50-02
4-10-02
App I

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MAY 2002
Received
Solid Waste Section

SPRING 2002 SEMIANNUAL WATER QUALITY MONITORING REPORT

FOR

THE JACKSON COUNTY MUNICIPAL SOLID WASTE LANDFILL

5-13-02
Per Jim Patterson:
- County will be sending report on proposed CFG remediation project.

Prepared for
JACKSON COUNTY MSWLF
Sylva, North Carolina

Prepared by
ALTAMONT ENVIRONMENTAL, INC.
Asheville, North Carolina

May 10, 2002

John M. Chase
Environmental Technician

James S. McElduff, P.E.
Project Engineer

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1.0 INTRODUCTION

The Jackson County Solid Waste Department maintains a closed Municipal Solid Waste Landfill (MSWLF) located approximately three quarters of a mile west of Dillsboro, North Carolina, north of Old Dillsboro Road (Old US 74) (Figure 1). Entrance to the landfill is by State Road (SR) 1539. The landfill permit requires semiannual monitoring of groundwater and surface water quality. This report serves as the first semiannual groundwater and surface water monitoring report for 2002. The data are being submitted in accordance with requirements stipulated in the North Carolina Department of Environment and Natural Resources (DENR) Solid Waste Management Rules 15A North Carolina Administrative Code (NCAC) 13B. The data and report also comply with the subsequent memorandum regarding Appendix II monitoring from DENR, dated April 21, 1995. This report provides an evaluation of the groundwater and surface water quality. Statistical analyses of groundwater data and groundwater flow information are also provided.

This report contains the following items:

- Water level measurements and elevations for the landfill monitoring wells;
- Surface water and groundwater sampling locations;
- Groundwater and surface water quality analytical results with chain-of-custody forms;
- Duplicate and trip blank analytical results;
- Summary of the statistical analyses of constituents detected during this sampling event;
- Map showing groundwater flow direction; and,
- Field data sampling logs.

2.0 SEMIANNUAL MONITORING

2.1 Groundwater and Surface Water Sampling

The Jackson County Landfill monitoring wells (MW-1 through MW-5) and the surface water sample locations (SW-1 and SW-2) were sampled on April 10, 2002 by Altamont Environmental, Inc. (Altamont). The monitoring well locations are shown on Figure 2. Surface water samples were collected where the property lines intersect the Tuckasegee River. A duplicate sample and a trip blank were also analyzed by the laboratory.

Prior to sampling the groundwater, static water level measurements were taken in each well from the referenced measuring point. Each well was then purged and sampled using a disposable bailer. Samples were obtained after a minimum of three well volumes had been purged and consistent pH, specific conductivity, and temperature readings had been collected. Purge water was collected and stored onsite in secure drums. A summary of water level measurements and field indicator parameters is included in Table 1. Copies of the Field Data Sampling Logs are included in Appendix A.

Groundwater and surface water samples were analyzed for the following parameters:

- Appendix I Volatile Organic Compounds (VOCs) using EPA Method 8260
- Appendix I metals using various EPA Methods from the 6010/7000 series

The samples were analyzed by Pace Analytical Services, Inc. (Pace), a North Carolina certified laboratory, in Huntersville, North Carolina. Proper chain-of-custody documentation was followed during collection and transport of each sample.

On January 6, 1999, Altamont obtained two memoranda from DENR. These memoranda, dated January 18, 1995 and April 21, 1995, address water quality sampling at MSWLF facilities. These documents specified that method detection limits for various Appendix I and Appendix II analytes must be at or below Practical Quantitation Limits (PQLs) as specified in the memoranda. The detection limits utilized during the Spring 2002 sampling event met the PQLs specified by DENR.

2.2 Analytical Results

The laboratory analytical results are summarized in Tables 2 and 3. The Pace analytical reports and chain-of-custody forms are included in Appendix B.

Analytical results for the Appendix I metals analyses are shown in Table 2. Antimony, barium, chromium, cobalt, copper, lead, nickel, silver, thallium, vanadium, and zinc were detected in one or more of the samples. Metals detected in the monitoring wells and surface water samples were found at concentrations less than the respective North Carolina Administrative Code (NCAC), Title 15A, Subchapter 2L groundwater quality standard (2L Standard).

The analytical results for VOCs are shown in Tables 3. Only two VOCs were found in the monitoring wells or surface water samples at concentrations greater than the 2L standards. Benzene and methylene chloride were detected in MW-1 at concentrations of 12.0-micrograms per liter (µg/L) and 6.1-µg/L respectively. The 2L standard for benzene is 1.0-µg/L and the standard for methylene chloride is 5.0-µg/L.

2.3 Hydrogeology

Groundwater at the landfill occurs under water table conditions in fractured bedrock near the top of the landfill along northern property boundary (MW-1) and in saprolite near the toe of the landfill in wells MW-3, MW-4, and MW-5. Water level data collected from MW-1, MW-3 and MW-4 (see Table 5) indicate that the predominant horizontal shallow (saprolite) groundwater flow direction is to the southwest toward the Tuckasegee River. Figure 3 depicts the estimated generalized groundwater flow direction based on the groundwater measurements made by Altamont on April 10, 2002.

The groundwater flow rate in saprolite was calculated using information from three sources: the hydraulic conductivity data reported by Law Engineering in 1994, average hydraulic gradients calculated using the April 2002 water level data, and an average effective porosity for sand and silt mixtures of 30 to 35 percent. Using these data, the calculated groundwater flow rate in saprolite ranged from

approximately 474- to 553-feet/year (ft/yr) in the upper portion of the site and 194- to 226-ft/yr in the lower portion of the site. The groundwater flow rate calculations are summarized in Appendix C.

2.4 Statistical Analyses

The statistical testing procedure Analysis of Variance (ANOVA) was performed on all five of the monitoring wells at the landfill for each of the analyzed parameters. For this procedure, the Single Factor ANOVA option in the EXCEL 5.0 analysis tool-pack was used. The ANOVA method was used to determine if the differences in the total metal or VOC concentrations observed at each sampling location are significant enough to suggest that there is a possibility of true contamination. The ANOVA procedure tests the null hypothesis that the mean concentration of each analyte is equal at each sampling location. If the means for a particular constituent are not equal, then the alternative hypothesis that at least one of the wells differs from the rest is evaluated. This is determined by comparing the computed F-statistic to the critical (or tabulated) F-statistic. If the computed F-statistic exceeds the critical F-statistic, the null hypothesis is rejected and one or more of the wells may be contaminated. If the critical F-statistic exceeds the computed F-statistic, then the null hypothesis is accepted and the possibility of contamination is rejected. All available laboratory analyses performed to date were taken into account. Non-detect observations were evaluated using one-half of the reported detection limit. The ANOVA statistical calculations for each constituent are summarized in Appendix D.

According to the statistical analysis, the total metals barium, chromium, copper, nickel, vanadium, and zinc showed significant deviation from the mean. The concentrations of barium, chromium, copper, nickel, and zinc were each below the respective 2L standard. A 2L standard has not been established for vanadium. The statistical analysis showed that the remaining metal constituents do not show significant deviation from the mean.

Statistical analyses of VOC results showed twelve compounds with significant deviation from the mean. A summary of the ANOVA evaluation is included in Appendix D. Of the twelve VOCs showing significant deviation from the mean only benzene and methylene chloride, both in MW-1, were detected above the 2L standard in the most recent sampling event. Additionally, four of the VOCs showing significant deviation were not detected.

3.0 CONCLUSIONS

The semiannual groundwater monitoring was conducted on April 10, 2002 at the Jackson County Landfill. The data summarized in Appendix D show significant deviation from the mean for seven metals and twelve VOCs.

Metals

Barium, chromium, cobalt, copper, nickel, vanadium, and zinc showed significant deviation. However, review of the data from individual sampling locations (monitoring wells MW-1 through MW-5 and two surface water points) reveals that none of the samples contained metals with exceedances of the 2L standards. In addition, groundwater in three of the five wells was noted as having slight to medium turbidity. Turbidity is caused by suspended soil particles that may contain native inorganic materials.

Organic Compounds

In the current round, only eight of the twelve compounds with significant deviations were detected. A comparison of results from the April 2001 and October 2001 sampling events indicates that the same compounds appear with significant deviations in both events, except ethylbenzene, which showed significant deviation during this event.

Two VOCs, benzene and methylene chloride, were detected at concentrations exceeding the 2L Standard in MW-1. The statistical analyses also showed a significant deviation for benzene and methylene chloride. All other VOCs showing significant deviation were detected below the respective 2L Standard. Review of benzene concentrations accumulated since October 1996 shows that the concentrations have fluctuated between approximately 3.5- and 12-μg/L.

FIGURES

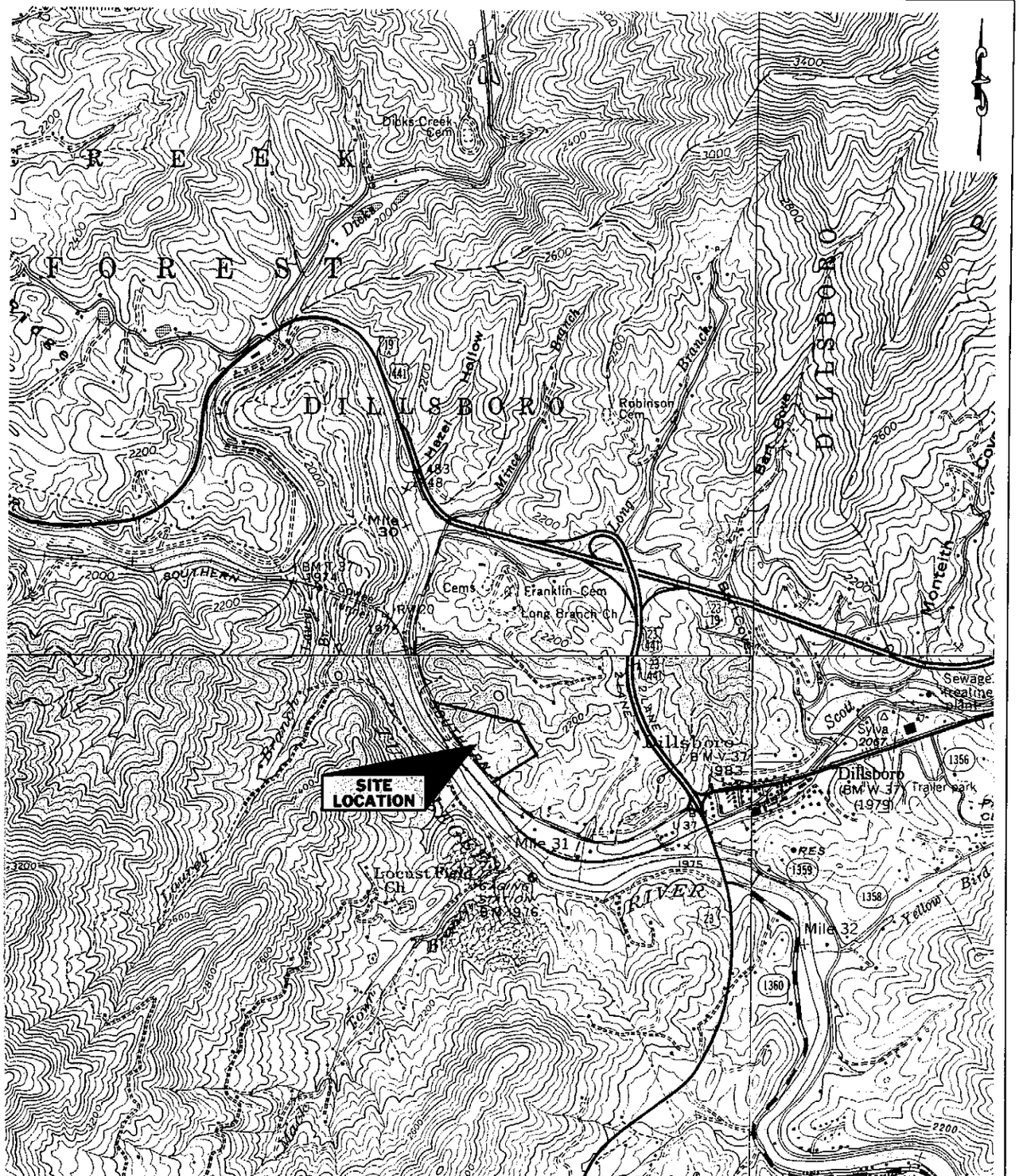

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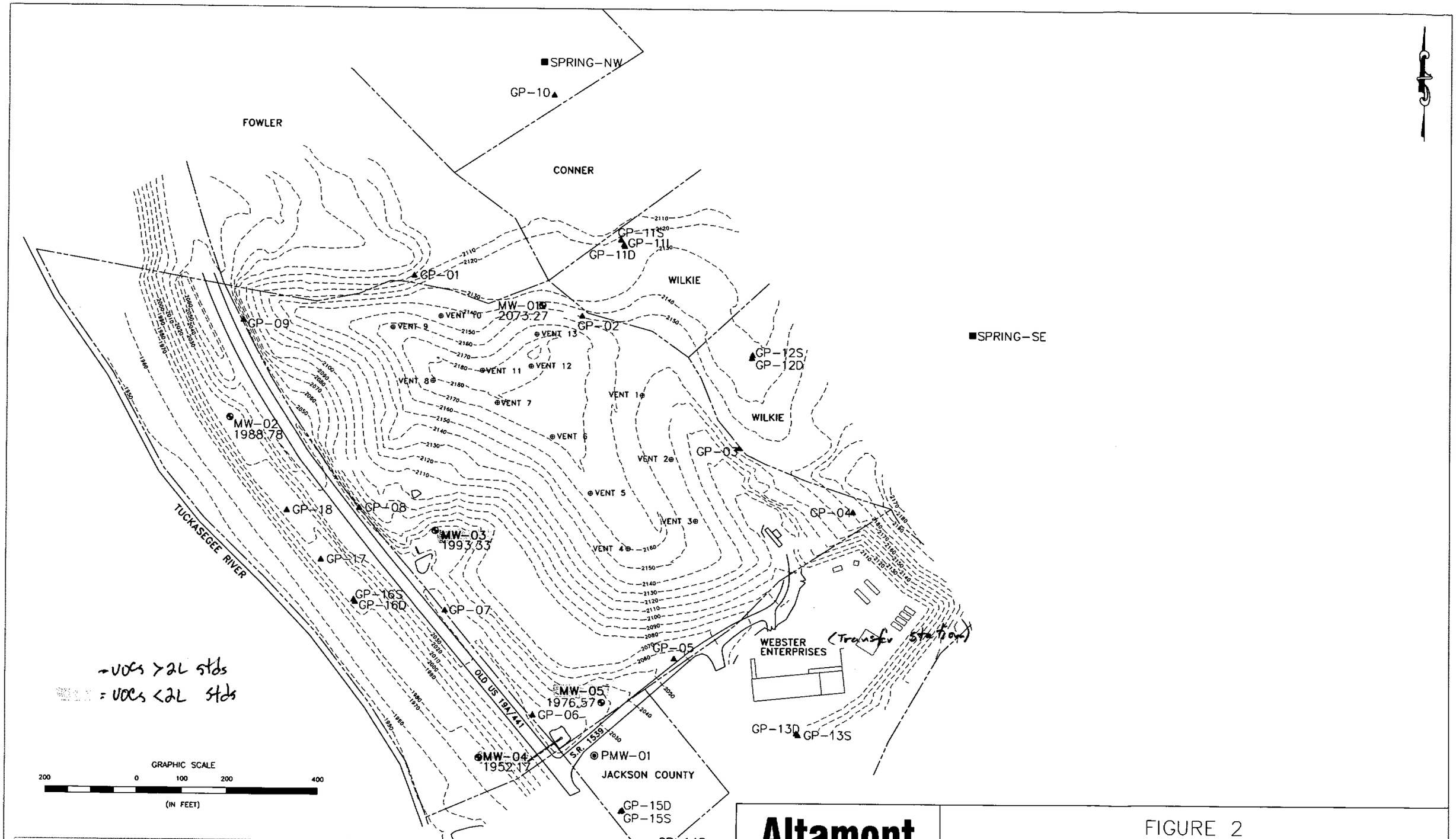
FIGURE 1
SITE LOCATION MAP
JACKSON COUNTY LANDFILL
JACKSON COUNTY, NORTH CAROLINA
GREENS CREEK, WHITTIER, SYLVA NORTH & SYLVA SOUTH
NORTH CAROLINA U.S.G.S. QUADRANGLES

DRAWN BY: JOHN CHASE DATE: 05-01-02
PROJECT MANAGER: JIM MCELDUFF
CLIENT: JACKSON COUNTY
FILE: PROJECTS/JACKSON CO/FIGURE 1

COUNTOUR INTERVALS: 40 FEET
MAP DATES: 1940, 1967, & 1946
PHOTO REVISIONS: 1978 & 1990

GRAPHIC SCALE
1000 0 500 1000 2000
IN FEET



LEGEND

⊕MW-01	MONITORING WELL LOCATION
▲GP-01	GAS PROBE LOCATION
◉PMW-01	PRIVATE MONITORING WELL LOCATION
■SPRING-NW	SPRING LOCATION
———	PROPERTY BOUNDARY

NOTES:

1. TOPOGRAPHY IS FOR REPRESENTATIVE PURPOSES ONLY AND NOT FOR CONSTRUCTION. THIS TOPOGRAPHY WAS OBTAINED FROM McGILL ASSOCIATES AND IS BASED ON A COMPILATION OF AN AERIAL SURVEY AND SEVERAL LAND SURVEYS.

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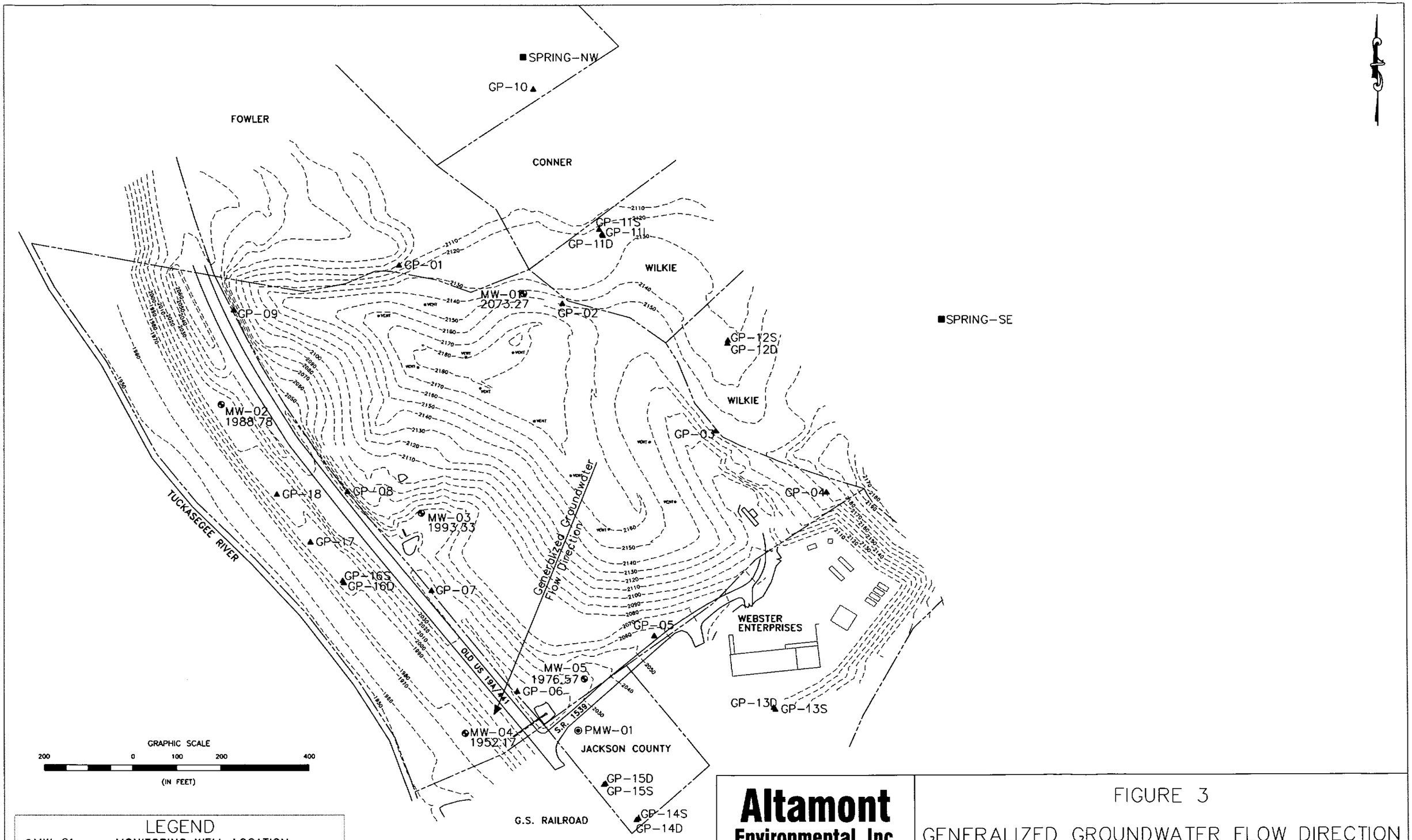
FIGURE 2

MONITORING WELL AND GAS PROBE LOCATION MAP
JACKSON COUNTY LANDFILL

	TD		WL		WCH
MW-1	112.80	-	98.15	=	14.65
MW-2	62.75	-	26.60	=	36.15
MW-3	62.50	-	52.20	=	10.30
MW-4	42.48	-	28.60	=	13.88
MW-5	60.12	-	52.40	=	7.72



LEGEND

⊕MW-01	MONITORING WELL LOCATION
▲GP-01	GAS PROBE LOCATION
◉PMW-01	PRIVATE MONITORING WELL LOCATION
■SPRING-NW	SPRING LOCATION
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FIGURE 3

GENERALIZED GROUNDWATER FLOW DIRECTION
APRIL 10, 2002
JACKSON COUNTY LANDFILL
JACKSON COUNTY, NORTH CAROLINA

TABLES

TABLE 1

FIELD INDICATOR PARAMETERS
JACKSON COUNTY LANDFILL

April 10, 2002

JACKSON COUNTY, NORTH CAROLINA

Well ID	Date	Time Sample Collected	Water Level Depth (feet)	pH	Temperature (°C)	Specific Conductivity (µmhos/cm)
MW-1	4/10/2002	15:00	98.15	5.21	14.5	174
MW-2	4/10/2002	14:30	26.60	5.66	14.3	138
MW-3	4/10/2002	14:15	52.20	5.27	16.1	240
MW-4	4/10/2002	13:30	28.60	5.16	16.4	330
MW-5	4/10/2002	14:45	52.40	5.99	16.5	561

Notes: µmhos/cm = micro-ohms per centimeter

TABLE 2

SUMMARY OF APPENDIX I METALS ANALYTICAL RESULTS
JACKSON COUNTY LANDFILL

April 10, 2002

JACKSON COUNTY, NORTH CAROLINA

Compound	Units	MW-1	MW-2	MW-3	MW-4	MW-4 DUP	MW-5	SW-1	SW-2	NC 2L Standard
Antimony	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0059	NL
Arsenic	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05
Barium	mg/L	0.11	0.038	0.11	1.7	1.1	0.25	0.021	0.016	2.0
Beryllium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	NL
Cadmium	mg/L	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.005
Chromium	mg/L	<0.002	<0.002	<0.002	0.0028	0.0026	0.0066	<0.002	<0.002	0.05
Cobalt	mg/L	0.12	<0.005	0.015	<0.005	<0.005	0.0053	<0.005	<0.005	NL
Copper	mg/L	0.0051	<0.002	<0.002	0.0028	0.0036	0.0150	<0.002	0.0028	1.0
Lead	mg/L	<0.003	<0.003	<0.003	<0.003	<0.003	0.0038	<0.003	<0.003	0.015
Mercury	mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0011
Nickel	mg/L	0.0076	<0.005	<0.005	<0.005	<0.005	0.0056	<0.005	<0.005	0.1
Selenium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.05
Silver	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	0.018
Thallium	mg/L	<0.002	<0.002	<0.002	<0.002	0.0034	<0.002	0.0021	0.0023	NL
Vanadium	mg/L	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	NL
Zinc	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	0.021	<0.01	<0.01	2.1

Note: 1. < indicates compound not detected at or above the concentration shown (PACE detection limit)
2. mg/L = milligrams per liter
3. NL = indicates the compound was not listed on the NC 2L Standards list

TABLE 3

DETECTED VOLATILE ORGANIC COMPOUNDS ANALYTICAL RESULTS
US EPA METHOD 8260
JACKSON COUNTY LANDFILL

April 10, 2002

JACKSON COUNTY, NORTH CAROLINA

Compound	Units	MW-1	MW-2	MW-3	MW-4	MW-4 DUP	MW-5	SW-1	SW-2	NC 2L Standard
1,1-Dichloroethane	µg/L	22	<5.0	6.0	<5.0	<5.0	<5.0	<5.0	<5.0	700
1,4-Dichlorobenzene	µg/L	11	<5.0	8.7	7.2	<5.0	<5.0	<5.0	<5.0	75
Benzene	µg/L	**12**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1
Chloroethane	µg/L	47	<10	<10	<10	6.9	6.4	<5.0	<5.0	2800
cis-1,2-Dichloroethene	µg/L	25	<5.0	7.8	16	25	41	<5.0	<5.0	70
Ethylbenzene	µg/L	16	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	100
Methylene Chloride	µg/L	**6.1**	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	5
Toluene	µg/L	81	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	1000
Xylenes (Total)	µg/L	81	<10	<10	<10	<10	<10	<10	<10	530

Notes:
1. < indicates compound not detected at or above the concentration shown (PACE detection limit)
2. **Bold indicates exceedance of 2L Standard**
3. µg/L = micrograms per liter
4. NL = indicates the compound was not listed on the NC 2L Standards list
5. For the full suite of Appendix I Volatile Organic Compounds analyzed see the enclosed Pace Analytical Services, Inc. report dated April 22, 2002.

TABLE 4

MONITORING WELL AND WATER TABLE ELEVATIONS
JACKSON COUNTY LANDFILL

April 10, 2002

JACKSON COUNTY, NORTH CAROLINA

Well ID	Ground Surface Elevation (MSL)	TOC Elevation (MSL)	Depth To Water (from TOC) (feet)	Water Elevation (MSL)	Depth to Bedrock (feet)	Bedrock Elevation (MSL)	Screened Interval (feet bgs)	Screen Interval (MSL)
MW-1	2169.40	2171.42	98.15	2073.27	83.00	2086.40	95 to 110	2074.40 to 2059.40
MW-2	2013.15	2015.38	26.60	1988.78	13.00	2000.15	45 to 60	1968.15 to 1953.15
MW-3	2044.16	2045.53	52.20	1993.33	57.00	1987.16	48.5 to 63.5	1995.66 to 1980.66
MW-4	1978.68	1980.77	28.60	1952.17	Unknown	Unknown	25 to 40	1951.68 to 1936.68
MW-5	2027.38	2028.97	52.40	1976.57	Unknown	Unknown	50 to 60	1977.38 to 1967.38

Notes:
1. Mean Sea Level (MSL) elevations based on a survey completed on April 9, 1999 by Davenport & Assoc., Inc
2. TOC = Top of Casing
3. Depth to Bedrock and Screened Interval taken from boring logs completed on April 21, 22, & 23, 1992 by S&ME
4. Water Elevation based on TOC Elevation minus Depth to Water (measured from TOC)
5. Bedrock Elevation based on Ground Surface Elevation minus Depth to Bedrock (measured from ground surface)
6. Screened Elevation based on Ground Surface Elevation minus Screened Interval (measured from ground surface)
7. "bgs" means below ground surface

APPENDICES

APPENDIX A

FIELD DATA SAMPLING LOGS

Altamont Environmental, Inc.

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WELL SAMPLING LOG

FACILITY NAME: **Jackson County Closed Landfill** DATE: 4-10-02
LOCATION: **Dillsboro, North Carolina** SAMPLING TIME: 1500
SAMPLING PERSONNEL: **J. Chase** WEATHER: Pt. Cloudy

WELL NUMBER: MW-1 WELL DEPTH (WD): 112.80 DATE: 4-10-02
WELL DIAMETER: **2-inch** WATER LEVEL (WL): 98.15 DATE: 4-10-02
TYPE OF CASING: **PVC** LENGTH OF WATER COLUMN: 14.65 FEET
MEASURING POINT: **Top of Casing (TOC)** (WD) - (WL) = (LWC)
COMMENTS: Check calibration before starting readings. ONE CASING VOLUME: 2.49 GALLONS
(LWC) x (WCV)
THREE CASING VOLUMES: 7.47 GALLONS
ACTUAL VOLUME PURGED: 7.5 GALLONS

WELL CASING VOLUMES (WCV)
2" = 0.17 Gal/Ft 3" = 0.38 Gal/Ft 4" = 0.66 Gal/Ft 6" = 1.5 Gal/Ft 8" = 2.6 Gal/Ft 12" = 5.8 Gal/Ft

PURGE METHOD: BAILER-TEFLON BAILER-DISP. DEDICATED PUMP HOMELITE GRUNDFOS OTHER:
SAMPLE METHOD: BAILER-TEFLON BAILER-DISP. DEDICATED PUMP HOMELITE GRUNDFOS OTHER:

READING	GALLONS PURGED	pH UNITS	SPECIFIC CONDUCTANCE umhos/cm	TEMPERATURE C°	COLOR	TURBIDITY	COMMENTS
1	2.5	5.23	168.3 uS	16.2	Clear	None	
2	5.0	5.18	171.8	14.8	"	"	
3	7.5	5.21	173.7	14.5	"	"	
4							
5							
6							
7							
8							
9							

SAMPLING CONTAINER	NUMBER OF CONTAINERS	CONSTITUENTS SAMPLED
250 ml PLASTIC	1	Metals
40 ml GLASS	4	VOCs
1 L GLASS		

PROTECTIVE CASING: Y PAD: X LOCK: Y VEGETATION: Y COMMENTS:

Sampling Personnel Signature: [signature] Date: 4-10-02

Altamont Environmental, Inc.

Engineering & Hydrogeology
78½ Patton Ave., Asheville, NC 28801
Tel.828.281.3350 Fac.828.281.3351

WELL SAMPLING LOG

FACILITY NAME: **Jackson County Closed Landfill** DATE: 4-10-02
LOCATION: **Dillsboro, North Carolina** SAMPLING TIME: 1430
SAMPLING PERSONNEL: **J. Chase** WEATHER: Pt. Cloudy

WELL NUMBER: MW-2 WELL DEPTH (WD): 62.75 DATE: 4-10-02
WELL DIAMETER: **2-inch** WATER LEVEL (WL): 26.60 DATE: 4-10-02
TYPE OF CASING: **PVC** LENGTH OF WATER COLUMN: 36.15 FEET
MEASURING POINT: **Top of Casing (TOC)** (WD) - (WL) = (LWC)
COMMENTS: ONE CASING VOLUME: 6.145 GALLONS
(LWC) x (WCV)
THREE CASING VOLUMES: 18.4 GALLONS
ACTUAL VOLUME PURGED: 18.5 GALLONS

WELL CASING VOLUMES (WCV)
2" = 0.17 Gal/Ft 3" = 0.38 Gal/Ft 4" = 0.66 Gal/Ft 6" = 1.5 Gal/Ft 8" = 2.6 Gal/Ft 12" = 5.8 Gal/Ft

PURGE METHOD: BAILER-TEFLON BAILER-DISP. DEDICATED PUMP HOMELITE GRUNDFOS OTHER:
SAMPLE METHOD: BAILER-TEFLON BAILER-DISP. DEDICATED PUMP HOMELITE GRUNDFOS OTHER:

READING	GALLONS PURGED	pH UNITS	SPECIFIC CONDUCTANCE umhos/cm	TEMPERATURE C°	COLOR	TURBIDITY	COMMENTS
1	6.1	5.75	136.3 us	16.1	clear	None	
2	12.2	5.71	139.9	14.8	"	"	
3	18.4	5.66	138.0	14.3	"	"	
4							
5							
6							
7							
8							
9							

SAMPLING CONTAINER	NUMBER OF CONTAINERS	CONSTITUENTS SAMPLED
250 ml PLASTIC	1	Metals
40 ml GLASS	4	VOCs
1 L GLASS		

PROTECTIVE CASING: Y PAD: Y LOCK: Y VEGETATION: Y COMMENTS:

Sampling Personnel Signature: JMC Date: 4-10-02

Altamont Environmental, Inc.

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WELL SAMPLING LOG

FACILITY NAME: **Jackson County Closed Landfill** DATE: 4-10-02
LOCATION: **Dillsboro, North Carolina** SAMPLING TIME: 1415
SAMPLING PERSONNEL: **J. Chase** WEATHER: Pt. Cloudy

WELL NUMBER: MW-3 WELL DEPTH (WD): 62.50 DATE: 4-10-02
WELL DIAMETER: **2-inch** WATER LEVEL (WL): 52.20 DATE: 4-10-02
TYPE OF CASING: **PVC** LENGTH OF WATER COLUMN: 10.3 FEET
MEASURING POINT: **Top of Casing (TOC)** (WD) - (WL) = (LWC)
COMMENTS: ONE CASING VOLUME: 1.751 GALLONS
(LWC) x (WCV)
THREE CASING VOLUMES: 5.25 GALLONS
ACTUAL VOLUME PURGED: 5.25 GALLONS

WELL CASING VOLUMES (WCV)
2" = 0.17 Gal/Ft 3" = 0.38 Gal/Ft 4" = 0.66 Gal/Ft 6" = 1.5 Gal/Ft 8" = 2.6 Gal/Ft 12" = 5.8 Gal/Ft

PURGE METHOD: BAILER-TEFLON BAILER-DISP. DEDICATED PUMP HOMELITE GRUNDFOS OTHER:
SAMPLE METHOD: BAILER-TEFLON BAILER-DISP. DEDICATED PUMP HOMELITE GRUNDFOS OTHER:

READING	GALLONS PURGED	pH UNITS	SPECIFIC CONDUCTANCE umhos/cm	TEMPERATURE C°	COLOR	TURBIDITY	COMMENTS
1	1.75	5.25	234	17.0	Clear	None	
2	3.50	5.28	242	16.1	"	"	
3	5.25	5.27	240	16.1	"	"	
4							
5							
6							
7							
8							
9							

SAMPLING CONTAINER	NUMBER OF CONTAINERS	CONSTITUENTS SAMPLED
250 ml PLASTIC	1	Metals
40 ml GLASS	4	VOCs
1 L GLASS		

PROTECTIVE CASING: Y PAD: Y LOCK: Y VEGETATION: Y COMMENTS:

Sampling Personnel Signature: JMC Date: 4-10-02

Altamont Environmental, Inc.

Engineering & Hydrogeology
78½ Patton Ave., Asheville, NC 28801
Tel.828.281.3350 Fac.828.281.3351

WELL SAMPLING LOG

FACILITY NAME: **Jackson County Closed Landfill** DATE: 4-10-02

LOCATION: **Dillsboro, North Carolina** SAMPLING TIME: 13:30

SAMPLING PERSONNEL: **J. Chase** WEATHER: PC, Cloudy, 70°F

WELL NUMBER: MW-4 WELL DEPTH (WD): 42.48 DATE: 4-10-02

WELL DIAMETER: **2-inch** WATER LEVEL (WL): 28.60 DATE: 4-10-02

TYPE OF CASING: **PVC** LENGTH OF WATER COLUMN: 13.88 FEET

MEASURING POINT: **Top of Casing (TOC)** (WD) - (WL) = (LWC)

COMMENTS: ONE CASING VOLUME: 2.35 GALLONS

DUPLICATE Sample (LWC) x (WCV)

Collected from MW-4 - Labeled THREE CASING VOLUMES: 7.0 GALLONS

"DUP" ACTUAL VOLUME PURGED: 7.0 GALLONS

WELL CASING VOLUMES (WCV)

2" = 0.17 Gal/Ft 3" = 0.38 Gal/Ft 4" = 0.66 Gal/Ft 6" = 1.5 Gal/Ft 8" = 2.6 Gal/Ft 12" = 5.8 Gal/Ft

PURGE METHOD: BAILER-TEFLON BAILER-DISP. DEDICATED PUMP HOMELITE GRUNDFOS OTHER:

SAMPLE METHOD: BAILER-TEFLON BAILER-DISP. DEDICATED PUMP HOMELITE GRUNDFOS OTHER:

READING	GALLONS PURGED	pH UNITS	SPECIFIC CONDUCTANCE umhos/cm	TEMPERATURE C°	COLOR	TURBIDITY	COMMENTS
1	2.3	5.15	438	17.7	TAN	Slight	
2	4.6	5.11	370	16.7	"	"	
3	7.0	5.16	330	16.4	"	"	
4							
5							
6							
7							
8							
9							

SAMPLING CONTAINER	NUMBER OF CONTAINERS	CONSTITUENTS SAMPLED
250 ml PLASTIC	1	Metals
40 ml GLASS	4	VOCs
1 L GLASS		

PROTECTIVE CASING: Y PAD: Y LOCK: Y VEGETATION: N COMMENTS:

Sampling Personnel Signature: JMC Date: 4-10-02

Altamont Environmental, Inc.

Engineering & Hydrogeology
78½ Patton Ave., Asheville, NC 28801
Tel.828.281.3350 Fac.828.281.3351

WELL SAMPLING LOG

FACILITY NAME: **Jackson County Closed Landfill** DATE: 4-10-02
LOCATION: **Dillsboro, North Carolina** SAMPLING TIME: 1445
SAMPLING PERSONNEL: **J. Chase** WEATHER: Pt. Cloudy

WELL NUMBER: MW-5 WELL DEPTH (WD): 60.12 DATE: 4-10-02
WELL DIAMETER: **2-inch** WATER LEVEL (WL): 52.40 DATE: 4-10-02
TYPE OF CASING: **PVC** LENGTH OF WATER COLUMN: 7.72 FEET
MEASURING POINT: **Top of Casing (TOC)** (WD) - (WL) = (LWC)
COMMENTS: ONE CASING VOLUME: 1.31 GALLONS
(LWC) x (WCV)
THREE CASING VOLUMES: 3.93 GALLONS
ACTUAL VOLUME PURGED: 3.9 GALLONS

WELL CASING VOLUMES (WCV)
2" = 0.17 Gal/Ft 3" = 0.38 Gal/Ft 4" = 0.66 Gal/Ft 6" = 1.5 Gal/Ft 8" = 2.6 Gal/Ft 12" = 5.8 Gal/Ft

PURGE METHOD: BAILER-TEFLON BAILER-DISP. DEDICATED PUMP HOMELITE GRUNDFOS OTHER:
SAMPLE METHOD: BAILER-TEFLON BAILER-DISP. DEDICATED PUMP HOMELITE GRUNDFOS OTHER:

READING	GALLONS PURGED	pH UNITS	SPECIFIC CONDUCTANCE umhos/cm	TEMPERATURE C°	COLOR	TURBIDITY	COMMENTS
1	1.3	5.70	592	16.5	Brown	Slight	
2	2.6	5.78	567	16.1	"	"	3/4 Bailers
3	3.9	5.99	561	16.5	"	"	Going Dry/Slow Recharge
4							
5							
6							
7							
8							
9							

SAMPLING CONTAINER	NUMBER OF CONTAINERS	CONSTITUENTS SAMPLED
250 ml PLASTIC	1	Metals
40 ml GLASS	4	VOCs
1 L GLASS		

PROTECTIVE CASING: Y PAD: Y LOCK: Y VEGETATION: N COMMENTS:

Sampling Personnel Signature: JMC Date: 4-10-02

APPENDIX B

LABORATORY ANALYTICAL REPORTS

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, Inc.
9800 Kincey Avenue, Suite 100
Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

April 22, 2002

Mr. Jim McElduff
Altamont Environmental
78 1/2 Patton Ave.
Asheville, NC 28801

RE: Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Dear Mr. McElduff:

Enclosed are the analytical results for sample(s) received by the laboratory on April 11, 2002. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,

Kristi R. Tart

Kristi Tart
Kristi.Tart@pacelabs.com
Project Manager

Enclosures

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Fax: 704.875.9091

Altamont Environmental
78 1/2 Patton Ave.
Asheville, NC 28801

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Attn: Mr. Jim McElduff
Phone: (704)358-0744

Lab Sample No: 922199146 | Project Sample Number: 9231933-001 | Date Collected: 04/10/02 15:00
Client Sample ID: MW-1 | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Metals									
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010								
Antimony	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-36-0		
Arsenic	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-38-2		
Barium	0.11	mg/l	0.0050	1.0	04/17/02	DJR	7440-39-3		
Beryllium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-41-7		
Cadmium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-43-9		
Chromium	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-47-3		
Cobalt	0.12	mg/l	0.0050	1.0	04/17/02	DJR	7440-48-4		
Copper	0.0051	mg/l	0.0020	1.0	04/17/02	DJR	7440-50-8		
Lead	ND	mg/l	0.0030	1.0	04/17/02	DJR	7439-92-1		
Nickel	0.0076	mg/l	0.0050	1.0	04/17/02	DJR	7440-02-0		
Selenium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7782-49-2		
Silver	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-22-4		
Vanadium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-62-2		
Zinc	ND	mg/l	0.010	1.0	04/17/02	DJR	7440-66-6		
Date Digested					04/16/02				
Mercury, CVAAS, in Water	Prep/Method: EPA 7470 / EPA 7470								
Mercury	ND	mg/l	0.00020	1.0	04/15/02	LBG	7439-97-6		
Thallium, AAS Furnace	Prep/Method: EPA 3020 / EPA 7841								
Thallium	ND	mg/l	0.0020	1.0	04/18/02	LBG	7440-28-0		
Date Digested					04/16/02				
GC/MS Volatiles									
GC/MS VOCs by 8260	Prep/Method: EPA 8260 / EPA 8260								
Acetone	ND	ug/l	100	1.0	04/12/02 09:57	BCK	67-64-1		
Acrylonitrile	ND	ug/l	100	1.0	04/12/02 09:57	BCK	107-13-1		
Benzene	12.	ug/l	5.0	1.0	04/12/02 09:57	BCK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	74-97-5		

Laboratory Certification IDs
NC Wastewater 12
NC Drinking Water 37706
SC 99006

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VA Drinking Water 213
FL NELAP E87627

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9800 Kincey Avenue, Suite 100
Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199146 | Project Sample Number: 9231933-001 | Date Collected: 04/10/02 15:00
Client Sample ID: MW-1 | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Bromodichloromethane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	75-27-4		
Bromoform	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	75-25-2		
Bromomethane	ND	ug/l	10.	1.0	04/12/02 09:57	BCK	74-83-9		
2-Butanone (MEK)	ND	ug/l	100	1.0	04/12/02 09:57	BCK	78-93-3		
Carbon disulfide	ND	ug/l	10.	1.0	04/12/02 09:57	BCK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	108-90-7		
Chloroethane	47.	ug/l	10.	1.0	04/12/02 09:57	BCK	75-00-3		
Chloroform	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	67-66-3		
Chloromethane	ND	ug/l	10.	1.0	04/12/02 09:57	BCK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	106-93-4		
Dibromomethane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	95-50-1		
1,4-Dichlorobenzene	11.	ug/l	5.0	1.0	04/12/02 09:57	BCK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	110-57-6		
1,1-Dichloroethane	22.	ug/l	5.0	1.0	04/12/02 09:57	BCK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	107-06-2		
1,1-Dichloroethene	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	75-35-4		
cis-1,2-Dichloroethene	25.	ug/l	5.0	1.0	04/12/02 09:57	BCK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	10061-01-5		
Ethylbenzene	16.	ug/l	5.0	1.0	04/12/02 09:57	BCK	100-41-4		
2-Hexanone	ND	ug/l	50.	1.0	04/12/02 09:57	BCK	591-78-6		
Iodomethane	ND	ug/l	10.	1.0	04/12/02 09:57	BCK	74-88-4		
Methylene chloride	6.1	ug/l	5.0	1.0	04/12/02 09:57	BCK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	50.	1.0	04/12/02 09:57	BCK	108-10-1		
Styrene	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	127-18-4		
Toluene	81.	ug/l	5.0	1.0	04/12/02 09:57	BCK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	79-00-5		
Trichloroethene	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	1.0	04/12/02 09:57	BCK	75-69-4		

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Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199146
Client Sample ID: MW-1

Project Sample Number: 9231933-001
Matrix: Water

Date Collected: 04/10/02 15:00
Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
1,2,3-Trichloropropane	ND	ug/l	5.0	1.0	04/12/02 09:57	BCK	96-18-4		
Vinyl acetate	ND	ug/l	50.	1.0	04/12/02 09:57	BCK	108-05-4		
Vinyl chloride	ND	ug/l	10.	1.0	04/12/02 09:57	BCK	75-01-4		
m&p-Xylene	39.	ug/l	10.	1.0	04/12/02 09:57	BCK			
o-Xylene	42.	ug/l	5.0	1.0	04/12/02 09:57	BCK	95-47-6		
Toluene-d8 (S)	99	%		1.0	04/12/02 09:57	BCK	2037-26-5		
4-Bromofluorobenzene (S)	88	%		1.0	04/12/02 09:57	BCK	460-00-4		
Dibromofluoromethane (S)	101	%		1.0	04/12/02 09:57	BCK			
1,2-Dichloroethane-d4 (S)	104	%		1.0	04/12/02 09:57	BCK	17060-07-0		

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Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199153 | Project Sample Number: 9231933-002 | Date Collected: 04/10/02 14:30
Client Sample ID: MW-2 | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Metals									
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010								
Antimony	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-36-0		
Arsenic	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-38-2		
Barium	0.038	mg/l	0.0050	1.0	04/17/02	DJR	7440-39-3		
Beryllium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-41-7		
Cadmium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-43-9		
Chromium	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-47-3		
Cobalt	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-48-4		
Copper	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-50-8		
Lead	ND	mg/l	0.0030	1.0	04/17/02	DJR	7439-92-1		
Nickel	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-02-0		
Selenium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7782-49-2		
Silver	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-22-4		
Vanadium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-62-2		
Zinc	ND	mg/l	0.010	1.0	04/17/02	DJR	7440-66-6		
Date Digested					04/16/02				
Mercury, CVAAS, in Water	Prep/Method: EPA 7470 / EPA 7470								
Mercury	ND	mg/l	0.00020	1.0	04/15/02	LBG	7439-97-6		
Thallium, AAS Furnace	Prep/Method: EPA 3020 / EPA 7841								
Thallium	ND	mg/l	0.0020	1.0	04/18/02	LBG	7440-28-0		
Date Digested					04/16/02				
GC/MS Volatiles									
GC/MS VOCs by 8260	Prep/Method: EPA 8260 / EPA 8260								
Acetone	ND	ug/l	100	1.0	04/12/02 10:26	BCK	67-64-1		
Acrylonitrile	ND	ug/l	100	1.0	04/12/02 10:26	BCK	107-13-1		
Benzene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	75-27-4		
Bromoform	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	75-25-2		
Bromomethane	ND	ug/l	10.	1.0	04/12/02 10:26	BCK	74-83-9		
2-Butanone (MEK)	ND	ug/l	100	1.0	04/12/02 10:26	BCK	78-93-3		
Carbon disulfide	ND	ug/l	10.	1.0	04/12/02 10:26	BCK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	108-90-7		

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Fax: 704.875.9091

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199153 | Project Sample Number: 9231933-002 | Date Collected: 04/10/02 14:30
Client Sample ID: MW-2 | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Chloroethane	ND	ug/l	10.	1.0	04/12/02 10:26	BCK	75-00-3		
Chloroform	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	67-66-3		
Chloromethane	ND	ug/l	10.	1.0	04/12/02 10:26	BCK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	106-93-4		
Dibromomethane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	107-06-2		
1,1-Dichloroethene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	10061-01-5		
Ethylbenzene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	100-41-4		
2-Hexanone	ND	ug/l	50.	1.0	04/12/02 10:26	BCK	591-78-6		
Iodomethane	ND	ug/l	10.	1.0	04/12/02 10:26	BCK	74-88-4		
Methylene chloride	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	50.	1.0	04/12/02 10:26	BCK	108-10-1		
Styrene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	127-18-4		
Toluene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	79-00-5		
Trichloroethene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	1.0	04/12/02 10:26	BCK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	96-18-4		
Vinyl acetate	ND	ug/l	50.	1.0	04/12/02 10:26	BCK	108-05-4		
Vinyl chloride	ND	ug/l	10.	1.0	04/12/02 10:26	BCK	75-01-4		
m&p-Xylene	ND	ug/l	10.	1.0	04/12/02 10:26	BCK			
o-Xylene	ND	ug/l	5.0	1.0	04/12/02 10:26	BCK	95-47-6		
Toluene-d8 (S)	98	%		1.0	04/12/02 10:26	BCK	2037-26-5		
4-Bromofluorobenzene (S)	82	%		1.0	04/12/02 10:26	BCK	460-00-4		

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Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199153 | Project Sample Number: 9231933-002 | Date Collected: 04/10/02 14:30
Client Sample ID: MW-2 | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Dibromofluoromethane (S)	102	%		1.0	04/12/02 10:26	BCK			
1,2-Dichloroethane-d4 (S)	106	%		1.0	04/12/02 10:26	BCK	17060-07-0		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199161 | Project Sample Number: 9231933-003 | Date Collected: 04/10/02 14:15
Client Sample ID: MW-3 | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Metals									
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010								
Antimony	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-36-0		
Arsenic	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-38-2		
Barium	0.11	mg/l	0.0050	1.0	04/17/02	DJR	7440-39-3		
Beryllium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-41-7		
Cadmium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-43-9		
Chromium	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-47-3		
Cobalt	0.015	mg/l	0.0050	1.0	04/17/02	DJR	7440-48-4		
Copper	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-50-8		
Lead	ND	mg/l	0.0030	1.0	04/17/02	DJR	7439-92-1		
Nickel	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-02-0		
Selenium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7782-49-2		
Silver	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-22-4		
Vanadium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-62-2		
Zinc	ND	mg/l	0.010	1.0	04/17/02	DJR	7440-66-6		
Date Digested					04/16/02				
Mercury, CVAAS, in Water	Prep/Method: EPA 7470 / EPA 7470								
Mercury	ND	mg/l	0.00020	1.0	04/15/02	LBG	7439-97-6		
Thallium, AAS Furnace	Prep/Method: EPA 3020 / EPA 7841								
Thallium	ND	mg/l	0.0020	1.0	04/18/02	LBG	7440-28-0		
Date Digested					04/16/02				
GC/MS Volatiles									
GC/MS VOCs by 8260	Prep/Method: EPA 8260 / EPA 8260								
Acetone	ND	ug/l	100	1.0	04/12/02 11:00	BCK	67-64-1		
Acrylonitrile	ND	ug/l	100	1.0	04/12/02 11:00	BCK	107-13-1		
Benzene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	75-27-4		
Bromoform	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	75-25-2		
Bromomethane	ND	ug/l	10.	1.0	04/12/02 11:00	BCK	74-83-9		
2-Butanone (MEK)	ND	ug/l	100	1.0	04/12/02 11:00	BCK	78-93-3		
Carbon disulfide	ND	ug/l	10.	1.0	04/12/02 11:00	BCK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	108-90-7		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199161 | Project Sample Number: 9231933-003 | Date Collected: 04/10/02 14:15
Client Sample ID: MW-3 | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Chloroethane	ND	ug/l	10.	1.0	04/12/02 11:00	BCK	75-00-3		
Chloroform	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	67-66-3		
Chloromethane	ND	ug/l	10.	1.0	04/12/02 11:00	BCK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	106-93-4		
Dibromomethane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	95-50-1		
1,4-Dichlorobenzene	8.7	ug/l	5.0	1.0	04/12/02 11:00	BCK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	110-57-6		
1,1-Dichloroethane	6.0	ug/l	5.0	1.0	04/12/02 11:00	BCK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	107-06-2		
1,1-Dichloroethene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	75-35-4		
cis-1,2-Dichloroethene	7.8	ug/l	5.0	1.0	04/12/02 11:00	BCK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	10061-01-5		
Ethylbenzene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	100-41-4		
2-Hexanone	ND	ug/l	50.	1.0	04/12/02 11:00	BCK	591-78-6		
Iodomethane	ND	ug/l	10.	1.0	04/12/02 11:00	BCK	74-88-4		
Methylene chloride	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	50.	1.0	04/12/02 11:00	BCK	108-10-1		
Styrene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	127-18-4		
Toluene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	79-00-5		
Trichloroethene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	1.0	04/12/02 11:00	BCK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	96-18-4		
Vinyl acetate	ND	ug/l	50.	1.0	04/12/02 11:00	BCK	108-05-4		
Vinyl chloride	ND	ug/l	10.	1.0	04/12/02 11:00	BCK	75-01-4		
m&p-Xylene	ND	ug/l	10.	1.0	04/12/02 11:00	BCK			
o-Xylene	ND	ug/l	5.0	1.0	04/12/02 11:00	BCK	95-47-6		
Toluene-d8 (S)	99	%		1.0	04/12/02 11:00	BCK	2037-26-5		
4-Bromofluorobenzene (S)	84	%		1.0	04/12/02 11:00	BCK	460-00-4		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199161 | Project Sample Number: 9231933-003 | Date Collected: 04/10/02 14:15
Client Sample ID: MW-3 | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Req Limit
Dibromofluoromethane (S)	107	%		1.0	04/12/02 11:00	BCK			
1.2-Dichloroethane-d4 (S)	108	%		1.0	04/12/02 11:00	BCK	17060-07-0		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199179
Client Sample ID: MW-4

Project Sample Number: 9231933-004
Matrix: Water

Date Collected: 04/10/02 13:30
Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Metals									
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010								
Antimony	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-36-0		
Arsenic	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-38-2		
Barium	1.7	mg/l	0.0050	1.0	04/17/02	DJR	7440-39-3		
Beryllium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-41-7		
Cadmium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-43-9		
Chromium	0.0028	mg/l	0.0020	1.0	04/17/02	DJR	7440-47-3		
Cobalt	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-48-4		
Copper	0.0028	mg/l	0.0020	1.0	04/17/02	DJR	7440-50-8		
Lead	ND	mg/l	0.0030	1.0	04/17/02	DJR	7439-92-1		
Nickel	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-02-0		
Selenium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7782-49-2		
Silver	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-22-4		
Vanadium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-62-2		
Zinc	ND	mg/l	0.010	1.0	04/17/02	DJR	7440-66-6		
Date Digested					04/16/02				
Mercury, CVAAS, in Water	Prep/Method: EPA 7470 / EPA 7470								
Mercury	ND	mg/l	0.00020	1.0	04/15/02	LBG	7439-97-6		
Thallium, AAS Furnace	Prep/Method: EPA 3020 / EPA 7841								
Thallium	ND	mg/l	0.0020	1.0	04/18/02	LBG	7440-28-0		
Date Digested					04/16/02				
GC/MS Volatiles									
GC/MS VOCs by 8260	Prep/Method: EPA 8260 / EPA 8260								
Acetone	ND	ug/l	100	1.0	04/12/02 11:28	BCK	67-64-1		
Acrylonitrile	ND	ug/l	100	1.0	04/12/02 11:28	BCK	107-13-1		
Benzene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	75-27-4		
Bromoform	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	75-25-2		
Bromomethane	ND	ug/l	10.	1.0	04/12/02 11:28	BCK	74-83-9		
2-Butanone (MEK)	ND	ug/l	100	1.0	04/12/02 11:28	BCK	78-93-3		
Carbon disulfide	ND	ug/l	10.	1.0	04/12/02 11:28	BCK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	108-90-7		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199179
Client Sample ID: MW-4

Project Sample Number: 9231933-004
Matrix: Water

Date Collected: 04/10/02 13:30
Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Chloroethane	ND	ug/l	10.	1.0	04/12/02 11:28	BCK	75-00-3		
Chloroform	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	67-66-3		
Chloromethane	ND	ug/l	10.	1.0	04/12/02 11:28	BCK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	106-93-4		
Dibromomethane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	95-50-1		
1,4-Dichlorobenzene	7.2	ug/l	5.0	1.0	04/12/02 11:28	BCK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	107-06-2		
1,1-Dichloroethene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	75-35-4		
cis-1,2-Dichloroethene	16.	ug/l	5.0	1.0	04/12/02 11:28	BCK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	10061-01-5		
Ethylbenzene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	100-41-4		
2-Hexanone	ND	ug/l	50.	1.0	04/12/02 11:28	BCK	591-78-6		
Iodomethane	ND	ug/l	10.	1.0	04/12/02 11:28	BCK	74-88-4		
Methylene chloride	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	50.	1.0	04/12/02 11:28	BCK	108-10-1		
Styrene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	127-18-4		
Toluene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	79-00-5		
Trichloroethene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	1.0	04/12/02 11:28	BCK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	96-18-4		
Vinyl acetate	ND	ug/l	50.	1.0	04/12/02 11:28	BCK	108-05-4		
Vinyl chloride	ND	ug/l	10.	1.0	04/12/02 11:28	BCK	75-01-4		
m&p-Xylene	ND	ug/l	10.	1.0	04/12/02 11:28	BCK			
o-Xylene	ND	ug/l	5.0	1.0	04/12/02 11:28	BCK	95-47-6		
Toluene-d8 (S)	100	%		1.0	04/12/02 11:28	BCK	2037-26-5		
4-Bromofluorobenzene (S)	84	%		1.0	04/12/02 11:28	BCK	460-00-4		

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Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199179
Client Sample ID: MW-4

Project Sample Number: 9231933-004
Matrix: Water

Date Collected: 04/10/02 13:30
Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Dibromofluoromethane (S)	101	%		1.0	04/12/02 11:28	BCK			
1,2-Dichloroethane-d4 (S)	106	%		1.0	04/12/02 11:28	BCK	17060-07-0		

Laboratory Certification IDs

NC Wastewater	12
NC Drinking Water	37706
SC	99006

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Laboratory Certification IDs

LA Wastewater	04034
VA Drinking Water	213
FL NELAP	E87627

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Huntersville, NC 28078
Phone: 704.875.9092
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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199187
Client Sample ID: MW-5

Project Sample Number: 9231933-005
Matrix: Water

Date Collected: 04/10/02 14:45
Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Metals									
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010								
Antimony	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-36-0		
Arsenic	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-38-2		
Barium	0.25	mg/l	0.0050	1.0	04/17/02	DJR	7440-39-3		
Beryllium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-41-7		
Cadmium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-43-9		
Chromium	0.0066	mg/l	0.0020	1.0	04/17/02	DJR	7440-47-3		
Cobalt	0.0053	mg/l	0.0050	1.0	04/17/02	DJR	7440-48-4		
Copper	0.015	mg/l	0.0020	1.0	04/17/02	DJR	7440-50-8		
Lead	0.0038	mg/l	0.0030	1.0	04/17/02	DJR	7439-92-1		
Nickel	0.0056	mg/l	0.0050	1.0	04/17/02	DJR	7440-02-0		
Selenium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7782-49-2		
Silver	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-22-4		
Vanadium	0.012	mg/l	0.0050	1.0	04/17/02	DJR	7440-62-2		
Zinc	0.021	mg/l	0.010	1.0	04/17/02	DJR	7440-66-6		
Date Digested					04/16/02				
Mercury, CVAAS, in Water	Prep/Method: EPA 7470 / EPA 7470								
Mercury	ND	mg/l	0.00020	1.0	04/15/02	LBG	7439-97-6		
Thallium, AAS Furnace	Prep/Method: EPA 3020 / EPA 7841								
Thallium	ND	mg/l	0.0020	1.0	04/18/02	LBG	7440-28-0		
Date Digested					04/16/02				
GC/MS Volatiles									
GC/MS VOCs by 8260	Prep/Method: EPA 8260 / EPA 8260								
Acetone	ND	ug/l	100	1.0	04/13/02 03:22	RPJ	67-64-1		
Acrylonitrile	ND	ug/l	100	1.0	04/13/02 03:22	RPJ	107-13-1		
Benzene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	71-43-2		
Bromochloromethane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	75-27-4		
Bromoform	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	75-25-2		
Bromomethane	ND	ug/l	10.	1.0	04/13/02 03:22	RPJ	74-83-9		
2-Butanone (MEK)	ND	ug/l	100	1.0	04/13/02 03:22	RPJ	78-93-3		
Carbon disulfide	ND	ug/l	10.	1.0	04/13/02 03:22	RPJ	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	56-23-5		
Chlorobenzene	6.4	ug/l	5.0	1.0	04/13/02 03:22	RPJ	108-90-7		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199187 | Project Sample Number: 9231933-005 | Date Collected: 04/10/02 14:45
Client Sample ID: MW-5 | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Chloroethane	ND	ug/l	10.	1.0	04/13/02 03:22	RPJ	75-00-3		
Chloroform	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	67-66-3		
Chloromethane	ND	ug/l	10.	1.0	04/13/02 03:22	RPJ	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	106-93-4		
Dibromomethane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	107-06-2		
1,1-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	75-35-4		
cis-1,2-Dichloroethene	41.	ug/l	5.0	1.0	04/13/02 03:22	RPJ	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	10061-01-5		
Ethylbenzene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	100-41-4		
2-Hexanone	ND	ug/l	50.	1.0	04/13/02 03:22	RPJ	591-78-6		
Iodomethane	ND	ug/l	10.	1.0	04/13/02 03:22	RPJ	74-88-4		
Methylene chloride	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	50.	1.0	04/13/02 03:22	RPJ	108-10-1		
Styrene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	127-18-4		
Toluene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	79-00-5		
Trichloroethene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	1.0	04/13/02 03:22	RPJ	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	96-18-4		
Vinyl acetate	ND	ug/l	50.	1.0	04/13/02 03:22	RPJ	108-05-4		
Vinyl chloride	ND	ug/l	10.	1.0	04/13/02 03:22	RPJ	75-01-4		
m&p-Xylene	ND	ug/l	10.	1.0	04/13/02 03:22	RPJ			
o-Xylene	ND	ug/l	5.0	1.0	04/13/02 03:22	RPJ	95-47-6		
Toluene-d8 (S)	95	%		1.0	04/13/02 03:22	RPJ	2037-26-5		
4-Bromofluorobenzene (S)	86	%		1.0	04/13/02 03:22	RPJ	460-00-4		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199187 Project Sample Number: 9231933-005 Date Collected: 04/10/02 14:45
Client Sample ID: MW-5 Matrix: Water Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Dibromofluoromethane (S)	103	%		1.0	04/13/02 03:22	RPJ			
1,2-Dichloroethane-d4 (S)	105	%		1.0	04/13/02 03:22	RPJ	17060-07-0		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199195 | Project Sample Number: 9231933-006 | Date Collected: 04/10/02 13:45
Client Sample ID: SW-1 UPSTREAM | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Metals									
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010								
Antimony	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-36-0		
Arsenic	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-38-2		
Barium	0.021	mg/l	0.0050	1.0	04/17/02	DJR	7440-39-3		
Beryllium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-41-7		
Cadmium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-43-9		
Chromium	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-47-3		
Cobalt	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-48-4		
Copper	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-50-8		
Lead	ND	mg/l	0.0030	1.0	04/17/02	DJR	7439-92-1		
Nickel	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-02-0		
Selenium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7782-49-2		
Silver	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-22-4		
Vanadium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-62-2		
Zinc	ND	mg/l	0.010	1.0	04/17/02	DJR	7440-66-6		
Date Digested					04/16/02				
Mercury, CVAAS, in Water	Prep/Method: EPA 7470 / EPA 7470								
Mercury	ND	mg/l	0.00020	1.0	04/15/02	LBG	7439-97-6		
Thallium, AAS Furnace	Prep/Method: EPA 3020 / EPA 7841								
Thallium	0.0021	mg/l	0.0020	1.0	04/18/02	LBG	7440-28-0		
Date Digested					04/16/02				
GC/MS Volatiles									
GC/MS VOCs by 8260	Prep/Method: EPA 8260 / EPA 8260								
Acetone	ND	ug/l	100	1.0	04/13/02 03:50	RPJ	67-64-1		
Acrylonitrile	ND	ug/l	100	1.0	04/13/02 03:50	RPJ	107-13-1		
Benzene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	71-43-2		
Bromochloromethane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	75-27-4		
Bromoform	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	75-25-2		
Bromomethane	ND	ug/l	10.	1.0	04/13/02 03:50	RPJ	74-83-9		
2-Butanone (MEK)	ND	ug/l	100	1.0	04/13/02 03:50	RPJ	78-93-3		
Carbon disulfide	ND	ug/l	10.	1.0	04/13/02 03:50	RPJ	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	56-23-5		
Chlorobenzene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	108-90-7		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199195 | Project Sample Number: 9231933-006 | Date Collected: 04/10/02 13:45
Client Sample ID: SW-1 UPSTREAM | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Chloroethane	ND	ug/l	10.	1.0	04/13/02 03:50	RPJ	75-00-3		
Chloroform	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	67-66-3		
Chloromethane	ND	ug/l	10.	1.0	04/13/02 03:50	RPJ	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	106-93-4		
Dibromomethane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	107-06-2		
1,1-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	10061-01-5		
Ethylbenzene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	100-41-4		
2-Hexanone	ND	ug/l	50.	1.0	04/13/02 03:50	RPJ	591-78-6		
Iodomethane	ND	ug/l	10.	1.0	04/13/02 03:50	RPJ	74-88-4		
Methylene chloride	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	50.	1.0	04/13/02 03:50	RPJ	108-10-1		
Styrene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	127-18-4		
Toluene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	79-00-5		
Trichloroethene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	1.0	04/13/02 03:50	RPJ	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	96-18-4		
Vinyl acetate	ND	ug/l	50.	1.0	04/13/02 03:50	RPJ	108-05-4		
Vinyl chloride	ND	ug/l	10.	1.0	04/13/02 03:50	RPJ	75-01-4		
m&p-Xylene	ND	ug/l	10.	1.0	04/13/02 03:50	RPJ			
o-Xylene	ND	ug/l	5.0	1.0	04/13/02 03:50	RPJ	95-47-6		
Toluene-d8 (S)	96	%		1.0	04/13/02 03:50	RPJ	2037-26-5		
4-Bromofluorobenzene (S)	84	%		1.0	04/13/02 03:50	RPJ	460-00-4		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199195
Client Sample ID: SW-1 UPSTREAM

Project Sample Number: 9231933-006
Matrix: Water

Date Collected: 04/10/02 13:45
Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Dibromofluoromethane (S)	101	%		1.0	04/13/02 03:50	RPJ			
1,2-Dichloroethane-d4 (S)	103	%		1.0	04/13/02 03:50	RPJ	17060-07-0		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199203 | Project Sample Number: 9231933-007 | Date Collected: 04/10/02 14:00
Client Sample ID: SW-2 DOWNSTREAM | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Metals									
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010								
Antimony	0.0059	mg/l	0.0050	1.0	04/17/02	DJR	7440-36-0		
Arsenic	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-38-2		
Barium	0.016	mg/l	0.0050	1.0	04/17/02	DJR	7440-39-3		
Beryllium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-41-7		
Cadmium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-43-9		
Chromium	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-47-3		
Cobalt	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-48-4		
Copper	0.0028	mg/l	0.0020	1.0	04/17/02	DJR	7440-50-8		
Lead	ND	mg/l	0.0030	1.0	04/17/02	DJR	7439-92-1		
Nickel	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-02-0		
Selenium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7782-49-2		
Silver	0.0020	mg/l	0.0020	1.0	04/17/02	DJR	7440-22-4		
Vanadium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-62-2		
Zinc	ND	mg/l	0.010	1.0	04/17/02	DJR	7440-66-6		
Date Digested					04/16/02				
Mercury, CVAAS, in Water	Prep/Method: EPA 7470 / EPA 7470								
Mercury	ND	mg/l	0.00020	1.0	04/15/02	LBG	7439-97-6		
Thallium, AAS Furnace	Prep/Method: EPA 3020 / EPA 7841								
Thallium	0.0023	mg/l	0.0020	1.0	04/18/02	LBG	7440-28-0		
Date Digested					04/16/02				
GC/MS Volatiles									
GC/MS VOCs by 8260	Prep/Method: EPA 8260 / EPA 8260								
Acetone	ND	ug/l	100	1.0	04/13/02 04:19	RPJ	67-64-1		
Acrylonitrile	ND	ug/l	100	1.0	04/13/02 04:19	RPJ	107-13-1		
Benzene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	71-43-2		
Bromochloromethane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	75-27-4		
Bromoform	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	75-25-2		
Bromomethane	ND	ug/l	10.	1.0	04/13/02 04:19	RPJ	74-83-9		
2-Butanone (MEK)	ND	ug/l	100	1.0	04/13/02 04:19	RPJ	78-93-3		
Carbon disulfide	ND	ug/l	10.	1.0	04/13/02 04:19	RPJ	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	56-23-5		
Chlorobenzene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	108-90-7		

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Phone: 704.875.9092
Fax: 704.875.9091

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199203 | Project Sample Number: 9231933-007 | Date Collected: 04/10/02 14:00
Client Sample ID: SW-2 DOWNSTREAM | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Chloroethane	ND	ug/l	10.	1.0	04/13/02 04:19	RPJ	75-00-3		
Chloroform	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	67-66-3		
Chloromethane	ND	ug/l	10.	1.0	04/13/02 04:19	RPJ	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	106-93-4		
Dibromomethane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	107-06-2		
1,1-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	10061-01-5		
Ethylbenzene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	100-41-4		
2-Hexanone	ND	ug/l	50.	1.0	04/13/02 04:19	RPJ	591-78-6		
Iodomethane	ND	ug/l	10.	1.0	04/13/02 04:19	RPJ	74-88-4		
Methylene chloride	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	50.	1.0	04/13/02 04:19	RPJ	108-10-1		
Styrene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	127-18-4		
Toluene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	79-00-5		
Trichloroethene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	1.0	04/13/02 04:19	RPJ	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	96-18-4		
Vinyl acetate	ND	ug/l	50.	1.0	04/13/02 04:19	RPJ	108-05-4		
Vinyl chloride	ND	ug/l	10.	1.0	04/13/02 04:19	RPJ	75-01-4		
m&p-Xylene	ND	ug/l	10.	1.0	04/13/02 04:19	RPJ			
o-Xylene	ND	ug/l	5.0	1.0	04/13/02 04:19	RPJ	95-47-6		
Toluene-d8 (S)	95	%		1.0	04/13/02 04:19	RPJ	2037-26-5		
4-Bromofluorobenzene (S)	83	%		1.0	04/13/02 04:19	RPJ	460-00-4		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199203 | Project Sample Number: 9231933-007 | Date Collected: 04/10/02 14:00
Client Sample ID: SW-2 DOWNSTREAM | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Dibromofluoromethane (S)	105	%		1.0	04/13/02 04:19	RPJ			
1,2-Dichloroethane-d4 (S)	107	%		1.0	04/13/02 04:19	RPJ	17060-07-0		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199211 | Project Sample Number: 9231933-008 | Date Collected: 04/10/02 00:00
Client Sample ID: DUP | Matrix: Water | Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Metals									
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010								
Antimony	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-36-0		
Arsenic	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-38-2		
Barium	1.1	mg/l	0.0050	1.0	04/17/02	DJR	7440-39-3		
Beryllium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-41-7		
Cadmium	ND	mg/l	0.0010	1.0	04/17/02	DJR	7440-43-9		
Chromium	0.0026	mg/l	0.0020	1.0	04/17/02	DJR	7440-47-3		
Cobalt	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-48-4		
Copper	0.0036	mg/l	0.0020	1.0	04/17/02	DJR	7440-50-8		
Lead	ND	mg/l	0.0030	1.0	04/17/02	DJR	7439-92-1		
Nickel	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-02-0		
Selenium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7782-49-2		
Silver	ND	mg/l	0.0020	1.0	04/17/02	DJR	7440-22-4		
Vanadium	ND	mg/l	0.0050	1.0	04/17/02	DJR	7440-62-2		
Zinc	ND	mg/l	0.010	1.0	04/17/02	DJR	7440-66-6		
Date Digested					04/16/02				
Mercury, CVAAS, in Water	Prep/Method: EPA 7470 / EPA 7470								
Mercury	ND	mg/l	0.00020	1.0	04/15/02	LBG	7439-97-6		
Thallium, AAS Furnace	Prep/Method: EPA 3020 / EPA 7841								
Thallium	0.0034	mg/l	0.0020	1.0	04/18/02	LBG	7440-28-0		
Date Digested					04/16/02				
GC/MS Volatiles									
GC/MS VOCs by 8260	Prep/Method: EPA 8260 / EPA 8260								
Acetone	ND	ug/l	100	1.0	04/13/02 04:48	RPJ	67-64-1		
Acrylonitrile	ND	ug/l	100	1.0	04/13/02 04:48	RPJ	107-13-1		
Benzene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	71-43-2		
Bromochloromethane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	75-27-4		
Bromoform	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	75-25-2		
Bromomethane	ND	ug/l	10.	1.0	04/13/02 04:48	RPJ	74-83-9		
2-Butanone (MEK)	ND	ug/l	100	1.0	04/13/02 04:48	RPJ	78-93-3		
Carbon disulfide	ND	ug/l	10.	1.0	04/13/02 04:48	RPJ	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	56-23-5		
Chlorobenzene	6.9	ug/l	5.0	1.0	04/13/02 04:48	RPJ	108-90-7		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199211
Client Sample ID: DUP

Project Sample Number: 9231933-008
Matrix: Water

Date Collected: 04/10/02 00:00
Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Chloroethane	ND	ug/l	10.	1.0	04/13/02 04:48	RPJ	75-00-3		
Chloroform	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	67-66-3		
Chloromethane	ND	ug/l	10.	1.0	04/13/02 04:48	RPJ	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	106-93-4		
Dibromomethane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	107-06-2		
1,1-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	75-35-4		
cis-1,2-Dichloroethene	25.	ug/l	5.0	1.0	04/13/02 04:48	RPJ	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	10061-01-5		
Ethylbenzene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	100-41-4		
2-Hexanone	ND	ug/l	50.	1.0	04/13/02 04:48	RPJ	591-78-6		
Iodomethane	ND	ug/l	10.	1.0	04/13/02 04:48	RPJ	74-88-4		
Methylene chloride	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	50.	1.0	04/13/02 04:48	RPJ	108-10-1		
Styrene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	127-18-4		
Toluene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	79-00-5		
Trichloroethene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	1.0	04/13/02 04:48	RPJ	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	96-18-4		
Vinyl acetate	ND	ug/l	50.	1.0	04/13/02 04:48	RPJ	108-05-4		
Vinyl chloride	ND	ug/l	10.	1.0	04/13/02 04:48	RPJ	75-01-4		
m&p-Xylene	ND	ug/l	10.	1.0	04/13/02 04:48	RPJ			
o-Xylene	ND	ug/l	5.0	1.0	04/13/02 04:48	RPJ	95-47-6		
Toluene-d8 (S)	97	%		1.0	04/13/02 04:48	RPJ	2037-26-5		
4-Bromofluorobenzene (S)	83	%		1.0	04/13/02 04:48	RPJ	460-00-4		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199211 Project Sample Number: 9231933-008 Date Collected: 04/10/02 00:00
Client Sample ID: DUP Matrix: Water Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Dibromofluoromethane (S)	109	%		1.0	04/13/02 04:48	RPJ			
1,2-Dichloroethane-d4 (S)	112	%		1.0	04/13/02 04:48	RPJ	17060-07-0		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199229 Project Sample Number: 9231933-009 Date Collected: 04/10/02 00:00
Client Sample ID: TRIP BLANK Matrix: Water Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
GC/MS Volatiles									
GC/MS VOCs by 8260	Prep/Method: EPA 8260 / EPA 8260								
Acetone	ND	ug/l	100	1.0	04/13/02 05:17	RPJ	67-64-1		
Acrylonitrile	ND	ug/l	100	1.0	04/13/02 05:17	RPJ	107-13-1		
Benzene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	71-43-2		
Bromochloromethane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	75-27-4		
Bromoform	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	75-25-2		
Bromomethane	ND	ug/l	10.	1.0	04/13/02 05:17	RPJ	74-83-9		
2-Butanone (MEK)	ND	ug/l	100	1.0	04/13/02 05:17	RPJ	78-93-3		
Carbon disulfide	ND	ug/l	10.	1.0	04/13/02 05:17	RPJ	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	56-23-5		
Chlorobenzene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	108-90-7		
Chloroethane	ND	ug/l	10.	1.0	04/13/02 05:17	RPJ	75-00-3		
Chloroform	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	67-66-3		
Chloromethane	ND	ug/l	10.	1.0	04/13/02 05:17	RPJ	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	106-93-4		
Dibromomethane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	107-06-2		
1,1-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	10061-01-5		
Ethylbenzene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	100-41-4		
2-Hexanone	ND	ug/l	50.	1.0	04/13/02 05:17	RPJ	591-78-6		
Iodomethane	ND	ug/l	10.	1.0	04/13/02 05:17	RPJ	74-88-4		
Methylene chloride	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	50.	1.0	04/13/02 05:17	RPJ	108-10-1		
Styrene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	79-34-5		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

Lab Sample No: 922199229 Project Sample Number: 9231933-009 Date Collected: 04/10/02 00:00
Client Sample ID: TRIP BLANK Matrix: Water Date Received: 04/11/02 09:40

Parameters	Results	Units	Report Limit	Dilution	Analyzed	by	CAS No.	Ftnote	Reg Limit
Tetrachloroethene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	127-18-4		
Toluene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	79-00-5		
Trichloroethene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	1.0	04/13/02 05:17	RPJ	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	96-18-4		
Vinyl acetate	ND	ug/l	50.	1.0	04/13/02 05:17	RPJ	108-05-4		
Vinyl chloride	ND	ug/l	10.	1.0	04/13/02 05:17	RPJ	75-01-4		
m&p-Xylene	ND	ug/l	10.	1.0	04/13/02 05:17	RPJ			
o-Xylene	ND	ug/l	5.0	1.0	04/13/02 05:17	RPJ	95-47-6		
Toluene-d8 (S)	97	%		1.0	04/13/02 05:17	RPJ	2037-26-5		
4-Bromofluorobenzene (S)	82	%		1.0	04/13/02 05:17	RPJ	460-00-4		
Dibromofluoromethane (S)	104	%		1.0	04/13/02 05:17	RPJ			
1,2-Dichloroethane-d4 (S)	104	%		1.0	04/13/02 05:17	RPJ	17060-07-0		

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

PARAMETER FOOTNOTES

ND Not detected at or above adjusted reporting limit
NC Not Calculable
J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
(S) Surrogate

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QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

QC Batch: 55919 — Analysis Method: EPA 8260
QC Batch Method: EPA 8260 — Analysis Description: GC/MS VOCs by 8260
Associated Lab Samples: 922199146 922199153 922199161 922199179 922199187 922199195 922199203 922199211 922199229

METHOD BLANK: 922202379
Associated Lab Samples: 922199146 922199153 922199161 922199179

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Acetone	ug/l	ND	100	
Acrylonitrile	ug/l	ND	100	
Benzene	ug/l	ND	5.0	
Bromochloromethane	ug/l	ND	5.0	
Bromodichloromethane	ug/l	ND	5.0	
Bromoform	ug/l	ND	5.0	
Bromomethane	ug/l	ND	10.	
2-Butanone (MEK)	ug/l	ND	100	
Carbon disulfide	ug/l	ND	10.	
Carbon tetrachloride	ug/l	ND	5.0	
Chlorobenzene	ug/l	ND	5.0	
Chloroethane	ug/l	ND	10.	
Chloroform	ug/l	ND	5.0	
Chloromethane	ug/l	ND	10.	
1,2-Dibromo-3-chloropropane	ug/l	ND	5.0	
Dibromochloromethane	ug/l	ND	5.0	
1,2-Dibromoethane (EDB)	ug/l	ND	5.0	
Dibromomethane	ug/l	ND	5.0	
1,2-Dichlorobenzene	ug/l	ND	5.0	
1,4-Dichlorobenzene	ug/l	ND	5.0	
trans-1,4-Dichloro-2-butene	ug/l	ND	5.0	
1,1-Dichloroethane	ug/l	ND	5.0	
1,2-Dichloroethane	ug/l	ND	5.0	
1,1-Dichloroethene	ug/l	ND	5.0	
cis-1,2-Dichloroethene	ug/l	ND	5.0	
trans-1,2-Dichloroethene	ug/l	ND	5.0	
1,2-Dichloropropane	ug/l	ND	5.0	
cis-1,3-Dichloropropene	ug/l	ND	5.0	
Ethylbenzene	ug/l	ND	5.0	

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QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

METHOD BLANK: 922202379
Associated Lab Samples: 922199146 922199153 922199161 922199179

Parameter	Units	Blank Result	Reporting Limit	Footnotes
2-Hexanone	ug/l	ND	50.	
Iodomethane	ug/l	ND	10.	
Methylene chloride	ug/l	ND	5.0	
4-Methyl-2-pentanone (MIBK)	ug/l	ND	50.	
Styrene	ug/l	ND	5.0	
1,1,1,2-Tetrachloroethane	ug/l	ND	5.0	
1,1,2,2-Tetrachloroethane	ug/l	ND	5.0	
Tetrachloroethene	ug/l	ND	5.0	
Toluene	ug/l	ND	5.0	
1,1,1-Trichloroethane	ug/l	ND	5.0	
1,1,2-Trichloroethane	ug/l	ND	5.0	
Trichloroethene	ug/l	ND	5.0	
Trichlorofluoromethane	ug/l	ND	10.	
1,2,3-Trichloropropane	ug/l	ND	5.0	
Vinyl acetate	ug/l	ND	50.	
Vinyl chloride	ug/l	ND	10.	
m&p-Xylene	ug/l	ND	10.	
o-Xylene	ug/l	ND	5.0	
Toluene-d8 (S)	%	97		
4-Bromofluorobenzene (S)	%	89		
Dibromofluoromethane (S)	%	99		
1,2-Dichloroethane-d4 (S)	%	101		

METHOD BLANK: 922202429
Associated Lab Samples: 922199187 922199195 922199203 922199211 922199229

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Acetone	ug/l	ND	100	
Acrylonitrile	ug/l	ND	100	
Benzene	ug/l	ND	5.0	
Bromochloromethane	ug/l	ND	5.0	
Bromodichloromethane	ug/l	ND	5.0	
Bromoform	ug/l	ND	5.0	

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QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

METHOD BLANK: 922202429
Associated Lab Samples: 922199187 922199195 922199203 922199211 922199229

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Bromomethane	ug/l	ND	10.	
2-Butanone (MEK)	ug/l	ND	100	
Carbon disulfide	ug/l	ND	10.	
Carbon tetrachloride	ug/l	ND	5.0	
Chlorobenzene	ug/l	ND	5.0	
Chloroethane	ug/l	ND	10.	
Chloroform	ug/l	ND	5.0	
Chloromethane	ug/l	ND	10.	
1,2-Dibromo-3-chloropropane	ug/l	ND	5.0	
Dibromochloromethane	ug/l	ND	5.0	
1,2-Dibromoethane (EDB)	ug/l	ND	5.0	
Dibromomethane	ug/l	ND	5.0	
1,2-Dichlorobenzene	ug/l	ND	5.0	
1,4-Dichlorobenzene	ug/l	ND	5.0	
trans-1,4-Dichloro-2-butene	ug/l	ND	5.0	
1,1-Dichloroethane	ug/l	ND	5.0	
1,2-Dichloroethane	ug/l	ND	5.0	
1,1-Dichloroethene	ug/l	ND	5.0	
cis-1,2-Dichloroethene	ug/l	ND	5.0	
trans-1,2-Dichloroethene	ug/l	ND	5.0	
1,2-Dichloropropane	ug/l	ND	5.0	
cis-1,3-Dichloropropene	ug/l	ND	5.0	
Ethylbenzene	ug/l	ND	5.0	
2-Hexanone	ug/l	ND	50.	
Iodomethane	ug/l	ND	10.	
Methylene chloride	ug/l	ND	5.0	
4-Methyl-2-pentanone (MIBK)	ug/l	ND	50.	
Styrene	ug/l	ND	5.0	
1,1,1,2-Tetrachloroethane	ug/l	ND	5.0	
1,1,2,2-Tetrachloroethane	ug/l	ND	5.0	
Tetrachloroethene	ug/l	ND	5.0	
Toluene	ug/l	ND	5.0	
1,1,1-Trichloroethane	ug/l	ND	5.0	
1,1,2-Trichloroethane	ug/l	ND	5.0	
Trichloroethene	ug/l	ND	5.0	

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QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

METHOD BLANK: 922202429
Associated Lab Samples: 922199187 922199195 922199203 922199211 922199229

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Trichlorofluoromethane	ug/l	ND	10.	
1,2,3-Trichloropropane	ug/l	ND	5.0	
Vinyl acetate	ug/l	ND	50.	
Vinyl chloride	ug/l	ND	10.	
m&p-Xylene	ug/l	ND	10.	
o-Xylene	ug/l	ND	5.0	
Toluene-d8 (S)	%	98		
4-Bromofluorobenzene (S)	%	88		
Dibromofluoromethane (S)	%	101		
1,2-Dichloroethane-d4 (S)	%	105		

LABORATORY CONTROL SAMPLE: 922202387

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Acetone	ug/l	100	108.0	108	
Acrylonitrile	ug/l	250	256.9	103	
Benzene	ug/l	50	51.84	104	
Bromochloromethane	ug/l	50	47.38	95	
Bromodichloromethane	ug/l	50	53.97	108	
Bromoform	ug/l	50	59.16	118	
Bromomethane	ug/l	50	282.7	565	1
2-Butanone (MEK)	ug/l	100	85.78	86	
Carbon disulfide	ug/l	100	132.9	133	
Carbon tetrachloride	ug/l	50	55.35	111	
Chlorobenzene	ug/l	50	54.16	108	
Chloroethane	ug/l	50	232.1	464	1
Chloroform	ug/l	50	48.48	97	
Chloromethane	ug/l	50	41.94	84	
1,2-Dibromo-3-chloropropane	ug/l	50	57.62	115	
Dibromochloromethane	ug/l	50	57.72	115	
1,2-Dibromoethane (EDB)	ug/l	50	52.16	104	
Dibromomethane	ug/l	50	49.82	100	
1,2-Dichlorobenzene	ug/l	50	56.80	114	

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QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

LABORATORY CONTROL SAMPLE: 922202387

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
1,4-Dichlorobenzene	ug/l	50	56.93	114	
trans-1,4-Dichloro-2-butene	ug/l	50	58.91	118	
1,1-Dichloroethane	ug/l	50	49.04	98	
1,2-Dichloroethane	ug/l	50	48.26	96	
1,1-Dichloroethene	ug/l	50	60.03	120	
cis-1,2-Dichloroethene	ug/l	50	49.63	99	
trans-1,2-Dichloroethene	ug/l	50	54.88	110	
1,2-Dichloropropane	ug/l	50	51.05	102	
cis-1,3-Dichloropropene	ug/l	50	54.23	108	
Ethylbenzene	ug/l	50	55.09	110	
2-Hexanone	ug/l	100	103.6	104	
Iodomethane	ug/l	100	119.9	120	
Methylene chloride	ug/l	50	50.24	100	
4-Methyl-2-pentanone (MIBK)	ug/l	100	101.9	102	
Styrene	ug/l	50	56.24	112	
1,1,1,2-Tetrachloroethane	ug/l	50	56.91	114	
1,1,2,2-Tetrachloroethane	ug/l	50	57.33	115	
Tetrachloroethene	ug/l	50	52.22	104	
Toluene	ug/l	50	52.45	105	
1,1,1-Trichloroethane	ug/l	50	50.83	102	
1,1,2-Trichloroethane	ug/l	50	52.44	105	
Trichloroethene	ug/l	50	54.15	108	
Trichlorofluoromethane	ug/l	50	61.34	123	
1,2,3-Trichloropropane	ug/l	50	56.27	113	
Vinyl acetate	ug/l	100	107.4	107	
Vinyl chloride	ug/l	50	44.53	89	
m&p-Xylene	ug/l	100	110.0	110	
o-Xylene	ug/l	50	55.47	111	
Toluene-d8 (S)				99	
4-Bromofluorobenzene (S)				98	
Dibromofluoromethane (S)				96	
1,2-Dichloroethane-d4 (S)				92	

Date: 04/22/02

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QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 922202403 922202411

Parameter	Units	922196431 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Benzene	ug/l	0	50.00	55.04	45.98	110	92	18	
Chlorobenzene	ug/l	0	50.00	59.60	49.65	119	99	18	
1,1-Dichloroethene	ug/l	71.32	50.00	129.2	106.0	116	69	20	
Toluene	ug/l	0	50.00	57.02	47.26	114	94	19	
Trichloroethene	ug/l	0	50.00	56.35	46.93	113	94	18	
Toluene-d8 (S)						98	99		
4-Bromofluorobenzene (S)						96	96		
Dibromofluoromethane (S)						98	100		
1,2-Dichloroethane-d4 (S)						96	99		

SAMPLE DUPLICATE: 922202395

Parameter	Units	922196423 Result	DUP Result	RPD	Footnotes
Acetone	ug/l	ND	ND	NC	
Acrylonitrile	ug/l	ND	ND	NC	
Benzene	ug/l	ND	ND	NC	
Bromochloromethane	ug/l	ND	ND	NC	
Bromodichloromethane	ug/l	ND	ND	NC	
Bromoform	ug/l	ND	ND	NC	
Bromomethane	ug/l	ND	ND	NC	
2-Butanone (MEK)	ug/l	ND	ND	NC	
Carbon disulfide	ug/l	ND	ND	NC	
Carbon tetrachloride	ug/l	ND	ND	NC	
Chlorobenzene	ug/l	ND	ND	NC	
Chloroethane	ug/l	ND	ND	NC	
Chloroform	ug/l	ND	ND	NC	
Chloromethane	ug/l	ND	ND	NC	
1,2-Dibromo-3-chloropropane	ug/l	ND	ND	NC	
Dibromochloromethane	ug/l	ND	ND	NC	
1,2-Dibromoethane (EDB)	ug/l	ND	ND	NC	
Dibromomethane	ug/l	ND	ND	NC	
1,2-Dichlorobenzene	ug/l	ND	ND	NC	
1,4-Dichlorobenzene	ug/l	ND	ND	NC	
trans-1,4-Dichloro-2-butene	ug/l	ND	ND	NC	

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QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

SAMPLE DUPLICATE: 922202395

Parameter	Units	922196423 Result	DUP Result	RPD	Footnotes
1,1-Dichloroethane	ug/l	ND	ND	NC	
1,2-Dichloroethane	ug/l	ND	ND	NC	
1,1-Dichloroethene	ug/l	ND	ND	NC	
cis-1,2-Dichloroethene	ug/l	ND	ND	NC	
trans-1,2-Dichloroethene	ug/l	ND	ND	NC	
1,2-Dichloropropane	ug/l	ND	ND	NC	
cis-1,3-Dichloropropene	ug/l	ND	ND	NC	
Ethylbenzene	ug/l	ND	ND	NC	
2-Hexanone	ug/l	ND	ND	NC	
Iodomethane	ug/l	ND	ND	NC	
Methylene chloride	ug/l	ND	ND	NC	
4-Methyl-2-pentanone (MIBK)	ug/l	ND	ND	NC	
Styrene	ug/l	ND	ND	NC	
1,1,1,2-Tetrachloroethane	ug/l	ND	ND	NC	
1,1,2,2-Tetrachloroethane	ug/l	ND	ND	NC	
Tetrachloroethene	ug/l	ND	ND	NC	
Toluene	ug/l	ND	ND	NC	
1,1,1-Trichloroethane	ug/l	ND	ND	NC	
1,1,2-Trichloroethane	ug/l	ND	ND	NC	
Trichloroethene	ug/l	ND	ND	NC	
Trichlorofluoromethane	ug/l	ND	ND	NC	
1,2,3-Trichloropropane	ug/l	ND	ND	NC	
Vinyl acetate	ug/l	ND	ND	NC	
Vinyl chloride	ug/l	ND	ND	NC	
m&p-Xylene	ug/l	ND	ND	NC	
o-Xylene	ug/l	ND	ND	NC	
Toluene-d8 (S)	%	98	96		
4-Bromofluorobenzene (S)	%	86	86		
Dibromofluoromethane (S)	%	100	101		
1,2-Dichloroethane-d4 (S)	%	101	101		

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Pace Analytical Services, Inc.
9800 Kincey Avenue, Suite 100
Huntersville, NC 28078
Phone: 704.875.9092
Fax: 704.875.9091

QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

QC Batch: 55942 Analysis Method: EPA 7470
QC Batch Method: EPA 7470 Analysis Description: Mercury, CVAAS, in Water
Associated Lab Samples: 922199146 922199153 922199161 922199179 922199187 922199195 922199203 922199211

METHOD BLANK: 922204227
Associated Lab Samples: 922199146 922199153 922199161 922199179 922199187 922199195 922199203 922199211

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Mercury	mg/l	ND	0.0002	

LABORATORY CONTROL SAMPLE: 922204268

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Mercury	mg/l	0.0050	0.0050	100	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 922204235 922204243

Parameter	Units	922201835 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Mercury	mg/l	0	0.0050	0.0070	0.0072	141	145	3	2,2

SAMPLE DUPLICATE: 922204250

Parameter	Units	922201843 Result	DUP Result	RPD	Footnotes
Mercury	mg/l	ND	ND	NC	

Laboratory Certification IDs
NC Wastewater 12
NC Drinking Water 37706
SC 99006

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QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

QC Batch: 55895
QC Batch Method: EPA 3010
Analysis Method: EPA 6010
Analysis Description: Metals by Trace ICP
Associated Lab Samples: 922199146 922199153 922199161 922199179 922199187 922199195 922199203 922199211

METHOD BLANK: 922201421
Associated Lab Samples: 922199146 922199153 922199161 922199179 922199187 922199195 922199203 922199211

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Antimony	mg/l	ND	0.0050	
Arsenic	mg/l	ND	0.0050	
Barium	mg/l	ND	0.0050	
Beryllium	mg/l	ND	0.0010	
Cadmium	mg/l	ND	0.0010	
Chromium	mg/l	ND	0.0020	
Cobalt	mg/l	ND	0.0050	
Copper	mg/l	ND	0.0020	
Lead	mg/l	ND	0.0030	
Nickel	mg/l	ND	0.0050	
Selenium	mg/l	ND	0.0050	
Silver	mg/l	ND	0.0020	
Vanadium	mg/l	ND	0.0050	
Zinc	mg/l	ND	0.010	

LABORATORY CONTROL SAMPLE: 922201462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Antimony	mg/l	0.2500	0.2530	101	
Arsenic	mg/l	0.2500	0.2600	104	
Barium	mg/l	0.2500	0.2650	106	
Beryllium	mg/l	0.2500	0.2590	104	
Cadmium	mg/l	0.2500	0.2560	102	
Chromium	mg/l	0.2500	0.2340	94	
Cobalt	mg/l	0.2500	0.2540	102	
Copper	mg/l	0.2500	0.2670	107	

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QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

LABORATORY CONTROL SAMPLE: 922201462

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Lead	mg/l	0.2500	0.2520	101	
Nickel	mg/l	0.2500	0.2470	99	
Selenium	mg/l	0.2500	0.2570	103	
Silver	mg/l	0.2500	0.2420	97	
Vanadium	mg/l	0.2500	0.2590	104	
Zinc	mg/l	0.2500	0.2530	101	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 922201439 922201447

Parameter	Units	922200480 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Antimony	mg/l	0.00139	0.2500	0.2560	0.2530	102	101	1	
Arsenic	mg/l	0.00343	0.2500	0.2610	0.2540	103	100	3	
Barium	mg/l	0.01370	0.2500	0.2660	0.2600	101	98	2	
Beryllium	mg/l	0	0.2500	0.2530	0.2470	101	99	2	
Cadmium	mg/l	0.00058	0.2500	0.2510	0.2450	100	98	2	
Chromium	mg/l	0.00195	0.2500	0.2310	0.2250	92	89	3	
Cobalt	mg/l	0.00162	0.2500	0.2510	0.2460	100	98	2	
Copper	mg/l	0.00554	0.2500	0.2700	0.2630	106	103	3	
Lead	mg/l	0	0.2500	0.2440	0.2430	98	97	0	
Nickel	mg/l	0.00319	0.2500	0.2410	0.2360	95	93	2	
Selenium	mg/l	0	0.2500	0.2540	0.2510	102	100	1	
Silver	mg/l	0.00085	0.2500	0.2400	0.2350	96	94	2	
Vanadium	mg/l	0.00125	0.2500	0.2570	0.2510	102	100	2	
Zinc	mg/l	0.01100	0.2500	0.2760	0.2670	106	102	3	

SAMPLE DUPLICATE: 922201454

Parameter	Units	922200498 Result	DUP Result	RPD	Footnotes
Antimony	mg/l	ND	0.00790	NC	
Arsenic	mg/l	ND	ND	NC	
Barium	mg/l	0.00700	0.00870	21	
Beryllium	mg/l	ND	ND	NC	

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QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

SAMPLE DUPLICATE: 922201454

Parameter	Units	922200498 Result	DUP Result	RPD	Footnotes
Cadmium	mg/l	ND	ND	NC	
Chromium	mg/l	0.01100	0.01300	14	
Cobalt	mg/l	ND	ND	NC	
Copper	mg/l	0.00670	0.00930	33	
Lead	mg/l	ND	ND	NC	
Nickel	mg/l	0.00750	0.00920	21	
Selenium	mg/l	ND	ND	NC	
Silver	mg/l	ND	0.00400	NC	
Vanadium	mg/l	ND	0.00620	NC	
Zinc	mg/l	0.01200	0.01300	10	

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QUALITY CONTROL DATA

Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

QC Batch: 55972 — Analysis Method: EPA 7841
QC Batch Method: EPA 3020 — Analysis Description: Thallium, AAS Furnace
Associated Lab Samples: 922199146 922199153 922199161 922199179 922199187 922199195 922199203 922199211

METHOD BLANK: 922205356
Associated Lab Samples: 922199146 922199153 922199161 922199179 922199187 922199195 922199203 922199211

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Thallium	mg/l	ND	0.0020	

LABORATORY CONTROL SAMPLE: 922205398

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Thallium	mg/l	0.0250	0.0280	112	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 922205364 922205372

Parameter	Units	922190020 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Thallium	mg/l	0	0.0250	0.0282	0.0277	113	111	2	

SAMPLE DUPLICATE: 922205380

Parameter	Units	922190038 Result	DUP Result	RPD	Footnotes
Thallium	mg/l	ND	ND	NC	

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Lab Project Number: 9231933
Client Project ID: Jackson Co. LF/2040.12

QUALITY CONTROL DATA PARAMETER FOOTNOTES

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

LCS(D)Laboratory Control Sample (Duplicate)
MS(D)Matrix Spike (Duplicate)
DUP Sample Duplicate
ND Not detected at or above adjusted reporting limit
NC Not Calculable
J Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit
RPD Relative Percent Difference
(S) Surrogate
[1] Recovery falls outside of QC limits, however, this compound is not found in the associated samples.
[2] 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.

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Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

577508

Page: 1 of 1

Required Client Information: **Section A**

Company: Altamont Environmental, Inc.
Address: 78 1/2 Patton Ave
Asheville NC
28801
Phone: 828/281-3350 Fax: 281-3351

Required Client Information: **Section B**

Report To: Jim McElduff
Invoice To:
P.O.: John Thornton
Project Name: JACKSON Co. LANDFILL
Project Number: 2040.12

Client Information (Check quote/contract):
Requested Due Date: April 2002 *TAT: 2 wks

* Turn around times less than 14 days subject to laboratory and contractual obligations and may result in a Rush Turnaround Surcharge.
Turn Around Time (TAT) in calendar days.

To Be Completed by Pace Analytical and Client **Section C**

Quote Reference:
Project Manager:
Project #: 31933
Profile #:
Requested Analysis:

Section D **Required** Client Information:

SAMPLE ID
One character per box.
(A–Z, 0–9 / .–)
Sample IDs MUST BE UNIQUE

Valid Matrix Codes

MATRIX	CODE
WATER	WT
SOIL	SL
OIL	OL
WIPE	WP
AIR	AR
TISSUE	TS
OTHER	OT

ITEM #	SAMPLE ID	MATRIX CODE	DATE COLLECTED mm / dd / yy	TIME COLLECTED hh: mm a/p	# Containers	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Appendix I - VOCs	Appendix I - Metals	Remarks / Lab ID
1	MW-1	WT	4-10-02	1500	5			1	4			4	1	922199146
2														
3	MW-2	WT	4-10-02	1430	5			1	4			4	1	922199153
4														
5	MW-3	WT	4-10-02	1415	5			1	4			4	1	922199161
6														
7	MW-4	WT	4-10-02	1330	5			1	4			4	1	922199179
8	DUP	WT	4-10-02	—	5			1	4			4	1	922199211
9	MW-5	WT	4-10-02	1445	5			1	4			4	1	922199187
10	TRIP BLANK	WT	4-10-02	—	2				2			2		922199229
11	SW-1-Upstream	WT	4-10-02	1345	5			1	4			4	1	922199195
12	SW-2-Downstream	WT	4-10-02	1400	5			1	4			4	1	922199203

Sample Condition		Sample Notes	Item No.	Relinquished By / Company	Date	Time	Accepted By / Company	Date	Time
Temp in °C:	1.0	Samples on Ice ASAP		John Chase / Altamont	4-10-02	1800	[illegible]	4/10/02	[illegible]
Received on ICE:	Y / N								
Sealed Cooler:	Y / N								
Samples Intact:	Y / N								

Additional Comments:

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: John Chase
SIGNATURE of SAMPLER: John Chase
DATE Signed: (MM / DD / YY) 4-10-02

SEE REVERSE SIDE FOR INSTRUCTIONS

APPENDIX C

GROUNDWATER VELOCITY CALCULATION

APPENDIX C

GROUNDWATER VELOCITY CALCULATIONS
JACKSON COUNTY LANDFILL

April 10, 2002

JACKSON COUNTY, NORTH CAROLINA

Location	K[a] (cm/sec)	I (ft/ft)	n	Flow Rate V (cm/sec)	Flow Rate V (ft/sec)	Flow Rate V (ft/day)	Flow Rate V (ft/yr)
MW-5 to MW-4	7.30E-04	0.09	0.35	1.88E-04	6.16E-06	0.53	194.2
MW-5 to MW-4	7.30E-04	0.09	0.3	2.19E-04	7.19E-06	0.62	226.6
MW-1 to MW-3	7.30E-04	0.22	0.35	4.59E-04	1.51E-05	1.30	474.8
MW-1 to MW-3	7.30E-04	0.22	0.3	5.35E-04	1.76E-05	1.52	553.9

Notes:
1. Ft = feet
2. K[a] = Hydraulic Conductivity (Hvorslev method) from page 13 of the March 23, 1994 document "Portion of Transition Plan, Existing Jackson County MSWLF
3. I = Hydraulic gradient, as calculated by the three point method, using water level data from October 9, 2000 and survey data provided by Davenport & Assoc., Inc. from April 9, 1999
4. n = Porosity (percent) of 30% to 35% based on literature values for sand and silt mixtures
5. Flow rate (V) = (K*I)/n

APPENDIX D

ANOVA STATISTICAL ANALYSES

APPENDIX D

SUMMARY OF ANOVA STATISTICAL EVALUATION
JACKSON COUNTY LANDFILL

April 10, 2002

JACKSON COUNTY, NORTH CAROLINA

Compound	Conclusion
1,1,1,2-Tetrachloroethane	No Significant Deviation
1,1,1-Trichloroethane	**Significant Deviation**
1,1,2,2-Tetrachloroethane	No Significant Deviation
1,1,2-Trichloroethane	No Significant Deviation
1,1-Dichloroethane	**Significant Deviation**
1,1-Dichloroethene	No Significant Deviation
1,2,3-Trichloropropane	No Significant Deviation
1,2-Dibromo-3-Chloropropane	No Significant Deviation
1,2-Dibromoethane	No Significant Deviation
1,2-Dichlorobenzene	No Significant Deviation
1,2-Dichloroethane	No Significant Deviation
1,2-Dichloropropane	No Significant Deviation
1,4-Dichlorobenzene	**Significant Deviation**
2-Butanone	No Significant Deviation
2-Hexanone	No Significant Deviation
4-Methyl-2-Pentanone	No Significant Deviation
Acetone	No Significant Deviation
Acrylonitrile	No Significant Deviation
Antimony	No Significant Deviation
Arsenic	No Significant Deviation
Barium	**Significant Deviation**
Benzene	**Significant Deviation**
Beryllium	No Significant Deviation
Bromochloromethane	No Significant Deviation
Bromodichloromethane	No Significant Deviation
Bromoform	No Significant Deviation
Bromomethane	No Significant Deviation
Cadmium	No Significant Deviation
Carbon Disulfide	No Significant Deviation
Carbon Tetrachloride	No Significant Deviation
Chlorobenzene	**Significant Deviation**
Chloroethane	**Significant Deviation**
Chloroform	No Significant Deviation
Chloromethane	No Significant Deviation
Chromium	**Significant Deviation**
cis-1,2-Dichloroethene	**Significant Deviation**

APPENDIX D

SUMMARY OF ANOVA STATISTICAL EVALUATION
JACKSON COUNTY LANDFILL

April 10, 2002

JACKSON COUNTY, NORTH CAROLINA

Compound	Conclusion
cis-1,3-Dichloropropene	No Significant Deviation
Cobalt	No Significant Deviation
Copper	**Significant Deviation**
Dibromochloromethane	No Significant Deviation
Dibromomethane	No Significant Deviation
Ethylbenzene	**Significant Deviation**
Iodomethane	No Significant Deviation
Lead	No Significant Deviation
Mercury	No Significant Deviation
Methylene Chloride	**Significant Deviation**
Nickel	**Significant Deviation**
Selenium	No Significant Deviation
Silver	No Significant Deviation
Styrene	No Significant Deviation
Tetrachloroethene	**Significant Deviation**
Thallium	No Significant Deviation
Tin	Analyzed During the Fall
Toluene	No Significant Deviation
trans-1,2-Dichloroethene	No Significant Deviation
trans-1,4-Dichloro-2-Butene	No Significant Deviation
Trichloroethene	**Significant Deviation**
Trichlorofluoromethane	No Significant Deviation
Vanadium	**Significant Deviation**
Vinyl Acetate	No Significant Deviation
Vinyl chloride	No Significant Deviation
Xylenes	**Significant Deviation**
Zinc	**Significant Deviation**

ALTAMONT ENVIRONMENTAL, INC.
Engineering & Hydrogeology

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www.altamontenvironmental.com

MAY 2002
Received
Solid Waste
Section

TRANSMITTAL LETTER

To: Mr. Larry Rose

From: John Chase

Date: May 10, 2002

cc:

Subject: Jackson County Landfill

Contents:

1. A copy of the Spring 2002 Semiannual Water Quality Monitoring Report for the Jackson County Municipal Solid Waste Landfill prepared by Altamont Environmental, Inc., dated May 10, 2002.