central Port Dr.
Orlando, FL 32824
(407) 825-5314 Fax (407) 850-5845

4810 Executive Park Court, Suite 211
Jacksonville, FL 32216-6069
(904) 296-3007 Fax (904) 296-6210

1016 Passport Way
Cary, NC 27513
(919) 677-1669 Fax (919) 677-9846

Page 1 of 1

Client Name: Golder Associates, Inc. (GO007)	Project Number: 073860240 7.200 / 08
Address: The Wingate Building 4990 Koger Blvd. Suite 14	Project Name/Desc: Material Recovery, LLC
City/ST/Zip: Greensboro, NC 27407	PO # (Billing Info):
Tel: (336) 852-4903 / Fax: (336) 852-4904	Reporting Contact: Rachel Kirkman
Sampler(s) Name, Affiliation (Print): Ben Draper	Billing Contact: Accounts Payable
Sampler(s) Signature: [signature]	Field by # (if required): 41-16

Requested Analyses: 8260B Appendix 1; 8260B Extended

Requested Turnaround Times
Note: Rush requests subject to acceptance by the facility
✓ Standard
___ Expedited
Due __/__/__

Lab Workorder: B708018 ~~C712735~~

Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers	8260B Appendix 1	8260B Extended	Sample Comments
	9231-MW-3	9/6/07	14:30	G	Water	3		X	NC App IVOCs
	Field Blank	↓	14:55	G	Water	3		X	↓
	Trip Blank	↓			Water	2	X		

Preservation (See Codes) (Continue as necessary)

<= Total # of Containers

Sample Kit Prepared By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time
CARY	9/1/07	[signature]	9/7/07 9:30		
		Relinquished By	Date/Time	Received By	Date/Time
		Relinquished By	Date/Time	Received By: [signature]	Date/Time: 9/8/07 9:00

Comments:
1) Level 2 data report
2) Unit rates per BOA for Laboratory Services dated Apr. 9, 2004 + 2007 ENCO MSA Price List.
3) Est. fee = $70 (no charge for trip blank confirmation pricing on tri-chloroethylene methane + mercury)

Cooler Air & Temp on Receipt: C-217 @ 1.2°C

Condition Upon Receipt: ___ Acceptable ___ Unacceptable

Matrix: GW-Groundwater SO-Soil SE-Sediment SW-Surface Water WW-Wastewater A-Air O-Other (details in comments)

Preservation: Use H-HCl N-HNO3 S-H2SO4 NO-NaOH O-Other (details 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.

LOA per Benjamin Draper [signature] Approved by: ___

www.encolabs.com

Environmental Conservation Laboratories, Inc.
4810 Executive Park Court, Suite 211
Jacksonville FL, 32216-6069
Phone: 904.296.3007 FAX: 904.296.6210

www.encolabs.com

Monday, September 17, 2007

Golder Associates, Inc. (GO007)

Attn: Rachel Kirkman

The Wingate Building 4900 Koger Blvd., Suite 140

Greensboro, NC 27407

RE: Laboratory Results for
Project Number: 0739602407.100, Project Name/Desc: Material Recovery, LLC
ENCO Workorder: B708022

Dear Rachel Kirkman,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Saturday, September 8, 2007.

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 Jacksonville. 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,

Chris Tompkins

Project Manager

Enclosure(s)

The total number of pages in this report, including this page is 9.

www.encolabs.com

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: MW-3	Lab ID: B708022-01	Sampled: 09/06/07 13:05	Received: 09/08/07 09:00

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
TO-15	09/20/07	09/13/07 10:38	9/13/2007 16:52

Client ID: MW-3	Lab ID: B708022-01RE1	Sampled: 09/06/07 13:05	Received: 09/08/07 09:00

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
TO-15	09/20/07	09/14/07 09:00	9/14/2007 13:05

www.encolabs.com

SAMPLE DETECTION SUMMARY

Client ID: MW-3 **Lab ID:** B708022-01

Analyte	Results	Flag	MRL	Units	Method	Notes
Acetone	0.045	J	0.095	mg/m³ Air	TO-15	

Client ID: MW-3 **Lab ID:** B708022-01RE1

Analyte	Results	Flag	MRL	Units	Method	Notes
Methylene chloride	0.164		0.009	mg/m³ Air	TO-15	
Toluene	0.007	J	0.009	mg/m³ Air	TO-15	

www.encolabs.com

ANALYTICAL RESULTS

Description: MW-3
Matrix: Air
Project: Material Recovery, LLC

Lab Sample ID: B708022-01
Sampled: 09/06/07 13:05
Sampled By: Ben Draper

Received: 09/08/07 09:00
Work Order: B708022
% Solids:

Volatile Organic Compounds by GCMS

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	Batch	Method	Analyzed	By	Notes
1,1,1-Trichloroethane [71-55-6]	0.004	U	mg/m³ Air	1	0.004	0.014	7I17012	TO-15	09/14/07 13:05	sga	
1,1,2,2-Tetrachloroethane [79-34-5]	0.009	U	mg/m³ Air	1	0.009	0.017	7I17012	TO-15	09/14/07 13:05	sga	
1,1,2-Trichloroethane [79-00-5]	0.005	U	mg/m³ Air	1	0.005	0.014	7I17012	TO-15	09/14/07 13:05	sga	
1,1-Dichloroethane [75-34-3]	0.005	U	mg/m³ Air	1	0.005	0.010	7I17012	TO-15	09/14/07 13:05	sga	
1,1-Dichloroethene [75-35-4]	0.005	U	mg/m³ Air	1	0.005	0.010	7I17012	TO-15	09/14/07 13:05	sga	
1,2-Dibromoethane [106-93-4]	0.007	U	mg/m³ Air	1	0.007	0.019	7I17012	TO-15	09/14/07 13:05	sga	
1,2-Dichlorobenzene [95-50-1]	0.007	U	mg/m³ Air	1	0.007	0.015	7I17012	TO-15	09/14/07 13:05	sga	
1,2-Dichloroethane [107-06-2]	0.004	U	mg/m³ Air	1	0.004	0.010	7I17012	TO-15	09/14/07 13:05	sga	
1,2-Dichloropropane [78-87-5]	0.007	U	mg/m³ Air	1	0.007	0.012	7I17012	TO-15	09/14/07 13:05	sga	
1,4-Dichlorobenzene [106-46-7]	0.006	U	mg/m³ Air	1	0.006	0.015	7I17012	TO-15	09/14/07 13:05	sga	
2-Butanone [78-93-3]	0.003	U	mg/m³ Air	1	0.003	0.007	7I17012	TO-15	09/14/07 13:05	sga	
2-Hexanone [591-78-6]	0.004	U	mg/m³ Air	1	0.004	0.010	7I17012	TO-15	09/14/07 13:05	sga	
Acetone [67-64-1]	**0.045**	J	mg/m³ Air	1	0.035	0.095	7I17012	TO-15	09/13/07 16:52	sga	
Benzene [71-43-2]	0.004	U	mg/m³ Air	1	0.004	0.008	7I17012	TO-15	09/14/07 13:05	sga	
Bromodichloromethane [75-27-4]	0.009	U	mg/m³ Air	1	0.009	0.017	7I17012	TO-15	09/14/07 13:05	sga	
Bromoform [75-25-2]	0.011	U	mg/m³ Air	1	0.011	0.026	7I17012	TO-15	09/14/07 13:05	sga	
Carbon disulfide [75-15-0]	0.004	U	mg/m³ Air	1	0.004	0.008	7I17012	TO-15	09/14/07 13:05	sga	
Carbon tetrachloride [56-23-5]	0.007	U	mg/m³ Air	1	0.007	0.016	7I17012	TO-15	09/14/07 13:05	sga	
Chlorobenzene [108-90-7]	0.004	U	mg/m³ Air	1	0.004	0.012	7I17012	TO-15	09/14/07 13:05	sga	
Chloroethane [75-00-3]	0.004	U	mg/m³ Air	1	0.004	0.007	7I17012	TO-15	09/14/07 13:05	sga	
Chloroform [67-66-3]	0.006	U	mg/m³ Air	1	0.006	0.012	7I17012	TO-15	09/14/07 13:05	sga	
cis-1,2-Dichloroethene [156-59-2]	0.004	U	mg/m³ Air	1	0.004	0.010	7I17012	TO-15	09/14/07 13:05	sga	
cis-1,3-Dichloropropene [10061-01-5]	0.005	U	mg/m³ Air	1	0.005	0.011	7I17012	TO-15	09/14/07 13:05	sga	
Dibromochloromethane [124-48-1]	0.005	U	mg/m³ Air	1	0.005	0.010	7I17012	TO-15	09/14/07 13:05	sga	
Ethylbenzene [100-41-4]	0.006	U	mg/m³ Air	1	0.006	0.011	7I17012	TO-15	09/14/07 13:05	sga	
m,p-Xylenes [108-38-3/106-42-3]	0.012	U	mg/m³ Air	1	0.012	0.014	7I17012	TO-15	09/14/07 13:05	sga	
Methylene chloride [75-09-2]	**0.164**		mg/m³ Air	1	0.006	0.009	7I17012	TO-15	09/14/07 13:05	sga	
o-Xylene [95-47-6]	0.004	U	mg/m³ Air	1	0.004	0.011	7I17012	TO-15	09/14/07 13:05	sga	
Styrene [100-42-5]	0.005	U	mg/m³ Air	1	0.005	0.011	7I17012	TO-15	09/14/07 13:05	sga	
Tetrachloroethene [127-18-4]	0.011	U	mg/m³ Air	1	0.011	0.017	7I17012	TO-15	09/14/07 13:05	sga	
Toluene [108-88-3]	**0.007**	J	mg/m³ Air	1	0.005	0.009	7I17012	TO-15	09/14/07 13:05	sga	
trans-1,2-Dichloroethene [156-60-5]	0.009	U	mg/m³ Air	1	0.009	0.010	7I17012	TO-15	09/14/07 13:05	sga	
Trichloroethene [79-01-6]	0.008	U	mg/m³ Air	1	0.008	0.013	7I17012	TO-15	09/14/07 13:05	sga	
Trichlorofluoromethane [75-69-4]	0.006	U	mg/m³ Air	1	0.006	0.014	7I17012	TO-15	09/14/07 13:05	sga	
Vinyl acetate [108-05-4]	0.003	U	mg/m³ Air	1	0.003	0.009	7I17012	TO-15	09/14/07 13:05	sga	
Vinyl chloride [75-01-4]	0.002	U	mg/m³ Air	1	0.002	0.006	7I17012	TO-15	09/14/07 13:05	sga	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*34.3*	*1*	*31.2*	*110 %*	*42-157*	*7I17012*	*TO-15*	*09/14/07 13:05*	*sga*	

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

www.encolabs.com

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 7I17012 - Same

Blank (7I17012-BLK1) Prepared: 09/13/2007 09:00 Analyzed: 09/13/2007 09:51

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl chloride	0.002	U	0.006	mg/m³ Air							
Chloroethane	0.004	U	0.007	mg/m³ Air							
Trichlorofluoromethane	0.006	U	0.014	mg/m³ Air							
1,1-Dichloroethane	0.005	U	0.010	mg/m³ Air							
Acetone	0.002	U	0.006	mg/m³ Air							
Carbon disulfide	0.004	U	0.008	mg/m³ Air							
Methylene chloride	0.006	U	0.009	mg/m³ Air							
trans-1,2-Dichloroethene	0.009	U	0.010	mg/m³ Air							
1,1-Dichloroethene	0.005	U	0.010	mg/m³ Air							
Vinyl acetate	0.003	U	0.009	mg/m³ Air							
cis-1,2-Dichloroethene	0.004	U	0.010	mg/m³ Air							
2-Butanone	0.003	U	0.007	mg/m³ Air							
Chloroform	0.006	U	0.012	mg/m³ Air							
1,2-Dichloroethane	0.004	U	0.010	mg/m³ Air							
1,1,1-Trichloroethane	0.004	U	0.014	mg/m³ Air							
Carbon tetrachloride	0.007	U	0.016	mg/m³ Air							
Benzene	0.004	U	0.008	mg/m³ Air							
1,2-Dichloropropane	0.007	U	0.012	mg/m³ Air							
Trichloroethene	0.008	U	0.013	mg/m³ Air							
Bromodichloromethane	0.009	U	0.017	mg/m³ Air							
cis-1,3-Dichloropropene	0.005	U	0.011	mg/m³ Air							
1,1,2-Trichloroethane	0.005	U	0.014	mg/m³ Air							
Toluene	0.005	U	0.009	mg/m³ Air							
2-Hexanone	0.004	U	0.010	mg/m³ Air							
1,2-Dibromoethane	0.007	U	0.019	mg/m³ Air							
Tetrachloroethene	0.011	U	0.017	mg/m³ Air							
Dibromochloromethane	0.005	U	0.010	mg/m³ Air							
Chlorobenzene	0.004	U	0.012	mg/m³ Air							
Ethylbenzene	0.006	U	0.011	mg/m³ Air							
m,p-Xylenes	0.012	U	0.014	mg/m³ Air							
Styrene	0.005	U	0.011	mg/m³ Air							
o-Xylene	0.004	U	0.011	mg/m³ Air							
Bromoform	0.011	U	0.026	mg/m³ Air							
1,1,2,2-Tetrachloroethane	0.009	U	0.017	mg/m³ Air							
1,4-Dichlorobenzene	0.006	U	0.015	mg/m³ Air							
1,2-Dichlorobenzene	0.007	U	0.015	mg/m³ Air							
Surrogate: 4-Bromofluorobenzene	*32.3*			*ppbv*	*31.2*		*103*	*42-157*			

Blank (7I17012-BLK2) Prepared: 09/14/2007 09:00 Analyzed: 09/14/2007 10:25

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Vinyl chloride	0.002	U	0.006	mg/m³ Air							
Chloroethane	0.004	U	0.007	mg/m³ Air							
Trichlorofluoromethane	0.006	U	0.014	mg/m³ Air							
1,1-Dichloroethane	0.005	U	0.010	mg/m³ Air							
Acetone	0.002	U	0.006	mg/m³ Air							
Carbon disulfide	0.004	U	0.008	mg/m³ Air							
Methylene chloride	0.006	U	0.009	mg/m³ Air							

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 7I17012 - Same

Blank (7I17012-BLK2) Continued Prepared: 09/14/2007 09:00 Analyzed: 09/14/2007 10:25

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
trans-1,2-Dichloroethene	0.009	U	0.010	mg/m³ Air							
1,1-Dichloroethene	0.005	U	0.010	mg/m³ Air							
Vinyl acetate	0.003	U	0.009	mg/m³ Air							
cis-1,2-Dichloroethene	0.004	U	0.010	mg/m³ Air							
2-Butanone	0.003	U	0.007	mg/m³ Air							
Chloroform	0.006	U	0.012	mg/m³ Air							
1,2-Dichloroethane	0.004	U	0.010	mg/m³ Air							
1,1,1-Trichloroethane	0.004	U	0.014	mg/m³ Air							
Carbon tetrachloride	0.007	U	0.016	mg/m³ Air							
Benzene	0.004	U	0.008	mg/m³ Air							
1,2-Dichloropropane	0.007	U	0.012	mg/m³ Air							
Trichloroethene	0.008	U	0.013	mg/m³ Air							
Bromodichloromethane	0.009	U	0.017	mg/m³ Air							
cis-1,3-Dichloropropene	0.005	U	0.011	mg/m³ Air							
1,1,2-Trichloroethane	0.005	U	0.014	mg/m³ Air							
Toluene	0.005	U	0.009	mg/m³ Air							
2-Hexanone	0.004	U	0.010	mg/m³ Air							
1,2-Dibromoethane	0.007	U	0.019	mg/m³ Air							
Tetrachloroethene	0.011	U	0.017	mg/m³ Air							
Dibromochloromethane	0.005	U	0.010	mg/m³ Air							
Chlorobenzene	0.004	U	0.012	mg/m³ Air							
Ethylbenzene	0.006	U	0.011	mg/m³ Air							
m,p-Xylenes	0.012	U	0.014	mg/m³ Air							
Styrene	0.005	U	0.011	mg/m³ Air							
o-Xylene	0.004	U	0.011	mg/m³ Air							
Bromoform	0.011	U	0.026	mg/m³ Air							
1,1,2,2-Tetrachloroethane	0.009	U	0.017	mg/m³ Air							
1,4-Dichlorobenzene	0.006	U	0.015	mg/m³ Air							
1,2-Dichlorobenzene	0.007	U	0.015	mg/m³ Air							
Surrogate: 4-Bromofluorobenzene	*31.7*			*ppbv*	*31.2*		*101*	*42-157*			

LCS (7I17012-BS1) Prepared: 09/13/2007 09:00 Analyzed: 09/13/2007 10:26

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	7.26		2.50	ppbv	5.00		145	68-172			
Benzene	5.97		2.50	ppbv	5.00		119	65-152			
Total Light Petroleum Hydrocarbons	6.08		245	ppbv	5.00		122	58-154			
Trichloroethene	6.14		2.50	ppbv	5.00		123	63-155			
Toluene	5.83		2.50	ppbv	5.00		117	66-146			
Chlorobenzene	5.49		2.50	ppbv	5.00		110	64-144			
Surrogate: 4-Bromofluorobenzene	*32.8*			*ppbv*	*31.2*		*105*	*45-141*			

LCS (7I17012-BS2) Prepared: 09/14/2007 09:00 Analyzed: 09/14/2007 11:02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	6.33		2.50	ppbv	5.00		127	68-172			
Benzene	6.00		2.50	ppbv	5.00		120	65-152			

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 7I17012 - Same

LCS (7I17012-BS2) Continued Prepared: 09/14/2007 09:00 Analyzed: 09/14/2007 11:02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Total Light Petroleum Hydrocarbons	5.57		245	ppbv	5.00		111	58-154			
Trichloroethene	5.90		2.50	ppbv	5.00		118	63-155			
Toluene	5.35		2.50	ppbv	5.00		107	66-146			
Chlorobenzene	5.12		2.50	ppbv	5.00		102	64-144			
Surrogate: 4-Bromofluorobenzene	*32.8*			*ppbv*	*31.2*		*105*	*45-141*			

Matrix Spike (7I17012-MS1) Prepared: 09/13/2007 09:00 Analyzed: 09/13/2007 17:25

Source: B708022-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	7.02		2.50	ppbv	5.00	1.30 U	140	49-154			
Benzene	5.47		2.50	ppbv	5.00	1.10 U	109	56-171			
Total Light Petroleum Hydrocarbons	6.62		245	ppbv	5.00	151	NR	55-155			QM-05
Trichloroethene	7.00		2.50	ppbv	5.00	1.40 U	140	58-167			
Toluene	6.08		2.50	ppbv	5.00	1.20 U	122	55-164			
Chlorobenzene	5.55		2.50	ppbv	5.00	0.960 U	111	55-170			
Surrogate: 4-Bromofluorobenzene	*32.0*			*ppbv*	*31.2*		*103*	*50-166*			

Matrix Spike Dup (7I17012-MSD1) Prepared: 09/13/2007 09:00 Analyzed: 09/13/2007 17:58

Source: B708022-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	6.80		2.50	ppbv	5.00	1.30 U	136	49-154	3.18	20	
Benzene	5.92		2.50	ppbv	5.00	1.10 U	118	56-171	7.90	15	
Total Light Petroleum Hydrocarbons	6.22		245	ppbv	5.00	151	NR	55-155	6.23	24	QM-05
Trichloroethene	6.37		2.50	ppbv	5.00	1.40 U	127	58-167	9.42	18	
Toluene	5.85		2.50	ppbv	5.00	1.20 U	117	55-164	3.86	30	
Chlorobenzene	5.51		2.50	ppbv	5.00	0.960 U	110	55-170	0.723	28	
Surrogate: 4-Bromofluorobenzene	*30.9*			*ppbv*	*31.2*		*99.0*	*50-166*			

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.
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.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

ENVIRONMENTAL CONSERVATION LABORATORIES CHAIN-OF-CUSTODY RECORD

10175 Central Port Dr.
Orlando, FL 32824
(407) 826-5314 Fax (407) 850-0945

4810 Executive Park Court, Suite 211
Jacksonville, FL 32216-5069
(904) 296-3007 Fax (904) 296-6210

1615 Passport Way
Cary, NC 27513
(919) 677-1669 Fax (919) 677-9816

Page 1 of 1

Client Name: Golder Associates, Inc. (00001)	Project Number: 0739602407.100
Address: 4900 Koger Blvd, Suite 140	Project Name/Desc: Material Recovery, Inc
City/ST/Zip: Greensboro, NC 27407	PO # / Billing Info:
Tel: 336 852 4903 Fax: 336 852 4904	Reporting Contact: Rachel Kirkman
Sampler(s) Name, Affiliation (Print): Ben Draper	Billing Contact: Accounts Payable
Sampler(s) Signature:	Facility # (if required): 41-16

Requested Analyses: TO-15 for NC App. I VOCs

Requested Turnaround Times: Note: Rush requests subject to acceptance by the lab(s)
✓ Standard
__ Expedited
Due __/__/__

Lab Workorder: B708622

Preservation (See Codes) (Complete as necessary)

Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers	Sample Comments
	MW-3 (1)	9-6-2007	13:05	G	AIR	1	Gas canisters by TO-15 for NC App. I VOCs
	MW-3 (2)	9-6-2007	12:25	G	AIR	1	
	MW-3 (3)	9-6-2007	12:45	G	AIR	1	
						3	<-- Total # of Containers

Samples Prepared By	Date/Time	Relinquished By	Date/Time	Received By	Date/Time
			9/7/07 9:30		
		Relinquished By	Date/Time	Received By	Date/Time
		Relinquished By	Date/Time	Received By	Date/Time 9/8/07 9:00

Comments:
1) Level 2 data report
2) Lab rates per BOA for Laboratory Services "dated Apr. 19 2004 and 2007 ENCO MSA fee list.
3) Estimated Fee = $600 ($200 ea.)

Cooler #s & Temps on Record: 3 Summa Boxes

Condition Upon Receipt: ✓ Acceptable __ Unacceptable

Matrix: GW-Groundwater SO-Soil 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.

LOA per Benjamin S. Draper

Approved by:

www.encolabs.com

Golder Associates

DATE: *8/9/2007*

GROUNDWATER SAMPLING LOG

Project Name: *Material Recovery, LLC*
Project No./Phase No.: *073-9602407.100*
Well ID: *MW-1*
Sampler(s): *B. Draper*
Well Diameter: *2* **inches**
Initial Depth to Water: *27.31* **feet**
Depth to Bottom: *50.65* **feet**
Water Column Thickness: *23.34* **feet**
Pumping Rate: *200* **mL/min.**
System Volume: *1513* **mL**
Well Location: *2000 ft. S of entrance on Brown Field Road (within property line)*
Equipment: *Horiba water quality meter, WL indicator, air compressor air tank, portable bladder pump, and controller box*

Time	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	Dis O2 (mg/L)	Temp. (oC)	ORP (millivolts)	DTW (feet)
13:11	4.08	0.119	75.0	9.3	20.16	380	27.55
13:14	4.03	0.118	55.0	9.0	19.72	396	27.60
13:17	4.03	0.118	31.5	8.5	19.13	401	27.69
13:20	4.03	0.114	33.5	8.7	19.13	407	27.73
Sampled for NC Appendix I @ 13:20							
13:38	4.04	0.113	33.8	8.6	19.07	410	27.80

Comments (weather conditions, color, type of sample, purge-water management, etc.):
Re-sample of MW-1 from the June 2007 event
Weather Conditions 8/9/07: Sunny, hot; High 104°F, Low 78°F; Pressure: 29.86" Hg; Wind: 4 to 7 mph; Gusts: 26 mph

Signature: [signature] **Date:** 10-24-2007
QA/QC Sign Off: [signature] **Date:** 10-24-07

Golder Associates

DATE: *8/9/2007*

GROUNDWATER SAMPLING LOG

Project Name: *Material Recovery, LLC*
Project No./Phase No.: *073-9602407.100*
Well ID: *MW-3*
Sampler(s): *B. Draper*
Well Diameter: *2* **inches**
Initial Depth to Water: *26.95* **feet**
Depth to Bottom: *34.50* **feet**
Water Column Thickness: *7.55* **feet**
Pumping Rate: *150* **mL/min.**
System Volume: *1190* **mL**
Well Location: *100 ft. E-NE of MW-2 and 100ft. N of perimeter road*
Equipment: *Horiba water quality meter, WL indicator, air compressor air tank, portable bladder pump, and controller box*

Time	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	Dis O2 (mg/L)	Temp. (oC)	ORP (millivolts)	DTW (feet)
11:36	3.65	0.745	304	2.7	17.66	433	27.22
11:40	3.70	0.732	194	2.6	17.62	442	27.39
11:44	3.70	0.747	150	2.5	17.56	448	27.41
11:48	3.70	0.785	96.2	2.5	17.51	451	27.51
Sampled for Trichlorofluoromethane & Mercury @ 11:48							
12:07	3.73	0.889	87.7	3.1	17.56	449	27.51

Comments (weather conditions, color, type of sample, purge-water management, etc.):
Re-sample of MW-3 from the June 2007 event
Weather Conditions 8/9/07: Sunny, hot; High 104°F, Low 78°F; Pressure: 29.86" Hg; Wind: 4 to 7 mph; Gusts: 26 mph

Signature: [signature] **Date:** 10-24-07
QA/QC Sign Off: [signature] **Date:** 10-24-07

Golder Associates

DATE: *9/6/2007*

GROUNDWATER SAMPLING LOG

Project Name: *Material Recovery, LLC*
Project No./Phase No.: *073-9602407.100*
Well ID: *MW-3*
Sampler(s): *B. Draper*
Well Diameter: *2* **inches**
Initial Depth to Water: *27.44* **feet**
Depth to Bottom: *37.66* **feet**
Water Column Thickness: *10.22* **feet**
Pumping Rate: *200* **mL/min.**
System Volume: *1160* **mL**
Well Location: *100 ft. E-NE of MW-2 and 100ft. N of perimeter road*
Equipment: *Horiba water quality meter, WL indicator, air compressor air tank, portable bladder pump, and controller box*

Time	pH (S.U.)	Cond. (mS/cm)	Turb. (NTU)	Dis O2 (mg/L)	Temp. (oC)	ORP (millivolts)	DTW (feet)
1415	4.23	0.661	Cloudy	2.04	17.7	174.3	27.7
14:18	4.23	0.763	Clear	1.81	17.43	178	27.7
14:21	4.23	0.806	Clear	1.66	17.47	176.5	27.7
14:24	4.22	0.73	Clear	1.61	17.39	178	27.7
14:27	4.23	0.724	Clear	1.58	17.33	172.1	27.7
14:30	4.24	0.723	Clear	1.58	17.36	176.3	27.7
Sampled @ 14:30							
14:37	4.28	0.728	Clear	1.68	17.4	165.7	27.7

Comments (weather conditions, color, type of sample, purge-water management, etc.):
2nd Re-sample of MW-2 from the June 2007 event
Weather Conditions 9/6/07: Sunny, hot; High 95°F, Low 69°F; Pressure: 30.21" Hg; Wind: 6 to 9 mph; Gusts: 15 mph

Signature: [signature] **Date:** 10-24-07
QA/QC Sign Off: [signature] **Date:** 10-25-07

APPENDIX B

APPENDIX B

SAMPLE SUMMARY REPORTS

Sample Summary Report

Sample ID	CDD Leachate	
Sample Date		
Station	Leachate - CDD Typical	
Location		
Geology		
Watertype	Ca-Na-HCO3-SO4	
Temperature (°C)		
pH		
Conductivity		uS/cm

Sum of Anions	40.93	meq/L
Sum of Cations	35.79	meq/L
Balance	-6.71	%

Total dissolved solids	2957.40	mg/L
Total hardness	1315.41	mg/l CaCO3
Alkalinity	1223.87	mg/l CaCO3

Major ion composition	mg/l	mmol/l	meq/l
Na	191.40	8.33	8.33
K	46.00	1.177	1.177
Ca	419.70	10.47	20.94
Mg	64.90	2.67	5.34
Cl	134.70	3.80	3.80
SO4	608.50	6.34	12.68
NO3			
HCO3	1492.20	24.46	24.46

Ratios			Comparison to Seawater	
	mg/l	mmol/l	mg/l	mmol/l
Ca/Mg	6.47	3.92	0.319	0.194
Ca/SO4	0.69	1.65	0.152	0.364
Na/Cl	1.42	2.19	0.556	0.858
Cl/Br			287	648

Sample Summary Report

Sample ID	MW-1	
Sample Date	8/8/2007	
Station	MW-1	
Location		
Geology		
Watertype	Na-Cl	
Temperature (°C)		
pH		
Conductivity		uS/cm

Sum of Anions	0.71	meq/L
Sum of Cations	0.80	meq/L
Balance	6.23	%

Total dissolved solids	44.70	mg/L
Total hardness	5.91	mg/l CaCO3
Alkalinity	0.00	mg/l CaCO3

Major ion composition	mg/l	mmol/l	meq/l
Na	13.20	0.57	0.57
K	4.21	0.108	0.108
Ca	0.24	0.01	0.01
Mg	1.29	0.05	0.11
Cl	24.00	0.68	0.68
SO4	1.40	0.01	0.03
NO3			
HCO3	0.00	0.00	0.00

Ratios			Comparison to Seawater	
	mg/l	mmol/l	mg/l	mmol/l
Ca/Mg	0.19	0.11	0.319	0.194
Ca/SO4	0.17	0.41	0.152	0.364
Na/Cl	0.55	0.85	0.556	0.858
Cl/Br			287	648

Sample Summary Report

Sample ID	MW-3	
Sample Date		
Station	MW-3	
Location		
Geology		
Watertype	Ca-Mg-Na-Cl	
Temperature (°C)		
pH		
Conductivity		uS/cm

Sum of Anions	1.14	meq/L
Sum of Cations	6.43	meq/L
Balance	69.95	%

Total dissolved solids	169.12	mg/L
Total hardness	243.49	mg/l CaCO3
Alkalinity	0.00	mg/l CaCO3

Major ion composition	mg/l	mmol/l	meq/l
Na	28.40	1.24	1.24
K	13.00	0.332	0.332
Ca	63.20	1.58	3.15
Mg	20.80	0.86	1.71
Cl	39.00	1.10	1.10
SO4	1.80	0.02	0.04
NO3			
HCO3	0.00	0.00	0.00

Ratios			Comparison to Seawater	
	mg/l	mmol/l	mg/l	mmol/l
Ca/Mg	3.04	1.84	0.319	0.194
Ca/SO4	35.11	84.10	0.152	0.364
Na/Cl	0.73	1.12	0.556	0.858
Cl/Br			287	648

Sample Summary Report

Sample ID	1% Mix	
Sample Date		
Station	1% Mixing	
Location		
Geology		
Watertype	Na-Cl-HCO3	
Temperature (°C)		
pH		
Conductivity		uS/cm

Sum of Anions	1.11	meq/L
Sum of Cations	1.15	meq/L
Balance	1.84	%

Total dissolved solids	73.47	mg/L
Total hardness	19.01	mg/l CaCO3
Alkalinity	12.24	mg/l CaCO3

Major ion composition	mg/l	mmol/l	meq/l
Na	14.98	0.65	0.65
K	4.63	0.118	0.118
Ca	4.43	0.11	0.22
Mg	1.93	0.08	0.16
Cl	25.11	0.71	0.71
SO4	7.47	0.08	0.16
NO3			
HCO3	14.92	0.24	0.24

Ratios			Comparison to Seawater	
	mg/l	mmol/l	mg/l	mmol/l
Ca/Mg	2.30	1.39	0.319	0.194
Ca/SO4	0.59	1.42	0.152	0.364
Na/Cl	0.60	0.92	0.556	0.858
Cl/Br			287	648

Sample Summary Report

Sample ID	2% Mix	
Sample Date		
Station	2% Mixing	
Location		
Geology		
Watertype	Na-Ca-Cl-HCO3	
Temperature (°C)		
pH		
Conductivity		uS/cm

Sum of Anions	1.51	meq/L
Sum of Cations	1.50	meq/L
Balance	-0.36	%

Total dissolved solids	102.59	mg/L
Total hardness	32.09	mg/l CaCO3
Alkalinity	24.47	mg/l CaCO3

Major ion composition	mg/l	mmol/l	meq/l
Na	16.76	0.73	0.73
K	5.05	0.129	0.129
Ca	8.63	0.22	0.43
Mg	2.56	0.11	0.21
Cl	26.21	0.74	0.74
SO4	13.54	0.14	0.28
NO3			
HCO3	29.84	0.49	0.49

Ratios			Comparison to Seawater	
	mg/l	mmol/l	mg/l	mmol/l
Ca/Mg	3.37	2.04	0.319	0.194
Ca/SO4	0.64	1.53	0.152	0.364
Na/Cl	0.64	0.99	0.556	0.858
Cl/Br			287	648

Sample Summary Report

Sample ID	3% Mix	
Sample Date		
Station	3% Mixing	
Location		
Geology		
Watertype	Na-Ca-Cl-HCO3-SO4	
Temperature (°C)		
pH		
Conductivity		uS/cm

Sum of Anions	1.91	meq/L
Sum of Cations	1.85	meq/L
Balance	-1.68	%

Total dissolved solids	131.73	mg/L
Total hardness	45.19	mg/l CaCO3
Alkalinity	36.72	mg/l CaCO3

Major ion composition	mg/l	mmol/l	meq/l
Na	18.55	0.81	0.81
K	5.46	0.140	0.140
Ca	12.82	0.32	0.64
Mg	3.20	0.13	0.26
Cl	27.32	0.77	0.77
SO4	19.61	0.20	0.41
NO3			
HCO3	44.77	0.73	0.73

Ratios			Comparison to Seawater	
	mg/l	mmol/l	mg/l	mmol/l
Ca/Mg	4.01	2.43	0.319	0.194
Ca/SO4	0.65	1.57	0.152	0.364
Na/Cl	0.68	1.05	0.556	0.858
Cl/Br			287	648

Sample Summary Report

Sample ID	4% Mix	
Sample Date		
Station	4% Mixing	
Location		
Geology		
Watertype	Na-Ca-HCO3-Cl-SO4	
Temperature (°C)		
pH		
Conductivity		uS/cm

Sum of Anions	2.32	meq/L
Sum of Cations	2.20	meq/L
Balance	-2.57	%

Total dissolved solids	160.86	mg/L
Total hardness	58.28	mg/l CaCO3
Alkalinity	48.96	mg/l CaCO3

Major ion composition	mg/l	mmol/l	meq/l
Na	20.33	0.88	0.88
K	5.88	0.150	0.150
Ca	17.02	0.42	0.85
Mg	3.83	0.16	0.32
Cl	28.43	0.80	0.80
SO4	25.68	0.27	0.54
NO3			
HCO3	59.69	0.98	0.98

Ratios			Comparison to Seawater	
	mg/l	mmol/l	mg/l	mmol/l
Ca/Mg	4.44	2.69	0.319	0.194
Ca/SO4	0.66	1.59	0.152	0.364
Na/Cl	0.72	1.10	0.556	0.858
Cl/Br			287	648

Sample Summary Report

Sample ID	5% Mix	
Sample Date		
Station	5% Mixing	
Location		
Geology		
Watertype	Ca-Na-HCO3-Cl-SO4	
Temperature (°C)		
pH		
Conductivity		uS/cm

Sum of Anions	2.72	meq/L
Sum of Cations	2.55	meq/L
Balance	-3.20	%

Total dissolved solids	190.00	mg/L
Total hardness	71.38	mg/l CaCO3
Alkalinity	61.19	mg/l CaCO3

Major ion composition	mg/l	mmol/l	meq/l
Na	22.11	0.96	0.96
K	6.30	0.161	0.161
Ca	21.21	0.53	1.06
Mg	4.47	0.18	0.37
Cl	29.54	0.83	0.83
SO4	31.76	0.33	0.66
NO3			
HCO3	74.61	1.22	1.22

Ratios			Comparison to Seawater	
	mg/l	mmol/l	mg/l	mmol/l
Ca/Mg	4.74	2.88	0.319	0.194
Ca/SO4	0.67	1.60	0.152	0.364
Na/Cl	0.75	1.15	0.556	0.858
Cl/Br			287	648

Sample Summary Report

Sample ID	Optimized Sample (6%)	
Sample Date		
Station	Optimized Sample	
Location		
Geology		
Watertype	Ca-Na-HCO3-Cl-SO4	
Temperature (°C)		
pH		
Conductivity		uS/cm

Sum of Anions	3.12	meq/L
Sum of Cations	2.90	meq/L
Balance	-3.66	%

Total dissolved solids	219.13	mg/L
Total hardness	84.50	mg/l CaCO3
Alkalinity	73.43	mg/l CaCO3

Major ion composition	mg/l	mmol/l	meq/l
Na	23.89	1.04	1.04
K	6.72	0.172	0.172
Ca	25.41	0.63	1.27
Mg	5.11	0.21	0.42
Cl	30.64	0.86	0.86
SO4	37.83	0.39	0.79
NO3			
HCO3	89.53	1.47	1.47

Ratios			Comparison to Seawater	
	mg/l	mmol/l	mg/l	mmol/l
Ca/Mg	4.97	3.02	0.319	0.194
Ca/SO4	0.67	1.61	0.152	0.364
Na/Cl	0.78	1.20	0.556	0.858
Cl/Br			287	648