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OLD SALISBURY ROAD CONSTRUCTION AND DEMOLITION LANDFILL – PHASES IV, V, AND VI

WATER-QUALITY DETECTION MONITORING

BASELINE SEMIANNUAL REPORT

Conducted for:

City of Winston-Salem
North Carolina

HDR

Prepared by:

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street, Suite 1400
Charlotte, North Carolina

Project No. 00162-15029-018

September 2004

Received
NOV 2004
Solid Waste Section

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September 21, 2004

Mr. Bobby Lutfy, Hydrogeologist
North Carolina Department of Environment
and Natural Resources (NCDENR)
Division of Solid Waste Management
Solid Waste Section
P. O. Box 27687
Raleigh, North Carolina 27611-7687

Re: Baseline Sampling Report
Winston-Salem Construction and Demolition Landfill (#34-12)
Forsyth County, North Carolina
HDR Project No. 00162-15029-018

Dear Mr. Lutfy:

HDR Engineering, Inc. of the Carolinas (HDR) is hereby submitting, on behalf of the City of Winston-Salem Utilities Division, the Water-Quality Detection Monitoring Baseline Semiannual Report (Report). This Report is provided in accordance with permit requirements and constitutes the baseline detection monitoring results prior to Landfill operation.

If you have any questions or comments concerning the information summarized in this letter, please do not hesitate to contact me at (704) 338-6777.

Sincerely,

Chris Randazzo, GIT
Project Geologist

CR/jvd

Enclosure

cc: Edward Gibson, City of Winston-Salem
Harry Rose, NCDENR Solid Waste Section
Tim Jewett, NCDENR Solid Waste Section (w/o Enclosure)

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SECTION 1.0

INTRODUCTION

The following Baseline Semiannual Report consists of surface and groundwater quality analytical data, water level readings, and new well construction diagrams for the Old Salisbury Road Landfill (Landfill) – Phases IV, V, and VI (Permit #34-12). These data and analyses are provided in accordance with permit requirements and, together, constitute the baseline detection monitoring results prior to Landfill operation.

Groundwater samples were collected on August 24, 2004, and analyzed for the eight Resource Conservation and Recovery Act (RCRA) metals and Appendix I volatile organic compounds (VOCs) by Pace Analytical Environmental Laboratories, a North Carolina-certified laboratory. Newly installed groundwater monitoring wells MW-9 through MW-14 were sampled under low-flow conditions (<100 ml/min) in accordance with the facility's Groundwater Monitoring Plan and applicable regulations. In addition, two surface water quality samples were collected and analyzed for the above referenced parameter list. Upstream surface water (SW-1) and downstream surface water (SW-2) samples were obtained from the adjacent stream to the east.

To evaluate the surface and groundwater monitoring data collected at the Landfill, the laboratory results have been tabulated by sampling location. In Appendix A, the Summary of Water Quality Monitoring Analytical Data summarizes the surface and groundwater analytical data for the Landfill.

Newly installed methane monitoring points MM-7 through MM-12 were monitored for landfill gas. No trace of methane was detected in any of these methane monitoring stations with the exception of MM-12. The proximity of this well to the wetlands associated to the adjacent stream is probably due to the slight (0.2% CH_4) methane detected. A copy of the Perimeter Gas Probe Monitoring Field Data Form is included in Appendix A. The monitoring well construction record drawings for all of the referenced groundwater and methane wells are included in Appendix B.

A water table map was prepared using the water table elevation data obtained during the August 2004 sampling event (see Appendix C). As shown on the map, the groundwater flows generally north across the site.

SECTION 2.0

SUMMARY OF ANALYTICAL RESULTS

2.1 Compliance Well MW-9

Traces of barium, chromium, and lead were detected below their respective 2L standards in the groundwater samples collected from this well. No VOCs were detected in the groundwater sample collected from this well (see Table 2-1).

Table 2-1

Summary of Detected Parameters (MW-9)

Detected Parameters	8/24/2004	2L Standard
VOCs (ppb)	BDL	Varies
Barium (Ba)	0.24 ppm	2.0 ppm
Chromium (Cr)	0.014 ppm	0.05 ppm
Lead (Pb)	0.014 ppm	0.015 ppm
pH (field)	5.86 su	6.5-8.5 su
Specific Conductance	0.114 mS/cm	NS

See footnotes below Table 2-8.

2.2 Compliance Well MW-10

Traces of barium, chromium, lead, and selenium were detected below their respective 2L standards in the groundwater samples collected from this well. No VOCs were detected in the groundwater sample collected from this well (see Table 2-2).

Table 2-2

Summary of Detected Parameters (MW-10)

Detected Parameters	8/24/2004	2L Standard
VOCs (ppb)	BDL	Varies
Barium (Ba)	0.098 ppm	2.0 ppm
Chromium (Cr)	0.013 ppm	0.05 ppm
Lead (Pb)	0.0068 ppm	0.015 ppm
Selenium (Se)	0.0062 ppm	0.05 ppm
pH (field)	5.29 su	6.5-8.5 su
Specific Conductance	0.038 mS/cm	NS

See footnotes below Table 2-8.

2.3 Compliance Well MW-11

Traces of barium and chromium were detected below their respective 2L standards in the groundwater samples collected from this well. No VOCs were detected in the groundwater sample collected from this well (see Table 2-3).

Table 2-3

Summary of Detected Parameters (MW-11)

Detected Parameters	8/24/2004	2L Standard
VOCs (ppb)	BDL	Varies
Barium (Ba)	0.047 ppm	2.0 ppm
Chromium (Cr)	0.0033 ppm	0.05 ppm
pH (field)	6.30 su	6.5-8.5 su
Specific Conductance	0.125 mS/cm	NS

See footnotes below Table 2-8.

2.4 Compliance Well MW-12

A trace of barium was detected below its 2L standard in the groundwater samples collected from this well. No VOCs were detected in the groundwater sample collected from this well (see Table 2-4).

Table 2-4

Summary of Detected Parameters (MW-12)

Detected Parameters	8/24/2004	2L Standard
VOCs (ppb)	BDL	Varies
Barium (Ba)	0.074 ppm	2.0 ppm
pH (field)	5.84 su	6.5-8.5 su
Specific Conductance	0.182 mS/cm	NS

See footnotes below Table 2-8.

2.5 Compliance Well MW-13

Traces of barium, chromium, and lead were detected below their respective 2L standards in the groundwater samples collected from this well. No VOCs were detected in the groundwater sample collected from this well (see Table 2-5).

Table 2-5

Summary of Detected Parameters (MW-13)

Detected Parameters	8/24/2004	2L Standard
VOCs (ppb)	BDL	Varies
Barium (Ba)	0.016 ppm	2.0 ppm
Chromium (Cr)	0.0092 ppm	0.05 ppm
Lead (Pb)	0.011 ppm	0.015 ppm
pH (field)	5.56 su	6.5-8.5 su
Specific Conductance	0.062 mS/cm	NS

See footnotes below Table 2-8.

2.6 Compliance Well MW-14

Traces of barium, chromium, and lead were detected below their respective 2L standards in the groundwater samples collected from this well. No VOCs were detected in the groundwater sample collected from this well (see Table 2-6).

Table 2-6

Summary of Detected Parameters (MW-14)

Detected Parameters	8/24/2004	2L Standard
VOCs (ppb)	BDL	Varies
Barium (Ba)	0.17 ppm	2.0 ppm
Chromium (Cr)	0.0032 ppm	0.05 ppm
Lead (Pb)	0.008 ppm	0.015 ppm
pH (field)	5.45 su	6.5-8.5 su
Specific Conductance	0.131 mS/cm	NS

See footnotes below Table 2-8.

2.7 Surface Water Quality Data

Surface water samples were collected along the un-named stream to the north. An upstream water quality sample was collected at location SW-1 and a downstream sample was collected at SW-2. The site map in Appendix C shows the location of these surface water sample locations.

2.7.1 SW-1 (Upstream)

Traces of arsenic, barium, and chromium were detected below their respective 2L standards in the samples collected from this surface water location. A trace of lead was detected slightly above its 2L Standard in the sample collected from this surface water location. No VOCs were detected in the sample collected from this surface water location (see Table 2-7).

Based on the evaluation of water quality data and groundwater flow directions during this sampling period, this upstream surface water sample location appears to be an effective location for the collection of background surface water quality data.

Table 2-7

Summary of Detected Parameters (SW-1)

Detected Parameters	8/24/2004	2L Standard
VOCs (ppb)	BDL	Varies
Arsenic (As)	0.02 ppm	0.05 ppm
Barium (Ba)	0.5 ppm	2.0 ppm
Chromium (Cr)	0.036 ppm	0.05 ppm
Lead (Pb)	**0.038 ppm**	0.015 ppm

See footnotes below Table 2-8.

2.7.2 SW-2 (Downstream)

A trace of barium was detected below its 2L standard in the samples collected from this surface water location. No VOCs were detected in the sample collected from this surface water location (see Table 2-8).

Table 2-8

Summary of Detected Parameters (SW-2)

Detected Parameters	8/24/2004	2L Standard
VOCs (ppb)	BDL	Varies
Barium (Ba)	0.063 ppm	2.0 ppm

Boldface entries indicate exceedances in the 2L Groundwater Quality/Protection Standard.
ppm – parts per million
su – standard units
mS/cm – milliSiemens per centimeter
ND – Non-detect

SECTION 3.0

CONCLUSIONS

The following summarizes the conclusions based on the information contained within this report.

1. The presence of concentrations of trace metals in all of the monitoring wells is due to the presence of lingering well turbidity affecting the outcome of the total metals analysis.

2. The trace metal concentrations are expected to decrease over future sampling events due to the dedicated well pumps and low flow sampling techniques.

3. The existing surface and groundwater monitoring network at the Landfill appears to be adequate.

APPENDIX A

SUMMARY OF GAS MONITORING AND WATER QUALITY MONITORING ANALYTICAL DATA

PERIMETER GAS PROBE MONITORING
FIELD DATA FORM

Date: 8/24/2004	Inspector: C.Randazzo	Site Name: Old Salisbury Road C&D Landfill	Instrument: GEM-500

Temperature @ Start: 80 °F Weather: Sunny

Temperature @ End: 86 °F Barometric Pressure: NA

Legend: T = Trace CO_2 = Carbon Dioxide
W = Water NA = No reading taken
LEL = Lower explosive limit

MM #	Time	Methane: CH_4 (%)	Carbon Dioxide: CO_2 (%)	Oxygen: O_2 (%)	Remarks
Scale-house	1445	0	0.2	20.1	
7	1430	0	0.7	19.7	
8	1410	0	0.2	20.3	
9	1300	0	0.0	20.6	
10	1045	0	0.0	20.6	
11	945	0	9.2	6.7	Readings fluctuated for approximately 1 minute then stabilized.
12	836	0.2	11.7	9.4	Readings continually fluctuated.

TABLE 1
OLD SALISBURY ROAD
HISTORICAL GROUNDWATER ANALYTICAL RESULTS

WELL NUMBER	DATE	Arsenic (0.05)	Barium (2.0)	Cadmium (0.005)	Chromium (0.05)	Lead (0.015)	Mercury (0.0011)	Selenium (0.05)	Silver (0.018)	VOCs (Varies)
MW-1R	1/17/1996	ND	0.2240	ND	ND	0.0060	0.0018	ND	ND	23
	10/24/1996	ND	0.1800	ND	0.0060	ND	0.0002	ND	ND	ND
	5/13/1997	ND	0.1000	ND	0.0030	ND	ND	ND	ND	ND
	10/30/1997	ND	0.2900	ND	0.0110	0.0120	ND	ND	ND	ND
	5/5/1998	ND	0.1000	ND	0.0490	ND	ND	ND	ND	ND
	11/5/1998	ND	0.1600	ND	0.0120	ND	ND	ND	ND	28
	6/2/1999	ND	0.1500	ND	0.0078	ND	ND	ND	ND	19
	11/19/1999	ND	0.1300	ND	0.0052	ND	ND	ND	ND	ND
	6/5/2000	ND	0.1100	ND	ND	ND	ND	ND	ND	ND
	12/14/2000	ND	0.1500	ND	0.0066	ND	~	ND	ND	ND
	7/31/2001	ND	0.0870	ND	0.0066	ND	ND	ND	ND	ND
	11/29/2001	0.0058	0.2800	ND	0.0220	0.0100	~	ND	ND	21
	4/17/2002	ND	0.1300	ND	0.0050	ND	ND	ND	ND	ND
	12/9/2002	ND	0.1000	ND	0.0023	ND	ND	ND	ND	ND
	5/29/2003	ND	0.1200	ND	0.0043	ND	ND	ND	ND	ND
	11/4/2003	ND	0.4600	ND	ND	0.0220	ND	ND	ND	ND
	5/11/2004	ND	0.0960	ND	0.0035	ND	ND	ND	ND	ND
MW-2R	1/17/1996	ND	0.3500	ND	0.0120	0.0260	0.0004	ND	ND	86
	10/24/1996	ND	0.1600	ND	0.0090	0.0080	ND	ND	ND	ND
	5/13/1997	ND	0.2000	0.0030	0.0040	0.0140	ND	ND	0.0060	ND
	10/30/1997	ND	0.3400	ND	0.0430	0.0310	ND	ND	ND	ND
	5/5/1998	ND	0.1900	ND	0.0340	0.0190	ND	ND	ND	ND
	11/5/1998	0.0110	1.1000	ND	0.2100	0.0680	ND	ND	ND	ND
	6/2/1999	ND	0.1500	ND	0.0078	ND	ND	ND	ND	13
	11/19/1999	ND	0.1200	ND	0.0140	0.0069	ND	ND	ND	ND
	6/5/2000	ND	0.1800	ND	0.0030	0.0065	ND	ND	ND	ND
	12/14/2000	ND	0.0610	ND	0.0039	ND	~	ND	ND	ND
	7/31/2001	ND	0.2800	ND	0.0160	0.0089	ND	ND	ND	ND
	11/29/2001	ND	0.1600	ND	0.0160	0.0070	~	ND	ND	ND
	4/17/2002	ND	0.1000	ND	ND	ND	ND	ND	ND	ND
	12/9/2002	ND	0.1400	0.0019	0.0021	ND	ND	ND	ND	ND
	5/29/2003	ND	0.0560	ND	ND	ND	ND	ND	ND	ND
	11/4/2003	ND	0.0600	ND	0.0022	ND	ND	ND	ND	ND
	5/11/2004	ND	0.0550	ND	ND	ND	ND	ND	ND	ND

See footnotes at end of tables.

TABLE 1
OLD SALISBURY ROAD
HISTORICAL GROUNDWATER ANALYTICAL RESULTS

WELL NUMBER	DATE	Arsenic (0.05)	Barium (2.0)	Cadmium (0.005)	Chromium (0.05)	Lead (0.015)	Mercury (0.0011)	Selenium (0.05)	Silver (0.018)	VOCs (Varies)
MW-3R	1/17/1996	ND	1.2300	ND	0.0090	0.0150	0.0007	ND	ND	ND
	10/24/1996	ND	0.7900	ND	0.0200	0.0150	ND	ND	ND	ND
	5/13/1997	ND	0.8000	ND	0.0280	0.0270	ND	ND	ND	ND
	10/30/1997	ND	0.6200	ND	0.0160	0.0260	0.0002	ND	ND	ND
	5/5/1998	ND	0.8600	ND	0.0250	0.0320	ND	ND	ND	ND
	11/5/1998	ND	1.4000	ND	0.0770	0.0390	ND	ND	ND	ND
	6/2/1999	~	~	~	~	~	~	~	~	ND
	11/19/1999	0.0059	0.0520	ND	0.0240	0.0400	ND	ND	ND	ND
	6/5/2000	ND	0.3000	ND	ND	ND	ND	ND	ND	ND
	12/14/2000	0.0310	1.5000	ND	0.1000	0.0800	~	ND	ND	ND
	7/31/2001	0.0180	0.9500	ND	0.0500	0.0530	ND	ND	ND	ND
	11/29/2001	0.0084	0.4000	ND	0.0190	0.0350	~	ND	ND	ND
	4/17/2002	0.0074	0.3700	ND	0.0150	0.0210	ND	ND	ND	ND
	12/9/2002	ND	0.0130	ND	ND	ND	ND	ND	ND	ND
	5/29/2003	ND	0.2200	ND	ND	ND	ND	ND	ND	ND
	11/4/2003	ND	0.2000	ND	0.0023	ND	ND	ND	ND	ND
	5/11/2004	ND	0.2700	ND	0.0037	0.0140	ND	ND	ND	ND
MW-4R	1/17/1996	ND	0.5950	0.0070	0.0210	0.0170	0.0017	ND	ND	ND
	10/24/1996	ND	0.7200	ND	0.0470	0.0160	0.0003	ND	ND	ND
	5/13/1997	ND	0.2800	ND	ND	0.0120	ND	ND	0.0060	ND
	10/30/1997	ND	0.6500	ND	0.0550	0.0290	ND	ND	ND	ND
	5/5/1998	ND	0.8500	ND	0.1300	0.0430	ND	ND	ND	ND
	11/5/1998	ND	2.0000	ND	0.3000	0.0760	0.0002	ND	ND	ND
	6/2/1999	ND	0.9500	ND	0.1100	0.0500	ND	ND	ND	10
	11/19/1999	0.0075	0.8600	ND	0.0600	0.0400	0.0004	ND	ND	ND
	6/5/2000	ND	0.5700	ND	ND	0.0095	ND	ND	ND	ND
	12/14/2000	ND	0.3500	ND	0.0280	0.0081	~	ND	ND	ND
	7/31/2001	0.0056	0.5500	ND	0.0380	0.0140	ND	ND	ND	ND
	11/29/2001	0.0120	0.9000	ND	0.0950	0.0360	~	ND	ND	ND
	4/17/2002	ND	0.0610	ND	ND	ND	ND	ND	ND	ND
	12/9/2002	ND	0.0860	ND	0.0050	0.0060	ND	ND	ND	ND
	5/29/2003	ND	0.0940	ND	0.0055	0.0053	ND	ND	ND	ND
	11/4/2003	ND	0.0970	ND	0.0026	ND	ND	ND	ND	ND
	5/11/2004	0.0092	0.3800	ND	0.0140	0.0180	ND	ND	ND	ND

See footnotes at end of tables.

TABLE 1
OLD SALISBURY ROAD
HISTORICAL GROUNDWATER ANALYTICAL RESULTS

WELL NUMBER	DATE	Arsenic (0.05)	Barium (2.0)	Cadmium (0.005)	Chromium (0.05)	Lead (0.015)	Mercury (0.0011)	Selenium (0.05)	Silver (0.018)	VOCs (Varies)
MW-5R	1/17/1996	ND	1.0000	ND	0.0960	0.0190	0.0008	ND	ND	ND
	10/24/1996	ND	0.6200	ND	0.0430	0.0200	ND	ND	ND	ND
	5/13/1997	ND	0.3300	ND	0.0700	0.0140	ND	ND	ND	ND
	10/30/1997	ND	0.6100	ND	0.0160	0.0310	ND	ND	ND	ND
	5/5/1998	0.0050	0.8200	ND	0.1700	0.0690	ND	ND	ND	ND
	11/5/1998	ND	0.4800	ND	0.0960	0.0290	ND	ND	ND	175
	6/2/1999	ND	0.2400	ND	0.0380	0.0160	ND	ND	ND	10
	11/19/1999	ND	0.2000	ND	0.0290	0.0082	ND	ND	ND	ND
	6/5/2000	ND	0.2000	ND	0.0081	ND	ND	ND	ND	ND
	12/14/2000	0.0050	0.4000	ND	0.0820	0.0076	~	ND	ND	ND
	7/31/2001	ND	0.2700	ND	0.0490	0.0076	ND	ND	ND	ND
	11/29/2001	0.0070	0.6100	ND	0.1400	0.0130	~	ND	ND	ND
	4/17/2002	ND	0.1500	ND	0.0230	ND	ND	ND	ND	ND
	12/9/2002	ND	0.0650	ND	0.0074	ND	ND	ND	ND	ND
	5/29/2003	ND	0.0720	0.0027	0.0095	ND	ND	ND	ND	ND
	11/4/2003	ND	0.0650	ND	0.0087	ND	ND	ND	ND	ND
	5/11/2004	0.0050	0.0760	ND	0.0073	0.0051	ND	ND	ND	ND
MW-6R	1/17/1996	ND	1.4000	ND	0.0120	0.0180	0.0014	ND	ND	ND
	10/24/1996	ND	0.5900	ND	0.0100	0.0110	ND	ND	ND	ND
	5/13/1997	ND	0.3000	ND	0.0210	0.0140	ND	ND	ND	ND
	10/30/1997	ND	0.2600	ND	0.0140	0.0140	ND	ND	ND	ND
	5/5/1998	ND	0.3600	ND	0.0330	0.0200	ND	ND	ND	ND
	11/5/1998	ND	0.1600	ND	0.0120	ND	ND	ND	ND	ND
	6/2/1999	~	~	~	~	~	~	~	~	ND
	11/19/1999	ND	0.0590	ND	0.0028	ND	ND	ND	ND	ND
	6/5/2000	ND	0.0820	ND	ND	0.0058	ND	ND	ND	ND
	12/14/2000	ND	0.0410	ND	0.0026	ND	~	ND	ND	ND
	7/31/2001	ND	0.0620	ND	0.0041	ND	ND	ND	ND	ND
	11/29/2001	0.0160	0.5300	ND	0.0950	0.0380	~	ND	ND	ND
	4/17/2002	ND	0.1800	ND	0.0260	0.0076	ND	ND	ND	ND
	12/9/2002	ND	0.0410	ND	0.0032	ND	ND	ND	ND	ND
	5/29/2003	ND	0.0240	ND	ND	ND	ND	ND	ND	ND
	11/4/2003	ND	0.0250	ND	0.0024	ND	ND	ND	ND	12
	5/11/2004	ND	0.0280	ND	0.0022	ND	ND	ND	ND	ND

See footnotes at end of tables.

TABLE 1
OLD SALISBURY ROAD
HISTORICAL GROUNDWATER ANALYTICAL RESULTS

WELL NUMBER	DATE	Arsenic (0.05)	Barium (2.0)	Cadmium (0.005)	Chromium (0.05)	Lead (0.015)	Mercury (0.0011)	Selenium (0.05)	Silver (0.018)	VOCs (Varies)
MW-7	1/17/1996	ND	1.9300	ND	0.0280	0.0170	0.0014	ND	ND	ND
	10/24/1996	ND	0.9700	ND	0.0210	0.0060	0.0004	ND	ND	ND
	5/13/1997	ND	0.7500	ND	0.1800	0.0230	ND	ND	ND	ND
	10/30/1997	ND	1.8000	ND	0.4100	0.0530	0.0002	ND	ND	ND
	5/5/1998	ND	1.2000	ND	0.4300	0.0380	ND	ND	ND	ND
	11/5/1998	ND	1.3000	ND	0.3500	0.0360	ND	ND	ND	9
	6/2/1999	0.0098	0.9600	ND	0.1900	0.0300	ND	ND	ND	10
	11/19/1999	ND	0.3900	ND	0.0620	0.0120	ND	ND	ND	ND
	6/5/2000	ND	0.3600	ND	0.0025	0.0087	ND	ND	ND	ND
	12/14/2000	0.0450	2.6000	ND	0.5800	0.0650	~	ND	ND	ND
	7/31/2001	0.0160	1.3000	ND	0.2100	0.0260	ND	ND	ND	ND
	11/29/2001	0.0170	1.3000	ND	0.2700	0.0360	~	ND	ND	ND
	4/17/2002	ND	0.0840	ND	0.0068	ND	ND	ND	0.0026	ND
	12/9/2002	ND	0.2100	ND	0.0320	0.0060	ND	ND	ND	ND
	5/29/2003	ND	0.1300	ND	0.0170	0.0053	ND	ND	ND	ND
	11/4/2003	0.0086	0.8200	ND	0.1500	0.0240	ND	ND	ND	ND
	5/11/2004	ND	0.1800	ND	0.0260	ND	ND	ND	ND	ND
MW-8	12/14/2000	0.0890	4.2000	ND	0.2400	0.4000	~	ND	ND	ND
	7/31/2001	0.0460	2.6000	ND	0.0920	0.2100	ND	ND	ND	ND
	11/29/2001	0.0360	2.7000	ND	0.0940	0.1500	~	ND	ND	ND
	4/17/2002	ND	0.1500	ND	0.0230	ND	ND	ND	ND	ND
	12/9/2002	ND	0.0480	ND	0.0020	ND	ND	ND	ND	ND
	5/29/2003	ND	0.0770	ND	0.0038	0.0067	ND	ND	ND	ND
	11/4/2003	ND	0.0520	ND	0.0032	ND	ND	ND	ND	ND
	5/11/2004	0.0060	0.4800	ND	0.0280	0.0410	ND	ND	ND	ND
MW-9	8/24/2004	ND	0.2400	ND	0.0140	0.0140	ND	ND	ND	ND
MW-10	8/24/2004	ND	0.0980	ND	0.0130	0.0068	ND	0.0062	ND	ND
MW-11	8/24/2004	ND	0.0470	ND	0.0033	ND	ND	ND	ND	ND
MW-12	8/24/2004	ND	0.0740	ND	ND	ND	ND	ND	ND	ND
MW-13	8/24/2004	ND	0.1600	ND	0.0092	0.0110	ND	ND	ND	ND
MW-14	8/24/2004	ND	0.1700	ND	0.0032	0.0080	ND	ND	ND	ND
SW-1	8/25/2004	0.0200	0.5000	ND	0.0360	0.0380	ND	ND	ND	ND
SW-2	8/26/2004	ND	0.0630	ND	ND	ND	ND	ND	ND	ND

ND - Non Detect
~ - Not Sampled
All metals in ppm, all VOCs in ppb.
Highlighted cells indicate exceedances in 2L Standards.
(0.05) - 2L Standard

APPENDIX B

WELL CONSTRUCTION DIAGRAMS AND RECORDS

Department of Natural Resources and Community Development
Division of Environmental Management

P. O. Box 27687 Raleigh, N. C. 27611

WELL ABANDONMENT RECORD PZ-~~HU~~ 6R

CONTRACTOR Engineering Tectonics REG. NO. 2091

1. LOCATION: (Show a sketch of the location on back: of form.)

Nearest Town: Winston-Salem County Forsyth

3336 Old Salisbury Road Quadrangle No.

(Road, Community, Subdivision, Lot No.)

2. OWNER: City of Winston-Salem

ADDRESS: 325 Hanes Mill Road, Winston-Salem NC, 27105

4. TOPOGRAPHY: draw slope hilltop valley flat

5. USE OF WELL: Monitoring Date: 8-16-04

6. TOTAL DEPTH: 67.0' DIAMETER 2"

7. CASING REMOVED:

feet	diameter
67.0'	2"
n/a	n/a

a. SEALING MATERIAL:

Neat cement	Sand cement
bags of cement 17	bags of cement:
gals. of water: 85	yds. of sand
	gals. of water

Other:

Type Material

Amount

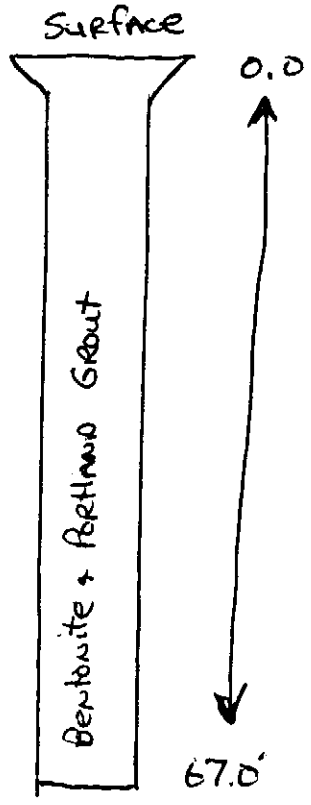
9. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL

Proceeded to over drill using 8" flight augers to remove 2" well pipe and trimie grout from bottom to the top.

I do hereby certify that this well abandonment record is true and exact.

Signature of contractor or Agent 8-16-04 Date

WELL DIAGRAM: Draw a detailed sketch of the well showing total depth, depth and diameter of screens remaining in the well, gravel interval, intervals of casing perforations, and depths and types of fill materials used.



submit original to the Division of Environmental Management, one copy to the Driller, and one copy to the Owner.

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☐ Recovery ☐ Heat Pump water Injection ☐ other ☒ If other, list use: MM-7/Methane Well

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☐ Ridge ☐ slope ☒ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( ) - N/A
Area Code- Phone number

4. DATE DRILLED 8-13-04
5. TOTAL DEPTH 18.0
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT. (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer

DEPTH From	To	DRILLING LOG Formation Description
see attached log		

11. DISINFECTION: Type n/a Amount n/a
12. CASING:

	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
From +3.0	To 2.0 Ft	1"	sch.40	PVC
From	To Ft			
From	To Ft			

13. GROUT:

	Depth To	Material	Method
From 0	To 1.0 Ft	Portland	Tremie
From	TO Ft.		

14. SCREEN

	Depth To	Diameter	Slot Size	Material
From 2.0	To 18.0 Ft.	1" in.	.010 in.	PVC
From	To Ft.	in.	in.	

15. SAND/GRAVEL PACK

	Depth To	Size	Material
From 1'6"	To 18.0 Ft	#3	Sand
From 1.0	To 1'6" Ft	3/8	Bentonite

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-13-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☐ Recovery ☐ Heat Pump water Injection ☐ other ☒ If other, list use: MM-8/Methane Well

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☐ Ridge ☐ slope ☒ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( )- N/A
Area Code- Phone number

4. DATE DRILLED 8-13-04
5. TOTAL DEPTH 13.0
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer
11. DISINFECTION: Type n/a Amount n/a
12. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From +3.0	To 2.0	Ft	1"	sch.40	PVC
From	To	Ft			
From	To	Ft			

13. GROUT:

	Depth		Material	Method
From 0	To 1.0	Ft.	Portland	Tremie
From	TO	Ft.		

14. SCREEN

	Depth		Diameter		Slot Size		Material
From 2.0	To 13.0	Ft.	1"	in.	.010	in.	PVC
From	To	Ft.		in.		in.	

15. SAND/GRAVEL PACK

	Depth		Size	Material
From 1'6"	To 13.0	Ft.	#3	Sand
From 1.0	To 1'6"	Ft.	3/8	Bentonite

16. REMARKS _____

DEPTH From	To	DRILLING LOG Formation Description
see attached log		

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-13-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☐ Recovery ☐ Heat Pump water Injection ☐ other ☒ If other, list use: MM-9/Methane Well

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☒ Ridge ☐ slope ☐ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( ) - N/A
Area Code- Phone number

4. DATE DRILLED 8-12-04
5. TOTAL DEPTH 30.0
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer

DEPTH From	To	DRILLING LOG Formation Description
see attached log		

11. DISINFECTION: Type n/a Amount n/a
12. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From +3.0	To 3.0	Ft	1"	sch.40	PVC
From	To	Ft			
From	To	Ft			

13. GROUT:

	Depth		Material	Method
From 0	To 1.0	Ft	Portland	Tremie
From	TO	Ft.		

14. SCREEN

	Depth		Diameter		Slot Size		Material
From 3.0	To 30.0	Ft.	1"	in.	.010	in.	PVC
From	To	Ft.		in.		in.	

15. SAND/GRAVEL PACK

	Depth		Size	Material
From 2.0	To 30.0	Ft	#3	Sand
From 1.0	To 2.0	Ft	3/8	Bentonite

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-12-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☐ Recovery ☐ Heat Pump water Injection ☐ other ☒ If other, list use: MM-10/Methane Well

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☐ Ridge ☐ slope ☒ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( )- N/A
Area Code- Phone number

4. DATE DRILLED 8-11-04
5. TOTAL DEPTH 5.0
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer

DEPTH From	To	DRILLING LOG Formation Description
see attached log		

11. DISINFECTION: Type n/a Amount n/a
12. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From +3.0	To 1'6"	Ft	1"	sch.40	PVC
From	To	Ft			
From	To	Ft			

13. GROUT:

	Depth		Material	Method
From 0	To 6"	Ft.	Portland	Tremie
From	TO	Ft.		

14. SCREEN

	Depth		Diameter	Slot Size	Material
From 1'6"	To 5.0	Ft.	1" in.	.010 in.	PVC
From	To	Ft.	in.	in.	

15. SAND/GRAVEL PACK

	Depth		Size	Material
From 1'3"	To 5.0	Ft	#3	Sand
From 6"	To 1'3"	Ft	3/8	Bentonite

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-11-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☐ Recovery ☐ Heat Pump water Injection ☐ other ☒ If other, list use: MM-11/Methane Well

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☐ Ridge ☐ slope ☒ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( )- N/A
Area Code- Phone number

4. DATE DRILLED 8-10-04
5. TOTAL DEPTH 3.0
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer

DEPTH From	To	DRILLING LOG Formation Description
see attached log		

11. DISINFECTION: Type n/a Amount n/a
12. CASING:

	Depth To	Diameter	Ft	Wall Thickness or Weight/Ft.	Material
From +3.0	To 1'6"	1"	Ft	sch.40	PVC
From	To		Ft		
From	To		Ft		

13. GROUT:

	Depth To		Ft	Material	Method
From 0	To 6"		Ft	Portland	Tremie
From	TO		Ft.		

14. SCREEN

	Depth To	Diameter	Slot Size	Material
From 1'6"	To 3.0	Ft. 1" in.	.010 in.	PVC
From	To	Ft. in.	in.	

15. SAND/GRAVEL PACK

	Depth To		Ft	Size	Material
From 1'3"	To 3.0		Ft	#3	Sand
From 6"	To 1'3"		Ft	3/8	Bentonite

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-10-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☐ Recovery ☐ Heat Pump water Injection ☐ other ☒ If other, list use: MM-12/Methane Well

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☐ Ridge ☐ slope ☒ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( )- N/A
Area Code- Phone number

4. DATE DRILLED 8-10-04
5. TOTAL DEPTH 6.0
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer

DEPTH From	To	DRILLING LOG Formation Description
see attached log		

11. DISINFECTION: Type n/a Amount n/a
12. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From +3.0	To 2.0	Ft	1"	sch.40	PVC
From	To	Ft			
From	To	Ft			

13. GROUT:

	Depth		Material	Method
From 0	To 1.0	Ft.	Portland	Tremie
From	TO	Ft.		

14. SCREEN

	Depth		Diameter		Slot Size		Material
From 2.0	To 6.0	Ft.	1"	in.	.010	in.	PVC
From	To	Ft.		in.		in.	

15. SAND/GRAVEL PACK

	Depth		Size	Material
From 1'6"	To 6.0	Ft	#3	Sand
From 1.0	To 1'6"	Ft	3/8	Bentonite

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-10-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☒ Recovery ☐ Heat Pump water Injection ☐ other ☐ If other, list use: MW-9

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☒ Ridge ☐ slope ☐ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( )- N/A
Area Code- Phone number

4. DATE DRILLED 8-12-04
5. TOTAL DEPTH 60.0
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT. (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer

DEPTH From	To	DRILLING LOG Formation Description
see attached log		

11. DISINFECTION: Type n/a Amount n/a
12. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From +3.0	To 45.0	Ft	2"	sch 40	PVC
From	To	Ft			
From	To	Ft			

13. GROUT:

	Depth		Material	Method
From 0	To 41.0	Ft.	Portland	Tremie
From	TO	Ft.		

14. SCREEN

	Depth		Diameter		Slot Size		Material
From 45.0	To 60.0	Ft.	2"	in.	.010	in.	PVC
From	To	Ft.		in.		in.	

15. SAND/GRAVEL PACK

	Depth		Size	Material
From 43.0	To 60.0	Ft	#3	Sand
From 41.0	To 43.0	Ft	3/8	Bentonite

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-12-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☒ Recovery ☐ Heat Pump water Injection ☐ other ☐ If other, list use: MW-10

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☐ Ridge ☒ slope ☐ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( )- N/A
Area Code- Phone number

4. DATE DRILLED 8-11-04
5. TOTAL DEPTH 38210
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer

DEPTH From	To	DRILLING LOG Formation Description
see attached log		

11. DISINFECTION: Type n/a Amount n/a
12. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From +3.0	To 6.0	Ft	2"	sch.40	PVC
From	To	Ft			
From	To	Ft			

13. GROUT:

	Depth		Material	Method
From 0	To 3.0	Ft.	Portland	Tremie
From	TO	Ft.		

14. SCREEN

	Depth		Diameter		Slot Size		Material
From 6.0	To 21.0	Ft.	2"	in.	.010	in.	PVC
From	To	Ft.		in.		in.	

15. SAND/GRAVEL PACK

	Depth		Size	Material
From 5.0	To 21.0	Ft	#3	Sand
From 3.0	To 5.0	Ft	3/8	Bentonite

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-11-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☒ Recovery ☐ Heat Pump water Injection ☐ other ☐ If other, list use: MW-11

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☐ Ridge ☐ slope ☒ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( ) N/A
Area Code- Phone number

4. DATE DRILLED 8-10-04
5. TOTAL DEPTH 20.0
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT. (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer

DEPTH From	To	DRILLING LOG Formation Description
see attached log		

11. DISINFECTION: Type n/a Amount n/a
12. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From +3.0	To 5.0	Ft	2"	sch.40	PVC
From	To	Ft			
From	To	Ft			

13. GROUT:

	Depth		Material	Method
From 0	To 2.0	Ft	Portland	Tremie
From	TO	Ft.		

14. SCREEN

	Depth		Diameter		Slot Size		Material
From 5.0	To 20.0	Ft.	2"	in.	.010	in.	PVC
From	To	Ft.		in.		in.	

15. SAND/GRAVEL PACK

	Depth		Size	Material
From 4.0	To 20.0	Ft	#3	Sand
From 2.0	To 4.0	Ft	3/8	Bentonite

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-10-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☒ Recovery ☐ Heat Pump water Injection ☐ other ☐ If other, list use: MW-12

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☐ Ridge ☐ slope ☒ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( )- N/A
Area Code- Phone number

4. DATE DRILLED 8-10-04
5. TOTAL DEPTH 38209
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT. (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer

DEPTH From	To	DRILLING LOG Formation Description
see attached log		

11. DISINFECTION: Type n/a Amount n/a
12. CASING:

	Depth		Diameter	Wall Thickness or Weight/Ft.	Material
From +3.0	To 5'7"	Ft	2"	sch.40	PVC
From	To	Ft			
From	To	Ft			

13. GROUT:

	Depth		Material	Method
From 0	To 2.0	Ft	Portland	Tremie
From	TO	Ft.		

14. SCREEN

	Depth		Diameter		Slot Size		Material
From 5'7"	To 15'7"	Ft.	2"	in.	.010	in.	PVC
From	To	Ft.		in.		in.	

15. SAND/GRAVEL PACK

	Depth		Size	Material
From 4.0	To 15'7"	Ft	#3	Sand
From 2.0	To 4.0	Ft	3/8	Bentonite

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-10-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☒ Recovery ☐ Heat Pump water Injection ☐ other ☐ If other, list use: MW-13

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☐ Ridge ☐ slope ☒ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( )- N/A
Area Code- Phone number

4. DATE DRILLED 8-10-04
5. TOTAL DEPTH 20.0
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT. (Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer

DEPTH From	To	DRILLING LOG Formation Description
see attached log		

11. DISINFECTION: Type n/a Amount n/a
12. CASING:

	Depth To	Diameter	Wall Thickness or Weight/Ft.	Material
From +3.0	To 5.0 Ft	2"	sch.40	PVC
From	To Ft			
From	To Ft			

13. GROUT:

	Depth To	Material	Method
From 0	To 2.0 Ft.	Portland	Tremie
From	TO Ft.		

14. SCREEN

	Depth To	Diameter	Slot Size	Material
From 5.0	To 20.0 Ft.	2" in.	.010 in.	PVC
From	To Ft.	in.	in.	

15. SAND/GRAVEL PACK

	Depth To	Size	Material
From 4.0	To 20.0 Ft.	#3	Sand
From 2.0	To 4.0 Ft.	3/8	Bentonite

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-10-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

WELL CONSTRUCTION RECORD

North Carolina - Department. of Environment and Natural Resources - Division of Water Quality - Groundwater Section

WELL CONTRACTOR (INDIVIDUAL) NAME (print) Ronald Barron CERTIFICATION # 2091

WELL CONTRACTOR COMPANY NAME Engineering Tectonics PHONE # ( )

STATE WELL CONSTRUCTION PERMIT# _____ (if applicable) ASSOCIATED WQ Permit # _____ (if applicable)

1. WELL USE (Check Applicable Box): Residential ☐ Municipal/Public ☐ Industrial ☐ Agricultural ☐ Monitoring ☒ Recovery ☐ Heat Pump water Injection ☐ other ☐ If other, list use: MW-14

2. WELL LOCATION:
Nearest Town: Winston-Salem County Forsyth
3336 Old Salisbury Road
(Street Name, Numbers, Community, Subdivision, Lot No., Zip Code)

Topographic/ Land setting
☒ Ridge ☐ slope ☐ valley ☐ Flat
(check appropriate box)
Latitude/Longitude of well location
N/A
(degrees/minutes/seconds)
Latitude/Longitude source: ☐ GPS ☐ Topographic map
(check box)

3. OWNER City of Winston-Salem
Address 325 Hanes Mill Road
(Street or Route No)
Winston-Salem N.C. 27105
City or Town State Zip code
( )- N/A
Area Code- Phone number

4. DATE DRILLED 8-12-04
5. TOTAL DEPTH 60.0
6. DOES WELL REPLACE EXISTING WELL? YES ☐ NO ☒
7. STATIC WATER LEVEL Below Top of Casing: ___ FT.
(Use "+" if Above Top of Casing)
8. TOP OF CASING IS 3.0' FT. Above Land Surface
Top of casing terminated at/or below land surface requires a variance in accordance with 15A NCAC 2C.0118.
9. YIELD (gpm): n/a METHOD OF TEST n/a
10. WATER ZONES (depth): Unconfined Aquifer
11. DISINFECTION: Type n/a Amount n/a

DEPTH From	DRILLING LOG Formation Description
see attached log	

12. CASING:

	Depth From	To	Diameter	Wall Thickness or Weight/Ft.	Material
	+3.0	45.0	2"	sch.40	PVC

13. GROUT:

	Depth From	To	Material	Method
	0	41.0	Portland	Tremie

14. SCREEN

Depth From	To	Diameter	Slot Size	Material
45.0	60.0	2"	.010	PVC

15. SAND/GRAVEL PACK

Depth From	To	Size	Material
43.0	60.0	#3	Sand
41.0	43.0	3/8	Bentonite

LOCATION SKETCH
Show direction and distance in miles from at least two State Roads or County Roads. Include the road numbers and common road names.

16. REMARKS _____

I DO HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15A NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER

Ronald Barron 8-12-04

SIGNATURE OF PERSON CONSTRUCTING THE WELL DATE

Submit the original to the Division of Water Quality, Groundwater Section, 1636 Mail Service Center - Raleigh, NC 27699-1636 Phone No. (919) 133-3221, within 30 days.

GW-1 REV. 07/2001

Geologist Log: MM-7

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: NA
Geologist: C. Randazzo

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft 20 40 60 80	Well Data	Remarks
-2										Locking well cover and cement pad
-1										
		Ground Surface								
0		***TOPSOIL*** Tan, organic rich, grassed, moist	0.0							Portland Type I Cement Bentonite Seal
1			1.0							
2										
3										
4		***SAND*** Tan, fine to medium grained, clayey, silty, dry	4.0							Sand Pack
5										
6										
7										1-inch Diameter SCH 40 PVC 0.010-inch Slots
8										
9										
10										
11										
12										
13										
14										
15										
16										
17		End of Borehole	17.0							
18										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/12/2004

Hole Size: 6"
Top of Casing: NA
Sheet: 1 of 1

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC 28202
Phone: (704)338-6700
Fax: (704)338-6760
www.hdrinc.com

Geologist Log: MM-8

Project: Old Salisbury Road
Project No: 00162-15029
Client: City of Winston-Salem
Ground Elevation: NA
Location: Winston-Salem
Geologist: C. Randazzo

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft 20 40 60 80	Well Data	Remarks
-2										Locking well cover and cement pad
-1										
		Ground Surface								
0		***TOPSOIL*** Tan, organic rich, grassed, moist	0.0							Portland Type I Cement Bentonite Seal
1			1.0							
2										
3										
4		***SAND*** Tan, fine to medium grained, clayey, silty, dry	4.0							Sand Pack
5										
6										
7										1-inch Diameter SCH 40 PVC 0.010-inch Slots
8										
9										
10										
11										
12										
13		End of Borehole	13.0							
14										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/11/2004

Hole Size: 6"
Top of Casing: NA
Sheet: 1 of 1

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC 28202
Phone: (704)338-6700
Fax: (704)338-6760
www.hdrinc.com

Geologist Log: MM-9

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: NA
Geologist: C. Randazzo

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft 20 40 60 80	Well Data	Remarks
-2										Locking well cover and cement pad
-1										
		Ground Surface								
0		***TOPSOIL*** Tan, organic rich, grassed, moist	0.0							Portland Type I Cement
1			1.0							Bentonite Seal
2										
3										
4		***SAND*** Tan, fine to medium grained, clayey, silty, dry	4.0							Sand Pack
5										
6										
7										1-inch Diameter SCH 40 PVC 0.010-inch Slots
8										
9										
10										
11										
12										
13										
14										
15										
16										
17										
18										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/12/2004

Hole Size: 6"
Top of Casing: NA
Sheet: 1 of 2

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC 28202
Phone: (704)338-6700
Fax: (704)338-6760
www.hdrinc.com

Geologist Log: MM-9

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: NA
Geologist: C. Randazzo

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft 20 40 60 80	Well Data	Remarks
18										
19										
20										
21										
22										
23										
24										
25										
26										
27		End of Borehole	27.0							
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/12/2004

Hole Size: 6"
Top of Casing: NA
Sheet: 2 of 2

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC 28202
Phone: (704)338-6700
Fax: (704)338-6760
www.hdrinc.com

Geologist Log: MM-10

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: NA
Geologist: C. Randazzo

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft 20 40 60 80	Well Data	Remarks
-2										Locking well cover and cement pad
-1										
		Ground Surface								
0		***TOPSOIL*** Tan, organic rich, grassed, moist	0.0							Portland Type I Cement; Bentonite Seal
1			1.0							
2										Sand Pack
3		***SAND*** Gray, fine to medium grained, silty, clayey, wet								1-inch Diameter SCH 40 PVC 0.010-inch Slots
4										
5		End of Borehole	5.0							
6										
7										
8										
9										
10										
11										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/10/2004

Hole Size: 6"
Top of Casing: NA
Sheet: 1 of 1

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC 28202
Phone: (704)338-6700
Fax: (704)338-6760
www.hdrinc.com

Geologist Log: MM-11

Project: Old Salisbury Road
Project No: 00162-15029
Client: City of Winston-Salem
Ground Elevation: NA
Location: Winston-Salem
Geologist: C. Randazzo

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft 20 40 60 80	Well Data	Remarks
-2										Locking well cover and cement pad
-1										
		Ground Surface								
0		***TOPSOIL*** Tan, organic rich, grassed, moist	0.0							Portland Type I Cement
										Bentonite Seal
1			1.0							Sand Pack
2		***SAND*** Gray, fine to medium grained, silty, clayey, wet								1-inch Diameter SCH 40 PVC 0.010-inch Slots
3		End of Borehole	3.0							
4										
5										
6										
7										
8										
9										
10										
11										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/10/2004

Hole Size: 6"
Top of Casing: NA
Sheet: 1 of 1

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC 28202
Phone: (704)338-6700
Fax: (704)338-6760
www.hdrinc.com

Geologist Log: MM-12

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: NA
Geologist: C. Randazzo

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft 20 40 60 80	Well Data	Remarks
-2										Locking well cover and cement pad
-1										
		Ground Surface								
0		***TOPSOIL*** Tan, organic rich, grassed, moist	0.0							Portland Type I Cement
										Bentonite Seal
1		***SAND*** Tan, fine to medium grained, clayey, silty, dry	1.0							
2										
3										
4										Sand Pack
5										1-inch Diameter SCH 40 PVC 0.010-inch Slots
6										
7										
8										
9										
10		End of Borehole	10.0							
11										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/9/2004

Hole Size: 6"
Top of Casing: NA
Sheet: 1 of 1

HDR Engineering, Inc. of the Carolinas
128 S. Tryon Street
Suite 1400
Charlotte, NC 28202
Phone: (704)338-6700
Fax: (704)338-6760
www.hdrinc.com

Geologist Log: MW-9

Project: Old Salisbury Road
Project No: 00162-15029
Client: City of Winston-Salem
Ground Elevation: 788.04
Location: Winston-Salem
Geologist: C. Randazzo

HDR

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft 20 40 60 80	Well Data	Remarks
-2, -1, 0		Ground Surface	788.0							Locking well cover and cement pad
0–1		***TOPSOIL*** Tan, organic rich, grassed, moist	0.0 / 787.0 / 1.0							
1–4			784.0							
4–9		***SILT*** Red, tan, fine to medium grained sandy, clayey, dry	4.0 / 779.0	1		11	100%			
9–21		***SAND*** Tan, white, black, fine to medium grained, silty, sparse clay, dry	9.0	2		12	100%			Portland Type I Cement
				3		15	100%			
				4		10	100%			

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/11/2004

Hole Size: 8"
Top of Casing: 790.28
Sheet: 1 of 3

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Charlotte, NC 28202
Phone: (704)338-6700
Fax: (704)338-6760
www.hdrinc.com

Geologist Log: MW-9

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: 788.04
Geologist: C. Randazzo

HDR

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft (20 40 60 80)	Well Data	Remarks
21										
22										
23										
24										
25				5		12	100%			
26										
27										
28										
29		***SILT*** Red, tan, fine to medium grained sandy, clayey, dry	759.0 / 29.0	6		17	100%			
30										
31										
32										
33										
34										
35				7		31	100%			
36										
37										
38										
39		***SAND*** Tan, white, black, fine to medium grained, silty, sparse clay, dry	749.0 / 39.0	8		73	100%			
40										
41										
42										Bentonite Seal
43										
44			744.0 / 44.0							

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/11/2004

Hole Size: 8"
Top of Casing: 790.28
Sheet: 2 of 3

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Geologist Log: MW-9

Project: Old Salisbury Road
Project No: 00162-15029
Client: City of Winston-Salem
Ground Elevation: 788.04
Location: Winston-Salem
Geologist: C. Randazzo

HDR

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft (20 40 60 80)	Well Data	Remarks
44		Same, moist								
45				9		100	100%			
46										
47										
48										Sand Pack
49										
50				10		84	100%			
51										
52										2-inch Diameter SCH 40 PVC 0.010-inch Slots
53										
54		Same, wet	734.0 / 54.0							
55				11		100	100%			
56										
57										
58										
59										
60		End of Borehole	728.0 / 60.0							
61										
62										
63										
64										
65										
66										
67										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/11/2004

Hole Size: 8"
Top of Casing: 790.28
Sheet: 3 of 3

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Geologist Log: MW-10

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: 735.70
Geologist: C. Randazzo

HDR

Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft (20 40 60 80)	Well Data	Remarks
-2, -1										Locking well cover and cement pad
		Ground Surface	735.7							
0		**TOPSOIL** Mixed with fill	0.0 / 734.7							Portland Type I Cement
1			1.0							
2, 3										
4		**CLAY** Gray, tan, red, silty, sparse fine to medium grained sand, dry	731.7 / 4.0	1		20	100%			Bentonite Seal
5, 6, 7, 8										
9		**SAND** Gray, white, black, fine to medium grained, silty, clayey, wet	726.7 / 9.0	2		13	100%			Sand Pack
10, 11, 12, 13										
14		**SILT** Gray, white, black, fine to medium grained sand, clayey, wet	721.7 / 14.0	3		11	100%			2-inch Diameter SCH 40 PVC 0.010-inch Slots
15, 16, 17, 18, 19, 20										
21		End of Borehole	714.7 / 21.0							
22										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/10/2004

Hole Size: 8"
Top of Casing: 738.21
Sheet: 1 of 1

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Geologist Log: MW-11

Project: Old Salisbury Road
Project No: 00162-15029
Client: City of Winston-Salem
Ground Elevation: 730.35
Location: Winston-Salem
Geologist: C. Randazzo

HDR

Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft (20 40 60 80)	Well Data	Remarks
-2, -1, 0		Ground Surface	730.4							Locking well cover and cement pad
0		***TOPSOIL*** Tan, organic rich, grassed, moist	0.0 / 729.4							Portland Type I Cement
1–3			1.0							Bentonite Seal
4–8		***SAND*** Gray, tan, fine to medium grained, silty, clayey, wet	726.4 / 4.0	1		9	100%			
9–16		Gray, white, black, fine to medium grained, silty, sparse clay, wet	721.4 / 9.0	2		41	100%			Sand Pack
14–16				3		100	100%			2-inch Diameter SCH 40 PVC 0.010-inch Slots
20		End of Borehole	710.4 / 20.0							

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/10/2004

Hole Size: 8"
Top of Casing: 732.59
Sheet: 1 of 1

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Geologist Log: MW-12

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: 736.41
Geologist: C. Randazzo

HDR

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft (20 40 60 80)	Well Data	Remarks
-2										Locking well cover and cement pad
-1										
		Ground Surface	736.4							
0		***TOPSOIL*** Tan, organic rich, grassed, moist	0.0 / 735.4							Portland Type I Cement
1			1.0							
2										
3										Bentonite Seal
			732.4							
4		***SILT*** Gray, fine to medium sandy, clayed, wet	4.0							
5				1		9	100%			
6										
7										
8										
9										
10				2		16	100%			Sand Pack
11										
12										
13										
14										2-inch Diameter SCH 40 PVC 0.010-inch Slots
15				3		16	100%			
			720.4							
16		End of Borehole	16.0							
17										
18										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/9/2004

Hole Size: 8"
Top of Casing: 739.07
Sheet: 1 of 1

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Geologist Log: MW-13

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: 749.19
Geologist: C. Randazzo

HDR

Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft (20 40 60 80)	Well Data	Remarks
-2, -1, 0		Ground Surface	749.2							Locking well cover and cement pad
0		***TOPSOIL*** Tan, organic rich, grassed, moist	0.0 / 748.2							
1			1.0							Portland Type I Cement
2, 3										Bentonite Seal
4		***SAND*** Tan, fine to medium grained, clayey, silty, dry	745.2 / 4.0							
5				1		12	100%			
6, 7, 8, 9										
10				2		12	100%			Sand Pack
11, 12, 13										
14		***SILT*** Tan, fine to medium grained sandy, clayey, moist	735.2 / 14.0							2-inch Diameter SCH 40 PVC 0.010-inch Slots
15				3		8	100%			
16, 17, 18, 19										
20		End of Borehole	729.2 / 20.0	4		8	100%			
21										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/9/2004

Hole Size: 8"
Top of Casing: 751.23
Sheet: 1 of 1

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Geologist Log: MW-14

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: 781.44
Geologist: C. Randazzo

HDR

Depth	Symbol	Description	Elevation	Sample Number	Type	Blows/ft	Recovery	Shear Strength blows/ft (20 40 60 80)	Well Data	Remarks
-2, -1										Locking well cover and cement pad
		Ground Surface	781.4							
0		***TOPSOIL*** Tan, organic rich, grassed, moist	0.0 / 780.4							
1			1.0							
2, 3										
4		***SILT*** Red, tan, fine to medium grained sandy, clayey, dry	777.4 / 4.0							
5				1		18	100%			
6, 7, 8										
9		Same minus medium grained sand	772.4 / 9.0							
10				2		7	100%			Portland Type I Cement
11, 12, 13										
14										
15				3		8	100%			
16, 17, 18										
19										
20				4		11	100%			
21										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/11/2004

Hole Size: 8"
Top of Casing: 783.88
Sheet: 1 of 3

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Geologist Log: MW-14

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: 781.44
Geologist: C. Randazzo

HDR

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft 20 40 60 80	Well Data	Remarks
21										
22										
23										
24										
25				5		16	100%			
26										
27										
28										
29		Same plus medium grained sand	752.4 29.0							
30				6		16	100%			
31										
32										
33										
34		***SAND*** Black, white, fine to medium grained, silty, clayey, dry	747.4 34.0							
35				7		19	100%			
36										
37										
38										
39										
40				8		29	100%			
41										
42										
43										Bentonite Seal
44										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/11/2004

Hole Size: 8"
Top of Casing: 783.88
Sheet: 2 of 3

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Geologist Log: MW-14

Project: Old Salisbury Road
Client: City of Winston-Salem
Location: Winston-Salem

Project No: 00162-15029
Ground Elevation: 781.44
Geologist: C. Randazzo

HDR

SUBSURFACE PROFILE				SAMPLE						
Depth	Symbol	Description	Elevation	Number	Type	Blows/ft	Recovery	Shear Strength blows/ft (20 40 60 80)	Well Data	Remarks
44										
45				9		60	100%			
46										
47										
48										Sand Pack
49		Same, moist	732.4 / 49.0							
50				10		56	100%			
51										
52										2-inch Diameter SCH 40 PVC 0.010-inch Slots
53										
54		Same, wet	727.4 / 54.0							
55				11		100	100%			
56										
57										
58										
59										
60		End of Borehole	721.4 / 60.0							
61										
62										
63										
64										
65										
66										
67										

Drilled By: Engineering Tectonics
Drill Method: HSA
Drill Date: 8/11/2004

Hole Size: 8"
Top of Casing: 783.88
Sheet: 3 of 3

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APPENDIX C

HYDROGEOLOGICAL EVALUATION RESULTS

OLD SALISBURY ROAD C&D LANDFILL
WELL CONSTRUCTION DATA & GROUNDWATER LEVEL READINGS

WELL	GRADE (FT MSL)	TOP OF CASING (FT MSL)	WELL DEPTH	SCREENED INTERVAL (FT BELOW GRADE)	SCREENED ELEVATION (FT MSL)	AUGUST 24, 2004 WATER LEVELS DEPTH TOC	AUGUST 24, 2004 WATER LEVELS (FT MSL)
MW-1R	833.40	836.42	62.0	47.0 - 62.0	771.4 - 786.4	36.62	799.80
MW-2R	781.81	784.16	25.0	10.0 - 25.0	756.8 - 771.8	9.03	775.13
MW-3R	772.90	776.60	31.0	16.0 - 31.0	741.9 - 756.9	19.5	757.10
MW-4R	765.70	767.96	21.0	6.0 - 21.0	744.7 - 759.7	8.15	759.81
MW-5R	782.30	784.36	32.0	17.0 - 32.0	750.3 - 765.3	9.88	774.48
MW-7	802.10	803.66	47.0	32.0 - 47.0	755.1 - 770.1	37.8	765.86
MW-8	759.80	762.50	30.0	15.0 - 30.0	729.8 - 744.8	16.21	746.29
MW-9	788.04	790.28	60.0	45.0 - 60.0	728.0 - 743.0	49.99	740.29
MW-10	735.70	738.21	21.0	6.0 - 21.0	714.7 - 729.7	11.87	726.34
MW-11	730.35	732.59	20.0	5.0 - 20.0	710.3 - 725.3	3.54	729.05
MW-12	736.41	739.07	16.0	6.0 - 16.0	720.4 - 730.4	4.73	734.34
MW-13	749.19	751.23	20.0	5.0 - 20.0	729.2 - 744.2	9.31	741.92
MW-14	781.44	783.88	60.0	45.0 - 60.0	721.4 - 736.4	49.64	734.24

APPENDIX D

ANALYTICAL LABORATORY CERTIFICATES
(with Chain-of-Custody Record and Pre-Sampling Well Purging Form)

Winston-Salem: Old Salisbury Road Landfill Phases IV, V, and VI
Baseline Sampling Event Purge Water Data

Well	Index	Elapsed Time	Criteria	Date	Time	Temp-C	pH	SpC-mS/cm	Salin-PSS	DO%-Sat	DO-mg/L	Circ	ORP-mV	Batt-V	CRC
MW-9	20	0:00	No	24-Aug-04	11:11:12	16.03	6.26	0.122	0.06	27.3	2.64	On	342	4.5	[illegible]
	21	5:00	No	24-Aug-04	11:16:12	15.87	5.91	0.113	0.05	37.7	3.73	On	345	4.4	[illegible]
	22	10:00	No	24-Aug-04	11:21:12	16.17	5.9	0.114	0.06	38.3	3.76	On	301	4.4	[illegible]
	23	8:00	Yes	24-Aug-04	11:19:12	15.81	5.91	0.113	0.06	38.2	3.79	On	307	4.4	[illegible]
	24	10:00	Yes	24-Aug-04	11:21:12	16.17	5.9	0.114	0.06	38.3	3.76	On	301	4.4	[illegible]
	25	12:00	Yes	24-Aug-04	11:23:12	16.35	5.86	0.114	0.06	38.3	3.75	On	309	4.4	[illegible]
MW-10	15	0:00	No	24-Aug-04	9:01:07	14.52	5.32	0.039	0.02	77.4	7.89	On	266	4.5	0xAB6C
	16	5:00	No	24-Aug-04	9:06:08	14.46	5.3	0.038	0.02	73.7	7.52	On	293	4.4	0xD13C
	17	2:00	Yes	24-Aug-04	9:03:08	14.49	5.31	0.039	0.02	75.3	7.68	On	280	4.4	0x7FDB
	18	4:00	Yes	24-Aug-04	9:05:08	14.48	5.3	0.037	0.02	74	7.54	On	289	4.4	0x5F08
	19	6:00	Yes	24-Aug-04	9:07:08	14.48	5.29	0.038	0.02	73.7	7.52	On	297	4.4	0x294E
MW-11	9	0:00	No	24-Aug-04	8:24:19	15.15	6.82	0.125	0.06	7.7	0.78	On	305	4.5	[illegible]
	10	5:00	No	24-Aug-04	8:29:19	15.18	6.24	0.126	0.06	2.8	0.28	On	362	4.5	[illegible]
	11	10:00	No	24-Aug-04	8:34:19	15.11	6.3	0.125	0.06	1.8	0.18	On	418	4.4	[illegible]
	12	6:00	Yes	24-Aug-04	8:30:19	15.21	6.24	0.126	0.06	2.7	0.27	On	398	4.4	[illegible]
	13	8:00	Yes	24-Aug-04	8:32:19	15.14	6.28	0.126	0.06	2.1	0.21	On	394	4.4	[illegible]
	14	10:00	Yes	24-Aug-04	8:34:19	15.11	6.3	0.125	0.06	1.8	0.18	On	418	4.4	[illegible]
MW-12	4	0:00	No	24-Aug-04	7:49:31	16.74	5.92	0.193	0.09	9.8	0.95	On	336	4.5	0xD1CB
	5	5:00	No	24-Aug-04	7:54:31	16.62	5.82	0.184	0.09	21.7	2.1	On	329	4.4	0xC2F7
	6	4:00	Yes	24-Aug-04	7:53:31	16.61	5.81	0.186	0.09	21	2.06	On	329	4.5	0xD021
	7	6:00	Yes	24-Aug-04	7:55:31	16.6	5.82	0.184	0.09	21.6	2.11	On	327	4.5	0x2B7E
	8	8:00	Yes	24-Aug-04	7:57:31	16.64	5.84	0.182	0.09	22.4	2.18	On	324	4.5	0xDD05
MW-13	0	0:00	No	24-Aug-04	7:02:00	16.4	5.61	0.064	0.03	64.5	6.81	On	379	4.6	[illegible]
	1	0:00	Yes	24-Aug-04	7:02:00	16.4	5.61	0.064	0.03	64.5	6.31	On	379	4.6	[illegible]
	2	2:00	Yes	24-Aug-04	7:04:00	16.29	5.62	0.063	0.03	63.4	6.21	On	382	4.6	[illegible]
	3	4:00	Yes	24-Aug-04	7:06:00	16.4	5.56	0.062	0.03	62.4	6.11	On	385	4.6	[illegible]
MW-14	26	0:00	No	24-Aug-04	11:42:35	17.19	5.63	0.128	0.06	85	8.18	On	203	4.5	0x6EE1
	27	5:00	No	24-Aug-04	11:47:36	16.15	5.54	0.129	0.06	57.9	5.69	On	274	4.4	0xD9B7
	28	10:00	No	24-Aug-04	11:52:35	16.08	5.5	0.131	0.06	57.4	5.65	On	307	4.3	0x4E18
	29	10:00	Yes	24-Aug-04	11:52:35	16.08	5.5	0.131	0.06	57.4	5.65	On	307	4.4	0x179B
	30	12:00	Yes	24-Aug-04	11:54:35	16.09	5.5	0.131	0.06	57.2	5.64	On	316	4.4	0x286D
	31	14:00	Yes	24-Aug-04	11:56:35	16.15	5.45	0.131	0.06	57.6	5.66	On	326	4.4	0x8988

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Phone: 704.875.9092
Fax: 704.875.9091

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629728 | Project Sample Number: 9274844-001 | Date Collected: 08/24/04 09:00
Client Sample ID: MW-13 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Metals								
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Arsenic	ND	mg/l	0.0050	08/27/04 01:58	ALV	7440-38-2		
Barium	0.16	mg/l	0.0050	08/27/04 01:58	ALV	7440-39-3		
Cadmium	ND	mg/l	0.0010	08/27/04 01:58	ALV	7440-43-9		
Chromium	0.0092	mg/l	0.0020	08/27/04 01:58	ALV	7440-47-3		
Lead	0.011	mg/l	0.0050	08/27/04 01:58	ALV	7439-92-1		
Selenium	ND	mg/l	0.0050	08/27/04 01:58	ALV	7782-49-2		
Silver	ND	mg/l	0.0020	08/27/04 01:58	ALV	7440-22-4		
Date Digested	08/25/04 01:15			08/25/04 01:15				
Mercury, CVAAS, in Water	Method: EPA 7470							
Mercury	ND	mg/l	0.00020	09/02/04	LBG	7439-97-6		
GC/MS Volatiles								
GC/MS VOCs by 8260	Method: EPA 8260							
Acetone	ND	ug/l	10.	08/26/04 13:14	DLK	67-64-1		
Acrylonitrile	ND	ug/l	25.	08/26/04 13:14	DLK	107-13-1		
Benzene	ND	ug/l	5.0	08/26/04 13:14	DLK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	08/26/04 13:14	DLK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	08/26/04 13:14	DLK	75-27-4		
Bromoform	ND	ug/l	5.0	08/26/04 13:14	DLK	75-25-2		
Bromomethane	ND	ug/l	5.0	08/26/04 13:14	DLK	74-83-9		
2-Butanone (MEK)	ND	ug/l	10.	08/26/04 13:14	DLK	78-93-3		
Carbon disulfide	ND	ug/l	10.	08/26/04 13:14	DLK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	08/26/04 13:14	DLK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	08/26/04 13:14	DLK	108-90-7		
Chloroethane	ND	ug/l	10.	08/26/04 13:14	DLK	75-00-3		
Chloroform	ND	ug/l	5.0	08/26/04 13:14	DLK	67-66-3		
Chloromethane	ND	ug/l	5.0	08/26/04 13:14	DLK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	08/26/04 13:14	DLK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	08/26/04 13:14	DLK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	08/26/04 13:14	DLK	106-93-4		
Dibromomethane	ND	ug/l	5.0	08/26/04 13:14	DLK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	08/26/04 13:14	DLK	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	08/26/04 13:14	DLK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	08/26/04 13:14	DLK	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	08/26/04 13:14	DLK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	08/26/04 13:14	DLK	107-06-2		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629728 | Project Sample Number: 9274844-001 | Date Collected: 08/24/04 09:00
Client Sample ID: MW-13 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
1,1-Dichloroethene	ND	ug/l	5.0	08/26/04 13:14	DLK	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 13:14	DLK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 13:14	DLK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	08/26/04 13:14	DLK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 13:14	DLK	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 13:14	DLK	10061-02-6		
Ethylbenzene	ND	ug/l	5.0	08/26/04 13:14	DLK	100-41-4		
2-Hexanone	ND	ug/l	10.	08/26/04 13:14	DLK	591-78-6		
Iodomethane	ND	ug/l	10.	08/26/04 13:14	DLK	74-88-4		
Methylene chloride	ND	ug/l	5.0	08/26/04 13:14	DLK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	10.	08/26/04 13:14	DLK	108-10-1		
Styrene	ND	ug/l	5.0	08/26/04 13:14	DLK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 13:14	DLK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 13:14	DLK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	08/26/04 13:14	DLK	127-18-4		
Toluene	ND	ug/l	5.0	08/26/04 13:14	DLK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	08/26/04 13:14	DLK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	08/26/04 13:14	DLK	79-00-5		
Trichloroethene	ND	ug/l	5.0	08/26/04 13:14	DLK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	08/26/04 13:14	DLK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	08/26/04 13:14	DLK	96-18-4		
Vinyl acetate	ND	ug/l	10.	08/26/04 13:14	DLK	108-05-4		
Vinyl chloride	ND	ug/l	5.0	08/26/04 13:14	DLK	75-01-4		
m&p-Xylene	ND	ug/l	10.	08/26/04 13:14	DLK			
o-Xylene	ND	ug/l	5.0	08/26/04 13:14	DLK	95-47-6		
Toluene-d8 (S)	97	%		08/26/04 13:14	DLK	2037-26-5		
4-Bromofluorobenzene (S)	94	%		08/26/04 13:14	DLK	460-00-4		
Dibromofluoromethane (S)	104	%		08/26/04 13:14	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	104	%		08/26/04 13:14	DLK	17060-07-0		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629736 | Project Sample Number: 9274844-002 | Date Collected: 08/24/04 09:45
Client Sample ID: MW-12 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Metals								
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Arsenic	ND	mg/l	0.0050	08/27/04 02:03	ALV	7440-38-2		
Barium	0.074	mg/l	0.0050	08/27/04 02:03	ALV	7440-39-3		
Cadmium	ND	mg/l	0.0010	08/27/04 02:03	ALV	7440-43-9		
Chromium	ND	mg/l	0.0020	08/27/04 02:03	ALV	7440-47-3		
Lead	ND	mg/l	0.0050	08/27/04 02:03	ALV	7439-92-1		
Selenium	ND	mg/l	0.0050	08/27/04 02:03	ALV	7782-49-2		
Silver	ND	mg/l	0.0020	08/27/04 02:03	ALV	7440-22-4		
Date Digested	08/25/04 01:15			08/25/04 01:15				
Mercury, CVAAS, in Water	Method: EPA 7470							
Mercury	ND	mg/l	0.00020	09/02/04	LBG	7439-97-6		
GC/MS Volatiles								
GC/MS VOCs by 8260	Method: EPA 8260							
Acetone	ND	ug/l	10.	08/26/04 13:43	DLK	67-64-1		
Acrylonitrile	ND	ug/l	25.	08/26/04 13:43	DLK	107-13-1		
Benzene	ND	ug/l	5.0	08/26/04 13:43	DLK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	08/26/04 13:43	DLK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	08/26/04 13:43	DLK	75-27-4		
Bromoform	ND	ug/l	5.0	08/26/04 13:43	DLK	75-25-2		
Bromomethane	ND	ug/l	5.0	08/26/04 13:43	DLK	74-83-9		
2-Butanone (MEK)	ND	ug/l	10.	08/26/04 13:43	DLK	78-93-3		
Carbon disulfide	ND	ug/l	10.	08/26/04 13:43	DLK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	08/26/04 13:43	DLK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	08/26/04 13:43	DLK	108-90-7		
Chloroethane	ND	ug/l	10.	08/26/04 13:43	DLK	75-00-3		
Chloroform	ND	ug/l	5.0	08/26/04 13:43	DLK	67-66-3		
Chloromethane	ND	ug/l	5.0	08/26/04 13:43	DLK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	08/26/04 13:43	DLK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	08/26/04 13:43	DLK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	08/26/04 13:43	DLK	106-93-4		
Dibromomethane	ND	ug/l	5.0	08/26/04 13:43	DLK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	08/26/04 13:43	DLK	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	08/26/04 13:43	DLK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	08/26/04 13:43	DLK	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	08/26/04 13:43	DLK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	08/26/04 13:43	DLK	107-06-2		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629736 | Project Sample Number: 9274844-002 | Date Collected: 08/24/04 09:45
Client Sample ID: MW-12 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
1,1-Dichloroethene	ND	ug/l	5.0	08/26/04 13:43	DLK	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 13:43	DLK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 13:43	DLK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	08/26/04 13:43	DLK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 13:43	DLK	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 13:43	DLK	10061-02-6		
Ethylbenzene	ND	ug/l	5.0	08/26/04 13:43	DLK	100-41-4		
2-Hexanone	ND	ug/l	10.	08/26/04 13:43	DLK	591-78-6		
Iodomethane	ND	ug/l	10.	08/26/04 13:43	DLK	74-88-4		
Methylene chloride	ND	ug/l	5.0	08/26/04 13:43	DLK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	10.	08/26/04 13:43	DLK	108-10-1		
Styrene	ND	ug/l	5.0	08/26/04 13:43	DLK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 13:43	DLK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 13:43	DLK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	08/26/04 13:43	DLK	127-18-4		
Toluene	ND	ug/l	5.0	08/26/04 13:43	DLK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	08/26/04 13:43	DLK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	08/26/04 13:43	DLK	79-00-5		
Trichloroethene	ND	ug/l	5.0	08/26/04 13:43	DLK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	08/26/04 13:43	DLK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	08/26/04 13:43	DLK	96-18-4		
Vinyl acetate	ND	ug/l	10.	08/26/04 13:43	DLK	108-05-4		
Vinyl chloride	ND	ug/l	5.0	08/26/04 13:43	DLK	75-01-4		
m&p-Xylene	ND	ug/l	10.	08/26/04 13:43	DLK			
o-Xylene	ND	ug/l	5.0	08/26/04 13:43	DLK	95-47-6		
Toluene-d8 (S)	102	%		08/26/04 13:43	DLK	2037-26-5		
4-Bromofluorobenzene (S)	93	%		08/26/04 13:43	DLK	460-00-4		
Dibromofluoromethane (S)	101	%		08/26/04 13:43	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	97	%		08/26/04 13:43	DLK	17060-07-0		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629744 | Project Sample Number: 9274844-003 | Date Collected: 08/24/04 10:30
Client Sample ID: MW-11 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Metals								
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Arsenic	ND	mg/l	0.0050	08/27/04 02:07	ALV	7440-38-2		
Barium	0.047	mg/l	0.0050	08/27/04 02:07	ALV	7440-39-3		
Cadmium	ND	mg/l	0.0010	08/27/04 02:07	ALV	7440-43-9		
Chromium	0.0033	mg/l	0.0020	08/27/04 02:07	ALV	7440-47-3		
Lead	ND	mg/l	0.0050	08/27/04 02:07	ALV	7439-92-1		
Selenium	ND	mg/l	0.0050	08/27/04 02:07	ALV	7782-49-2		
Silver	ND	mg/l	0.0020	08/27/04 02:07	ALV	7440-22-4		
Date Digested	08/25/04 01:15			08/25/04 01:15				
Mercury, CVAAS, in Water	Method: EPA 7470							
Mercury	ND	mg/l	0.00020	09/02/04	LBG	7439-97-6		
GC/MS Volatiles								
GC/MS VOCs by 8260	Method: EPA 8260							
Acetone	ND	ug/l	10.	08/26/04 14:12	DLK	67-64-1		
Acrylonitrile	ND	ug/l	25.	08/26/04 14:12	DLK	107-13-1		
Benzene	ND	ug/l	5.0	08/26/04 14:12	DLK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	08/26/04 14:12	DLK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	08/26/04 14:12	DLK	75-27-4		
Bromoform	ND	ug/l	5.0	08/26/04 14:12	DLK	75-25-2		
Bromomethane	ND	ug/l	5.0	08/26/04 14:12	DLK	74-83-9		
2-Butanone (MEK)	ND	ug/l	10.	08/26/04 14:12	DLK	78-93-3		
Carbon disulfide	ND	ug/l	10.	08/26/04 14:12	DLK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	08/26/04 14:12	DLK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	08/26/04 14:12	DLK	108-90-7		
Chloroethane	ND	ug/l	10.	08/26/04 14:12	DLK	75-00-3		
Chloroform	ND	ug/l	5.0	08/26/04 14:12	DLK	67-66-3		
Chloromethane	ND	ug/l	5.0	08/26/04 14:12	DLK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	08/26/04 14:12	DLK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	08/26/04 14:12	DLK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	08/26/04 14:12	DLK	106-93-4		
Dibromomethane	ND	ug/l	5.0	08/26/04 14:12	DLK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	08/26/04 14:12	DLK	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	08/26/04 14:12	DLK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	08/26/04 14:12	DLK	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	08/26/04 14:12	DLK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	08/26/04 14:12	DLK	107-06-2		

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Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629744 | Project Sample Number: 9274844-003 | Date Collected: 08/24/04 10:30
Client Sample ID: MW-11 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
1,1-Dichloroethene	ND	ug/l	5.0	08/26/04 14:12	DLK	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 14:12	DLK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 14:12	DLK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	08/26/04 14:12	DLK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 14:12	DLK	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 14:12	DLK	10061-02-6		
Ethylbenzene	ND	ug/l	5.0	08/26/04 14:12	DLK	100-41-4		
2-Hexanone	ND	ug/l	10.	08/26/04 14:12	DLK	591-78-6		
Iodomethane	ND	ug/l	10.	08/26/04 14:12	DLK	74-88-4		
Methylene chloride	ND	ug/l	5.0	08/26/04 14:12	DLK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	10.	08/26/04 14:12	DLK	108-10-1		
Styrene	ND	ug/l	5.0	08/26/04 14:12	DLK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 14:12	DLK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 14:12	DLK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	08/26/04 14:12	DLK	127-18-4		
Toluene	ND	ug/l	5.0	08/26/04 14:12	DLK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	08/26/04 14:12	DLK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	08/26/04 14:12	DLK	79-00-5		
Trichloroethene	ND	ug/l	5.0	08/26/04 14:12	DLK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	08/26/04 14:12	DLK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	08/26/04 14:12	DLK	96-18-4		
Vinyl acetate	ND	ug/l	10.	08/26/04 14:12	DLK	108-05-4		
Vinyl chloride	ND	ug/l	5.0	08/26/04 14:12	DLK	75-01-4		
m&p-Xylene	ND	ug/l	10.	08/26/04 14:12	DLK			
o-Xylene	ND	ug/l	5.0	08/26/04 14:12	DLK	95-47-6		
Toluene-d8 (S)	103	%		08/26/04 14:12	DLK	2037-26-5		
4-Bromofluorobenzene (S)	91	%		08/26/04 14:12	DLK	460-00-4		
Dibromofluoromethane (S)	101	%		08/26/04 14:12	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	97	%		08/26/04 14:12	DLK	17060-07-0		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629751 | Project Sample Number: 9274844-004 | Date Collected: 08/24/04 11:00
Client Sample ID: MW-10 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Metals								
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Arsenic	ND	mg/l	0.0050	08/27/04 02:12	ALV	7440-38-2		
Barium	0.098	mg/l	0.0050	08/27/04 02:12	ALV	7440-39-3		
Cadmium	ND	mg/l	0.0010	08/27/04 02:12	ALV	7440-43-9		
Chromium	0.013	mg/l	0.0020	08/27/04 02:12	ALV	7440-47-3		
Lead	0.0068	mg/l	0.0050	08/27/04 02:12	ALV	7439-92-1		
Selenium	0.0062	mg/l	0.0050	08/27/04 02:12	ALV	7782-49-2		
Silver	ND	mg/l	0.0020	08/27/04 02:12	ALV	7440-22-4		
Date Digested	08/25/04 01:15			08/25/04 01:15				
Mercury, CVAAS, in Water	Method: EPA 7470							
Mercury	ND	mg/l	0.00020	09/02/04	LBG	7439-97-6		
GC/MS Volatiles								
GC/MS VOCs by 8260	Method: EPA 8260							
Acetone	ND	ug/l	10.	08/26/04 14:41	DLK	67-64-1		
Acrylonitrile	ND	ug/l	25.	08/26/04 14:41	DLK	107-13-1		
Benzene	ND	ug/l	5.0	08/26/04 14:41	DLK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	08/26/04 14:41	DLK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	08/26/04 14:41	DLK	75-27-4		
Bromoform	ND	ug/l	5.0	08/26/04 14:41	DLK	75-25-2		
Bromomethane	ND	ug/l	5.0	08/26/04 14:41	DLK	74-83-9		
2-Butanone (MEK)	ND	ug/l	10.	08/26/04 14:41	DLK	78-93-3		
Carbon disulfide	ND	ug/l	10.	08/26/04 14:41	DLK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	08/26/04 14:41	DLK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	08/26/04 14:41	DLK	108-90-7		
Chloroethane	ND	ug/l	10.	08/26/04 14:41	DLK	75-00-3		
Chloroform	ND	ug/l	5.0	08/26/04 14:41	DLK	67-66-3		
Chloromethane	ND	ug/l	5.0	08/26/04 14:41	DLK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	08/26/04 14:41	DLK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	08/26/04 14:41	DLK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	08/26/04 14:41	DLK	106-93-4		
Dibromomethane	ND	ug/l	5.0	08/26/04 14:41	DLK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	08/26/04 14:41	DLK	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	08/26/04 14:41	DLK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	08/26/04 14:41	DLK	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	08/26/04 14:41	DLK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	08/26/04 14:41	DLK	107-06-2		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629751 | Project Sample Number: 9274844-004 | Date Collected: 08/24/04 11:00
Client Sample ID: MW-10 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
1,1-Dichloroethene	ND	ug/l	5.0	08/26/04 14:41	DLK	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 14:41	DLK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 14:41	DLK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	08/26/04 14:41	DLK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 14:41	DLK	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 14:41	DLK	10061-02-6		
Ethylbenzene	ND	ug/l	5.0	08/26/04 14:41	DLK	100-41-4		
2-Hexanone	ND	ug/l	10.	08/26/04 14:41	DLK	591-78-6		
Iodomethane	ND	ug/l	10.	08/26/04 14:41	DLK	74-88-4		
Methylene chloride	ND	ug/l	5.0	08/26/04 14:41	DLK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	10.	08/26/04 14:41	DLK	108-10-1		
Styrene	ND	ug/l	5.0	08/26/04 14:41	DLK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 14:41	DLK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 14:41	DLK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	08/26/04 14:41	DLK	127-18-4		
Toluene	ND	ug/l	5.0	08/26/04 14:41	DLK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	08/26/04 14:41	DLK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	08/26/04 14:41	DLK	79-00-5		
Trichloroethene	ND	ug/l	5.0	08/26/04 14:41	DLK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	08/26/04 14:41	DLK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	08/26/04 14:41	DLK	96-18-4		
Vinyl acetate	ND	ug/l	10.	08/26/04 14:41	DLK	108-05-4		
Vinyl chloride	ND	ug/l	5.0	08/26/04 14:41	DLK	75-01-4		
m&p-Xylene	ND	ug/l	10.	08/26/04 14:41	DLK			
o-Xylene	ND	ug/l	5.0	08/26/04 14:41	DLK	95-47-6		
Toluene-d8 (S)	102	%		08/26/04 14:41	DLK	2037-26-5		
4-Bromofluorobenzene (S)	94	%		08/26/04 14:41	DLK	460-00-4		
Dibromofluoromethane (S)	98	%		08/26/04 14:41	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	93	%		08/26/04 14:41	DLK	17060-07-0		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629769 | Project Sample Number: 9274844-005 | Date Collected: 08/24/04 13:15
Client Sample ID: MW-09 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Metals								
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Arsenic	ND	mg/l	0.0050	08/27/04 02:16	ALV	7440-38-2		
Barium	0.24	mg/l	0.0050	08/27/04 02:16	ALV	7440-39-3		
Cadmium	ND	mg/l	0.0010	08/27/04 02:16	ALV	7440-43-9		
Chromium	0.014	mg/l	0.0020	08/27/04 02:16	ALV	7440-47-3		
Lead	0.014	mg/l	0.0050	08/27/04 02:16	ALV	7439-92-1		
Selenium	ND	mg/l	0.0050	08/27/04 02:16	ALV	7782-49-2		
Silver	ND	mg/l	0.0020	08/27/04 02:16	ALV	7440-22-4		
Date Digested	08/25/04 01:15			08/25/04 01:15				
Mercury, CVAAS, in Water	Method: EPA 7470							
Mercury	ND	mg/l	0.00020	09/02/04	LBG	7439-97-6		
GC/MS Volatiles								
GC/MS VOCs by 8260	Method: EPA 8260							
Acetone	ND	ug/l	10.	08/26/04 15:10	DLK	67-64-1		
Acrylonitrile	ND	ug/l	25.	08/26/04 15:10	DLK	107-13-1		
Benzene	ND	ug/l	5.0	08/26/04 15:10	DLK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	08/26/04 15:10	DLK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	08/26/04 15:10	DLK	75-27-4		
Bromoform	ND	ug/l	5.0	08/26/04 15:10	DLK	75-25-2		
Bromomethane	ND	ug/l	5.0	08/26/04 15:10	DLK	74-83-9		
2-Butanone (MEK)	ND	ug/l	10.	08/26/04 15:10	DLK	78-93-3		
Carbon disulfide	ND	ug/l	10.	08/26/04 15:10	DLK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	08/26/04 15:10	DLK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	08/26/04 15:10	DLK	108-90-7		
Chloroethane	ND	ug/l	10.	08/26/04 15:10	DLK	75-00-3		
Chloroform	ND	ug/l	5.0	08/26/04 15:10	DLK	67-66-3		
Chloromethane	ND	ug/l	5.0	08/26/04 15:10	DLK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	08/26/04 15:10	DLK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	08/26/04 15:10	DLK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	08/26/04 15:10	DLK	106-93-4		
Dibromomethane	ND	ug/l	5.0	08/26/04 15:10	DLK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	08/26/04 15:10	DLK	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	08/26/04 15:10	DLK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	08/26/04 15:10	DLK	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	08/26/04 15:10	DLK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	08/26/04 15:10	DLK	107-06-2		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629769 | Project Sample Number: 9274844-005 | Date Collected: 08/24/04 13:15
Client Sample ID: MW-09 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
1,1-Dichloroethene	ND	ug/l	5.0	08/26/04 15:10	DLK	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 15:10	DLK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 15:10	DLK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	08/26/04 15:10	DLK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 15:10	DLK	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 15:10	DLK	10061-02-6		
Ethylbenzene	ND	ug/l	5.0	08/26/04 15:10	DLK	100-41-4		
2-Hexanone	ND	ug/l	10.	08/26/04 15:10	DLK	591-78-6		
Iodomethane	ND	ug/l	10.	08/26/04 15:10	DLK	74-88-4		
Methylene chloride	ND	ug/l	5.0	08/26/04 15:10	DLK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	10.	08/26/04 15:10	DLK	108-10-1		
Styrene	ND	ug/l	5.0	08/26/04 15:10	DLK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 15:10	DLK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 15:10	DLK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	08/26/04 15:10	DLK	127-18-4		
Toluene	ND	ug/l	5.0	08/26/04 15:10	DLK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	08/26/04 15:10	DLK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	08/26/04 15:10	DLK	79-00-5		
Trichloroethene	ND	ug/l	5.0	08/26/04 15:10	DLK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	08/26/04 15:10	DLK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	08/26/04 15:10	DLK	96-18-4		
Vinyl acetate	ND	ug/l	10.	08/26/04 15:10	DLK	108-05-4		
Vinyl chloride	ND	ug/l	5.0	08/26/04 15:10	DLK	75-01-4		
m&p-Xylene	ND	ug/l	10.	08/26/04 15:10	DLK			
o-Xylene	ND	ug/l	5.0	08/26/04 15:10	DLK	95-47-6		
Toluene-d8 (S)	100	%		08/26/04 15:10	DLK	2037-26-5		
4-Bromofluorobenzene (S)	92	%		08/26/04 15:10	DLK	460-00-4		
Dibromofluoromethane (S)	100	%		08/26/04 15:10	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	100	%		08/26/04 15:10	DLK	17060-07-0		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629777 | Project Sample Number: 9274844-006 | Date Collected: 08/24/04 13:45
Client Sample ID: MW-14 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Metals								
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Arsenic	ND	mg/l	0.0050	08/27/04 02:21	ALV	7440-38-2		
Barium	0.17	mg/l	0.0050	08/27/04 02:21	ALV	7440-39-3		
Cadmium	ND	mg/l	0.0010	08/27/04 02:21	ALV	7440-43-9		
Chromium	0.0032	mg/l	0.0020	08/27/04 02:21	ALV	7440-47-3		
Lead	0.0080	mg/l	0.0050	08/27/04 02:21	ALV	7439-92-1		
Selenium	ND	mg/l	0.0050	08/27/04 02:21	ALV	7782-49-2		
Silver	ND	mg/l	0.0020	08/27/04 02:21	ALV	7440-22-4		
Date Digested	08/25/04 01:15			08/25/04 01:15				
Mercury, CVAAS, in Water	Method: EPA 7470							
Mercury	ND	mg/l	0.00020	09/02/04	LBG	7439-97-6		
GC/MS Volatiles								
GC/MS VOCs by 8260	Method: EPA 8260							
Acetone	ND	ug/l	10.	08/26/04 15:39	DLK	67-64-1		
Acrylonitrile	ND	ug/l	25.	08/26/04 15:39	DLK	107-13-1		
Benzene	ND	ug/l	5.0	08/26/04 15:39	DLK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	08/26/04 15:39	DLK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	08/26/04 15:39	DLK	75-27-4		
Bromoform	ND	ug/l	5.0	08/26/04 15:39	DLK	75-25-2		
Bromomethane	ND	ug/l	5.0	08/26/04 15:39	DLK	74-83-9		
2-Butanone (MEK)	ND	ug/l	10.	08/26/04 15:39	DLK	78-93-3		
Carbon disulfide	ND	ug/l	10.	08/26/04 15:39	DLK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	08/26/04 15:39	DLK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	08/26/04 15:39	DLK	108-90-7		
Chloroethane	ND	ug/l	10.	08/26/04 15:39	DLK	75-00-3		
Chloroform	ND	ug/l	5.0	08/26/04 15:39	DLK	67-66-3		
Chloromethane	ND	ug/l	5.0	08/26/04 15:39	DLK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	08/26/04 15:39	DLK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	08/26/04 15:39	DLK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	08/26/04 15:39	DLK	106-93-4		
Dibromomethane	ND	ug/l	5.0	08/26/04 15:39	DLK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	08/26/04 15:39	DLK	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	08/26/04 15:39	DLK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	08/26/04 15:39	DLK	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	08/26/04 15:39	DLK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	08/26/04 15:39	DLK	107-06-2		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629777 | Project Sample Number: 9274844-006 | Date Collected: 08/24/04 13:45
Client Sample ID: MW-14 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
1,1-Dichloroethene	ND	ug/l	5.0	08/26/04 15:39	DLK	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 15:39	DLK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 15:39	DLK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	08/26/04 15:39	DLK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 15:39	DLK	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 15:39	DLK	10061-02-6		
Ethylbenzene	ND	ug/l	5.0	08/26/04 15:39	DLK	100-41-4		
2-Hexanone	ND	ug/l	10.	08/26/04 15:39	DLK	591-78-6		
Iodomethane	ND	ug/l	10.	08/26/04 15:39	DLK	74-88-4		
Methylene chloride	ND	ug/l	5.0	08/26/04 15:39	DLK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	10.	08/26/04 15:39	DLK	108-10-1		
Styrene	ND	ug/l	5.0	08/26/04 15:39	DLK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 15:39	DLK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 15:39	DLK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	08/26/04 15:39	DLK	127-18-4		
Toluene	ND	ug/l	5.0	08/26/04 15:39	DLK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	08/26/04 15:39	DLK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	08/26/04 15:39	DLK	79-00-5		
Trichloroethene	ND	ug/l	5.0	08/26/04 15:39	DLK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	08/26/04 15:39	DLK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	08/26/04 15:39	DLK	96-18-4		
Vinyl acetate	ND	ug/l	10.	08/26/04 15:39	DLK	108-05-4		
Vinyl chloride	ND	ug/l	5.0	08/26/04 15:39	DLK	75-01-4		
m&p-Xylene	ND	ug/l	10.	08/26/04 15:39	DLK			
o-Xylene	ND	ug/l	5.0	08/26/04 15:39	DLK	95-47-6		
Toluene-d8 (S)	100	%		08/26/04 15:39	DLK	2037-26-5		
4-Bromofluorobenzene (S)	98	%		08/26/04 15:39	DLK	460-00-4		
Dibromofluoromethane (S)	98	%		08/26/04 15:39	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	97	%		08/26/04 15:39	DLK	17060-07-0		

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Phone: 704.875.9092
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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629785 | Project Sample Number: 9274844-007 | Date Collected: 08/24/04 14:30
Client Sample ID: SW-02 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Metals								
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Arsenic	ND	mg/l	0.0050	08/27/04 02:25	ALV	7440-38-2		
Barium	0.063	mg/l	0.0050	08/27/04 02:25	ALV	7440-39-3		
Cadmium	ND	mg/l	0.0010	08/27/04 02:25	ALV	7440-43-9		
Chromium	ND	mg/l	0.0020	08/27/04 02:25	ALV	7440-47-3		
Lead	ND	mg/l	0.0050	08/27/04 02:25	ALV	7439-92-1		
Selenium	ND	mg/l	0.0050	08/27/04 02:25	ALV	7782-49-2		
Silver	ND	mg/l	0.0020	08/27/04 02:25	ALV	7440-22-4		
Date Digested	08/25/04 01:15			08/25/04 01:15				
Mercury, CVAAS, in Water	Method: EPA 7470							
Mercury	ND	mg/l	0.00020	09/02/04	LBG	7439-97-6		
GC/MS Volatiles								
GC/MS VOCs by 8260	Method: EPA 8260							
Acetone	ND	ug/l	10.	08/26/04 21:59	DLK	67-64-1		
Acrylonitrile	ND	ug/l	25.	08/26/04 21:59	DLK	107-13-1		
Benzene	ND	ug/l	5.0	08/26/04 21:59	DLK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	08/26/04 21:59	DLK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	08/26/04 21:59	DLK	75-27-4		
Bromoform	ND	ug/l	5.0	08/26/04 21:59	DLK	75-25-2		
Bromomethane	ND	ug/l	5.0	08/26/04 21:59	DLK	74-83-9		
2-Butanone (MEK)	ND	ug/l	10.	08/26/04 21:59	DLK	78-93-3		
Carbon disulfide	ND	ug/l	10.	08/26/04 21:59	DLK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	08/26/04 21:59	DLK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	08/26/04 21:59	DLK	108-90-7		
Chloroethane	ND	ug/l	10.	08/26/04 21:59	DLK	75-00-3		
Chloroform	ND	ug/l	5.0	08/26/04 21:59	DLK	67-66-3		
Chloromethane	ND	ug/l	5.0	08/26/04 21:59	DLK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	08/26/04 21:59	DLK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	08/26/04 21:59	DLK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	08/26/04 21:59	DLK	106-93-4		
Dibromomethane	ND	ug/l	5.0	08/26/04 21:59	DLK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	08/26/04 21:59	DLK	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	08/26/04 21:59	DLK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	08/26/04 21:59	DLK	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	08/26/04 21:59	DLK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	08/26/04 21:59	DLK	107-06-2		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629785 | Project Sample Number: 9274844-007 | Date Collected: 08/24/04 14:30
Client Sample ID: SW-02 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
1,1-Dichloroethene	ND	ug/l	5.0	08/26/04 21:59	DLK	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 21:59	DLK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 21:59	DLK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	08/26/04 21:59	DLK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 21:59	DLK	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 21:59	DLK	10061-02-6		
Ethylbenzene	ND	ug/l	5.0	08/26/04 21:59	DLK	100-41-4		
2-Hexanone	ND	ug/l	10.	08/26/04 21:59	DLK	591-78-6		
Iodomethane	ND	ug/l	10.	08/26/04 21:59	DLK	74-88-4		
Methylene chloride	ND	ug/l	5.0	08/26/04 21:59	DLK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	10.	08/26/04 21:59	DLK	108-10-1		
Styrene	ND	ug/l	5.0	08/26/04 21:59	DLK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 21:59	DLK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 21:59	DLK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	08/26/04 21:59	DLK	127-18-4		
Toluene	ND	ug/l	5.0	08/26/04 21:59	DLK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	08/26/04 21:59	DLK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	08/26/04 21:59	DLK	79-00-5		
Trichloroethene	ND	ug/l	5.0	08/26/04 21:59	DLK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	08/26/04 21:59	DLK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	08/26/04 21:59	DLK	96-18-4		
Vinyl acetate	ND	ug/l	10.	08/26/04 21:59	DLK	108-05-4		
Vinyl chloride	ND	ug/l	5.0	08/26/04 21:59	DLK	75-01-4		
m&p-Xylene	ND	ug/l	10.	08/26/04 21:59	DLK			
o-Xylene	ND	ug/l	5.0	08/26/04 21:59	DLK	95-47-6		
Toluene-d8 (S)	97	%		08/26/04 21:59	DLK	2037-26-5		
4-Bromofluorobenzene (S)	90	%		08/26/04 21:59	DLK	460-00-4		
Dibromofluoromethane (S)	99	%		08/26/04 21:59	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	95	%		08/26/04 21:59	DLK	17060-07-0		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629793 | Project Sample Number: 9274844-008 | Date Collected: 08/24/04 15:50
Client Sample ID: SW-01 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Metals								
Metals by Trace ICP	Prep/Method: EPA 3010 / EPA 6010							
Arsenic	0.020	mg/l	0.0050	08/27/04 02:30	ALV	7440-38-2		
Barium	0.50	mg/l	0.0050	08/27/04 02:30	ALV	7440-39-3		
Cadmium	ND	mg/l	0.0010	08/27/04 02:30	ALV	7440-43-9		
Chromium	0.036	mg/l	0.0020	08/27/04 02:30	ALV	7440-47-3		
Lead	0.038	mg/l	0.0050	08/27/04 02:30	ALV	7439-92-1		
Selenium	ND	mg/l	0.0050	08/27/04 02:30	ALV	7782-49-2		
Silver	ND	mg/l	0.0020	08/27/04 02:30	ALV	7440-22-4		
Date Digested	08/25/04 01:15			08/25/04 01:15				
Mercury, CVAAS, in Water	Method: EPA 7470							
Mercury	ND	mg/l	0.00020	09/02/04	LBG	7439-97-6		
GC/MS Volatiles								
GC/MS VOCs by 8260	Method: EPA 8260							
Acetone	ND	ug/l	10.	08/26/04 22:28	DLK	67-64-1		
Acrylonitrile	ND	ug/l	25.	08/26/04 22:28	DLK	107-13-1		
Benzene	ND	ug/l	5.0	08/26/04 22:28	DLK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	08/26/04 22:28	DLK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	08/26/04 22:28	DLK	75-27-4		
Bromoform	ND	ug/l	5.0	08/26/04 22:28	DLK	75-25-2		
Bromomethane	ND	ug/l	5.0	08/26/04 22:28	DLK	74-83-9		
2-Butanone (MEK)	ND	ug/l	10.	08/26/04 22:28	DLK	78-93-3		
Carbon disulfide	ND	ug/l	10.	08/26/04 22:28	DLK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	08/26/04 22:28	DLK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	08/26/04 22:28	DLK	108-90-7		
Chloroethane	ND	ug/l	10.	08/26/04 22:28	DLK	75-00-3		
Chloroform	ND	ug/l	5.0	08/26/04 22:28	DLK	67-66-3		
Chloromethane	ND	ug/l	5.0	08/26/04 22:28	DLK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	08/26/04 22:28	DLK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	08/26/04 22:28	DLK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	08/26/04 22:28	DLK	106-93-4		
Dibromomethane	ND	ug/l	5.0	08/26/04 22:28	DLK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	08/26/04 22:28	DLK	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	08/26/04 22:28	DLK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	08/26/04 22:28	DLK	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	08/26/04 22:28	DLK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	08/26/04 22:28	DLK	107-06-2		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629793 | Project Sample Number: 9274844-008 | Date Collected: 08/24/04 15:50
Client Sample ID: SW-01 | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
1,1-Dichloroethene	ND	ug/l	5.0	08/26/04 22:28	DLK	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 22:28	DLK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 22:28	DLK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	08/26/04 22:28	DLK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 22:28	DLK	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 22:28	DLK	10061-02-6		
Ethylbenzene	ND	ug/l	5.0	08/26/04 22:28	DLK	100-41-4		
2-Hexanone	ND	ug/l	10.	08/26/04 22:28	DLK	591-78-6		
Iodomethane	ND	ug/l	10.	08/26/04 22:28	DLK	74-88-4		
Methylene chloride	ND	ug/l	5.0	08/26/04 22:28	DLK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	10.	08/26/04 22:28	DLK	108-10-1		
Styrene	ND	ug/l	5.0	08/26/04 22:28	DLK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 22:28	DLK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 22:28	DLK	79-34-5		
Tetrachloroethene	ND	ug/l	5.0	08/26/04 22:28	DLK	127-18-4		
Toluene	ND	ug/l	5.0	08/26/04 22:28	DLK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	08/26/04 22:28	DLK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	08/26/04 22:28	DLK	79-00-5		
Trichloroethene	ND	ug/l	5.0	08/26/04 22:28	DLK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	08/26/04 22:28	DLK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	08/26/04 22:28	DLK	96-18-4		
Vinyl acetate	ND	ug/l	10.	08/26/04 22:28	DLK	108-05-4		
Vinyl chloride	ND	ug/l	5.0	08/26/04 22:28	DLK	75-01-4		
m&p-Xylene	ND	ug/l	10.	08/26/04 22:28	DLK			
o-Xylene	ND	ug/l	5.0	08/26/04 22:28	DLK	95-47-6		
Toluene-d8 (S)	97	%		08/26/04 22:28	DLK	2037-26-5		
4-Bromofluorobenzene (S)	94	%		08/26/04 22:28	DLK	460-00-4		
Dibromofluoromethane (S)	108	%		08/26/04 22:28	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	103	%		08/26/04 22:28	DLK	17060-07-0		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629801 | Project Sample Number: 9274844-009 | Date Collected: 08/24/04 00:00
Client Sample ID: TRIP BLANK | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
GC/MS Volatiles								
GC/MS VOCs by 8260	Method: EPA 8260							
Acetone	ND	ug/l	10.	08/26/04 21:30	DLK	67-64-1		
Acrylonitrile	ND	ug/l	25.	08/26/04 21:30	DLK	107-13-1		
Benzene	ND	ug/l	5.0	08/26/04 21:30	DLK	71-43-2		
Bromochloromethane	ND	ug/l	5.0	08/26/04 21:30	DLK	74-97-5		
Bromodichloromethane	ND	ug/l	5.0	08/26/04 21:30	DLK	75-27-4		
Bromoform	ND	ug/l	5.0	08/26/04 21:30	DLK	75-25-2		
Bromomethane	ND	ug/l	5.0	08/26/04 21:30	DLK	74-83-9		
2-Butanone (MEK)	ND	ug/l	10.	08/26/04 21:30	DLK	78-93-3		
Carbon disulfide	ND	ug/l	10.	08/26/04 21:30	DLK	75-15-0		
Carbon tetrachloride	ND	ug/l	5.0	08/26/04 21:30	DLK	56-23-5		
Chlorobenzene	ND	ug/l	5.0	08/26/04 21:30	DLK	108-90-7		
Chloroethane	ND	ug/l	10.	08/26/04 21:30	DLK	75-00-3		
Chloroform	ND	ug/l	5.0	08/26/04 21:30	DLK	67-66-3		
Chloromethane	ND	ug/l	5.0	08/26/04 21:30	DLK	74-87-3		
1,2-Dibromo-3-chloropropane	ND	ug/l	5.0	08/26/04 21:30	DLK	96-12-8		
Dibromochloromethane	ND	ug/l	5.0	08/26/04 21:30	DLK	124-48-1		
1,2-Dibromoethane (EDB)	ND	ug/l	5.0	08/26/04 21:30	DLK	106-93-4		
Dibromomethane	ND	ug/l	5.0	08/26/04 21:30	DLK	74-95-3		
1,2-Dichlorobenzene	ND	ug/l	5.0	08/26/04 21:30	DLK	95-50-1		
1,4-Dichlorobenzene	ND	ug/l	5.0	08/26/04 21:30	DLK	106-46-7		
trans-1,4-Dichloro-2-butene	ND	ug/l	5.0	08/26/04 21:30	DLK	110-57-6		
1,1-Dichloroethane	ND	ug/l	5.0	08/26/04 21:30	DLK	75-34-3		
1,2-Dichloroethane	ND	ug/l	5.0	08/26/04 21:30	DLK	107-06-2		
1,1-Dichloroethene	ND	ug/l	5.0	08/26/04 21:30	DLK	75-35-4		
cis-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 21:30	DLK	156-59-2		
trans-1,2-Dichloroethene	ND	ug/l	5.0	08/26/04 21:30	DLK	156-60-5		
1,2-Dichloropropane	ND	ug/l	5.0	08/26/04 21:30	DLK	78-87-5		
cis-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 21:30	DLK	10061-01-5		
trans-1,3-Dichloropropene	ND	ug/l	5.0	08/26/04 21:30	DLK	10061-02-6		
Ethylbenzene	ND	ug/l	5.0	08/26/04 21:30	DLK	100-41-4		
2-Hexanone	ND	ug/l	10.	08/26/04 21:30	DLK	591-78-6		
Iodomethane	ND	ug/l	10.	08/26/04 21:30	DLK	74-88-4		
Methylene chloride	ND	ug/l	5.0	08/26/04 21:30	DLK	75-09-2		
4-Methyl-2-pentanone (MIBK)	ND	ug/l	10.	08/26/04 21:30	DLK	108-10-1		
Styrene	ND	ug/l	5.0	08/26/04 21:30	DLK	100-42-5		
1,1,1,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 21:30	DLK	630-20-6		
1,1,2,2-Tetrachloroethane	ND	ug/l	5.0	08/26/04 21:30	DLK	79-34-5		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

Lab Sample No: 924629801 | Project Sample Number: 9274844-009 | Date Collected: 08/24/04 00:00
Client Sample ID: TRIP BLANK | Matrix: Water | Date Received: 08/24/04 16:45

Parameters	Results	Units	Report Limit	Analyzed	By	CAS No.	Qual	RegLmt
Tetrachloroethene	ND	ug/l	5.0	08/26/04 21:30	DLK	127-18-4		
Toluene	ND	ug/l	5.0	08/26/04 21:30	DLK	108-88-3		
1,1,1-Trichloroethane	ND	ug/l	5.0	08/26/04 21:30	DLK	71-55-6		
1,1,2-Trichloroethane	ND	ug/l	5.0	08/26/04 21:30	DLK	79-00-5		
Trichloroethene	ND	ug/l	5.0	08/26/04 21:30	DLK	79-01-6		
Trichlorofluoromethane	ND	ug/l	10.	08/26/04 21:30	DLK	75-69-4		
1,2,3-Trichloropropane	ND	ug/l	5.0	08/26/04 21:30	DLK	96-18-4		
Vinyl acetate	ND	ug/l	10.	08/26/04 21:30	DLK	108-05-4		
Vinyl chloride	ND	ug/l	5.0	08/26/04 21:30	DLK	75-01-4		
m&p-Xylene	ND	ug/l	10.	08/26/04 21:30	DLK			
o-Xylene	ND	ug/l	5.0	08/26/04 21:30	DLK	95-47-6		
Toluene-d8 (S)	98	%		08/26/04 21:30	DLK	2037-26-5		
4-Bromofluorobenzene (S)	96	%		08/26/04 21:30	DLK	460-00-4		
Dibromofluoromethane (S)	100	%		08/26/04 21:30	DLK	1868-53-7		
1,2-Dichloroethane-d4 (S)	98	%		08/26/04 21:30	DLK	17060-07-0		

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

PARAMETER FOOTNOTES

Inorganic Wet Chemistry and Metals Analyses were performed at our Pace Asheville laboratory and Organic testing was performed at our Pace Charlotte laboratory unless otherwise footnoted.

Method 9071B modified to use ASE.

All pH, Free Chlorine, Total Chlorine and Ferrous Iron analyses conducted outside of EPA recommended immediate hold time.

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
MDL	Adjusted Method Detection Limit
(S)	Surrogate

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QUALITY CONTROL DATA

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

QC Batch: 108182 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: GC/MS VOCs by 8260
Associated Lab Samples: 924629728 924629736 924629744 924629751 924629769 924629777

METHOD BLANK: 924635568
Associated Lab Samples: 924629728 924629736 924629744 924629751 924629769 924629777

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Acetone	ug/l	ND	10.	
Acrylonitrile	ug/l	ND	25.	
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	5.0	
2-Butanone (MEK)	ug/l	ND	10.	
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	5.0	
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	
trans-1,3-Dichloropropene	ug/l	ND	5.0	
Ethylbenzene	ug/l	ND	5.0	

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QUALITY CONTROL DATA

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

METHOD BLANK: 924635568
Associated Lab Samples: 924629728 924629736 924629744 924629751 924629769 924629777

Parameter	Units	Blank Result	Reporting Limit	Footnotes
2-Hexanone	ug/l	ND	10.	
Iodomethane	ug/l	ND	10.	
Methylene chloride	ug/l	ND	5.0	
4-Methyl-2-pentanone (MIBK)	ug/l	ND	10.	
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	10.	
Vinyl chloride	ug/l	ND	5.0	
m&p-Xylene	ug/l	ND	10.	
o-Xylene	ug/l	ND	5.0	
Toluene-d8 (S)	%	99		
4-Bromofluorobenzene (S)	%	93		
Dibromofluoromethane (S)	%	97		
1,2-Dichloroethane-d4 (S)	%	94		

LABORATORY CONTROL SAMPLE: 924635576

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Acetone	ug/l	100.00	107.1	107	
Acrylonitrile	ug/l	250.00	257.0	103	
Benzene	ug/l	50.00	50.67	101	
Bromochloromethane	ug/l	50.00	46.27	92	
Bromodichloromethane	ug/l	50.00	51.01	102	
Bromoform	ug/l	50.00	54.96	110	
Bromomethane	ug/l	50.00	60.78	122	
2-Butanone (MEK)	ug/l	100.00	102.8	103	

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QUALITY CONTROL DATA

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

LABORATORY CONTROL SAMPLE: 924635576

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Carbon disulfide	ug/l	100.00	109.9	110	
Carbon tetrachloride	ug/l	50.00	52.00	104	
Chlorobenzene	ug/l	50.00	53.95	108	
Chloroethane	ug/l	50.00	59.68	119	
Chloroform	ug/l	50.00	51.06	102	
Chloromethane	ug/l	50.00	54.90	110	
1,2-Dibromo-3-chloropropane	ug/l	50.00	55.96	112	
Dibromochloromethane	ug/l	50.00	53.82	108	
1,2-Dibromoethane (EDB)	ug/l	50.00	54.50	109	
Dibromomethane	ug/l	50.00	50.10	100	
1,2-Dichlorobenzene	ug/l	50.00	52.87	106	
1,4-Dichlorobenzene	ug/l	50.00	52.33	105	
trans-1,4-Dichloro-2-butene	ug/l	50.00	47.03	94	
1,1-Dichloroethane	ug/l	50.00	47.41	95	
1,2-Dichloroethane	ug/l	50.00	50.12	100	
1,1-Dichloroethene	ug/l	50.00	60.95	122	
cis-1,2-Dichloroethene	ug/l	50.00	50.76	102	
trans-1,2-Dichloroethene	ug/l	50.00	52.07	104	
1,2-Dichloropropane	ug/l	50.00	50.55	101	
cis-1,3-Dichloropropene	ug/l	50.00	48.43	97	
trans-1,3-Dichloropropene	ug/l	50.00	49.23	98	
Ethylbenzene	ug/l	50.00	53.20	106	
2-Hexanone	ug/l	100.00	129.4	129	
Iodomethane	ug/l	100.00	90.34	90	
Methylene chloride	ug/l	50.00	43.21	86	
4-Methyl-2-pentanone (MIBK)	ug/l	100.00	110.2	110	
Styrene	ug/l	50.00	51.22	102	
1,1,1,2-Tetrachloroethane	ug/l	50.00	53.36	107	
1,1,2,2-Tetrachloroethane	ug/l	50.00	50.77	102	
Tetrachloroethene	ug/l	50.00	55.09	110	
Toluene	ug/l	50.00	51.91	104	
1,1,1-Trichloroethane	ug/l	50.00	48.96	98	
1,1,2-Trichloroethane	ug/l	50.00	53.78	108	
Trichloroethene	ug/l	50.00	50.42	101	
Trichlorofluoromethane	ug/l	50.00	59.92	120	
1,2,3-Trichloropropane	ug/l	50.00	55.39	111	
Vinyl acetate	ug/l	100.00	88.22	88	

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QUALITY CONTROL DATA

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

LABORATORY CONTROL SAMPLE: 924635576

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Vinyl chloride	ug/l	50.00	53.64	107	
m&p-Xylene	ug/l	100.00	103.2	103	
o-Xylene	ug/l	50.00	48.72	97	
Toluene-d8 (S)				101	
4-Bromofluorobenzene (S)				100	
Dibromofluoromethane (S)				98	
1,2-Dichloroethane-d4 (S)				94	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 924635584 924635592

Parameter	Units	924629256 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Benzene	ug/l	0	50.00	44.52	44.60	89	89	0	
Chlorobenzene	ug/l	0	50.00	47.19	46.89	94	94	1	
1,1-Dichloroethene	ug/l	0	50.00	51.16	57.80	102	116	12	
Toluene	ug/l	0	50.00	45.20	45.63	90	91	1	
Trichloroethene	ug/l	0	50.00	45.50	45.70	91	91	0	
Toluene-d8 (S)						98	102		
4-Bromofluorobenzene (S)						95	94		
Dibromofluoromethane (S)						100	101		
1,2-Dichloroethane-d4 (S)						105	103		

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QUALITY CONTROL DATA

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

QC Batch: 108183 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: GC/MS VOCs by 8260
Associated Lab Samples: 924629785 924629793 924629801

METHOD BLANK: 924635634
Associated Lab Samples: 924629785 924629793 924629801

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Acetone	ug/l	ND	10.	
Acrylonitrile	ug/l	ND	25.	
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	5.0	
2-Butanone (MEK)	ug/l	ND	10.	
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	5.0	
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	
trans-1,3-Dichloropropene	ug/l	ND	5.0	
Ethylbenzene	ug/l	ND	5.0	
2-Hexanone	ug/l	ND	10.	

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QUALITY CONTROL DATA

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

METHOD BLANK: 924635634
Associated Lab Samples: 924629785 924629793 924629801

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Iodomethane	ug/l	ND	10.	
Methylene chloride	ug/l	ND	5.0	
4-Methyl-2-pentanone (MIBK)	ug/l	ND	10.	
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	10.	
Vinyl chloride	ug/l	ND	5.0	
m&p-Xylene	ug/l	ND	10.	
o-Xylene	ug/l	ND	5.0	
Toluene-d8 (S)	%	99		
4-Bromofluorobenzene (S)	%	94		
Dibromofluoromethane (S)	%	100		
1,2-Dichloroethane-d4 (S)	%	93		

LABORATORY CONTROL SAMPLE: 924635642

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Acetone	ug/l	100.00	94.54	94	
Acrylonitrile	ug/l	250.00	234.8	94	
Benzene	ug/l	50.00	50.45	101	
Bromochloromethane	ug/l	50.00	45.29	91	
Bromodichloromethane	ug/l	50.00	50.78	102	
Bromoform	ug/l	50.00	49.20	98	
Bromomethane	ug/l	50.00	52.58	105	
2-Butanone (MEK)	ug/l	100.00	81.46	82	
Carbon disulfide	ug/l	100.00	112.7	113	

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QUALITY CONTROL DATA

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

LABORATORY CONTROL SAMPLE: 924635642

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Carbon tetrachloride	ug/l	50.00	62.93	126	
Chlorobenzene	ug/l	50.00	56.35	113	
Chloroethane	ug/l	50.00	63.12	126	
Chloroform	ug/l	50.00	50.48	101	
Chloromethane	ug/l	50.00	46.46	93	
1,2-Dibromo-3-chloropropane	ug/l	50.00	45.88	92	
Dibromochloromethane	ug/l	50.00	52.35	105	
1,2-Dibromoethane (EDB)	ug/l	50.00	49.68	99	
Dibromomethane	ug/l	50.00	47.76	96	
1,2-Dichlorobenzene	ug/l	50.00	51.99	104	
1,4-Dichlorobenzene	ug/l	50.00	51.50	103	
trans-1,4-Dichloro-2-butene	ug/l	50.00	39.27	78	
1,1-Dichloroethane	ug/l	50.00	49.84	100	
1,2-Dichloroethane	ug/l	50.00	46.76	94	
1,1-Dichloroethene	ug/l	50.00	64.29	129	
cis-1,2-Dichloroethene	ug/l	50.00	52.52	105	
trans-1,2-Dichloroethene	ug/l	50.00	54.80	110	
1,2-Dichloropropane	ug/l	50.00	51.44	103	
cis-1,3-Dichloropropene	ug/l	50.00	47.14	94	
trans-1,3-Dichloropropene	ug/l	50.00	45.40	91	
Ethylbenzene	ug/l	50.00	54.71	109	
2-Hexanone	ug/l	100.00	107.9	108	
Iodomethane	ug/l	100.00	108.1	108	
Methylene chloride	ug/l	50.00	45.60	91	
4-Methyl-2-pentanone (MIBK)	ug/l	100.00	88.10	88	
Styrene	ug/l	50.00	51.83	104	
1,1,1,2-Tetrachloroethane	ug/l	50.00	54.36	109	
1,1,2,2-Tetrachloroethane	ug/l	50.00	47.02	94	
Tetrachloroethene	ug/l	50.00	57.18	114	
Toluene	ug/l	50.00	51.45	103	
1,1,1-Trichloroethane	ug/l	50.00	49.89	100	
1,1,2-Trichloroethane	ug/l	50.00	50.81	102	
Trichloroethene	ug/l	50.00	52.91	106	
Trichlorofluoromethane	ug/l	50.00	63.86	128	
1,2,3-Trichloropropane	ug/l	50.00	47.28	95	
Vinyl acetate	ug/l	100.00	78.62	79	
Vinyl chloride	ug/l	50.00	54.64	109	

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Phone: 704.875.9092
Fax: 704.875.9091

QUALITY CONTROL DATA

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

LABORATORY CONTROL SAMPLE: 924635642

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
m&p-Xylene	ug/l	100.00	105.6	106	
o-Xylene	ug/l	50.00	48.71	97	
Toluene-d8 (S)				100	
4-Bromofluorobenzene (S)				98	
Dibromofluoromethane (S)				96	
1,2-Dichloroethane-d4 (S)				99	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 924635659 924635667

Parameter	Units	924629793 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Benzene	ug/l	0	50.00	48.07	48.68	96	97	1	
Chlorobenzene	ug/l	0	50.00	47.01	47.17	94	94	0	
1,1-Dichloroethene	ug/l	0	50.00	60.03	65.00	120	130	8	
Toluene	ug/l	2.562	50.00	45.38	46.34	86	88	2	
Trichloroethene	ug/l	0	50.00	42.79	44.06	86	88	3	
Toluene-d8 (S)						97	97		
4-Bromofluorobenzene (S)						98	97		
Dibromofluoromethane (S)						117	116		
1,2-Dichloroethane-d4 (S)						126	113		

REPORT OF LABORATORY ANALYSIS
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Asheville Certification IDs
NC Wastewater 40
NC Drinking Water 37712
SC Environmental 99030
FL NELAP E87648

Charlotte Certification IDs
NC Wastewater 12
NC Drinking Water 37706
SC 99006
FL NELAP E87627

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QUALITY CONTROL DATA

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

QC Batch: 108579 — Analysis Method: EPA 7470
QC Batch Method: EPA 7470 — Analysis Description: Mercury, CVAAS, in Water
Associated Lab Samples: 924629728 924629736 924629744 924629751 924629769 924629777 924629785 924629793

METHOD BLANK: 924654031
Associated Lab Samples: 924629728 924629736 924629744 924629751 924629769 924629777 924629785 924629793

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

LABORATORY CONTROL SAMPLE: 924654049

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Mercury	mg/l	0.0050	0.0048	96	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 924654056 924654064

Parameter	Units	924629728 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Mercury	mg/l	0	0.0050	0.0055	0.0045	111	91	20	

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QUALITY CONTROL DATA

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

QC Batch: 108110 — Analysis Method: EPA 6010
QC Batch Method: EPA 3010 — Analysis Description: Metals by Trace ICP
Associated Lab Samples: 924629728 924629736 924629744 924629751 924629769 924629777 924629785 924629793

METHOD BLANK: 924630163
Associated Lab Samples: 924629728 924629736 924629744 924629751 924629769 924629777 924629785 924629793

Parameter	Units	Blank Result	Reporting Limit	Footnotes
Arsenic	mg/l	ND	0.0050	
Barium	mg/l	ND	0.0050	
Cadmium	mg/l	ND	0.0010	
Chromium	mg/l	ND	0.0020	
Lead	mg/l	ND	0.0050	
Selenium	mg/l	ND	0.0050	
Silver	mg/l	ND	0.0020	

LABORATORY CONTROL SAMPLE: 924630171

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	Footnotes
Arsenic	mg/l	0.5000	0.5100	102	
Barium	mg/l	0.5000	0.5310	106	
Cadmium	mg/l	0.5000	0.5130	103	
Chromium	mg/l	0.5000	0.5200	104	
Lead	mg/l	0.5000	0.5220	104	
Selenium	mg/l	0.5000	0.5070	101	
Silver	mg/l	0.5000	0.5160	103	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 924630189 924630197

Parameter	Units	924629728 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Arsenic	mg/l	0	0.5000	0.4400	0.4710	88	94	7	
Barium	mg/l	0.1570	0.5000	0.6360	0.6750	96	104	6	
Cadmium	mg/l	0	0.5000	0.4450	0.4750	89	95	7	

Date: 09/02/04

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SC Environmental 99030
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NC Drinking Water 37706
SC 99006
FL NELAP E87627

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QUALITY CONTROL DATA

Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 924630189 924630197

Parameter	Units	924629728 Result	Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	RPD	Footnotes
Chromium	mg/l	0.00920	0.5000	0.4620	0.4970	91	98	7	
Lead	mg/l	0.01070	0.5000	0.4550	0.4890	89	96	7	
Selenium	mg/l	0.00410	0.5000	0.4350	0.4680	86	93	7	
Silver	mg/l	0	0.5000	0.4500	0.4810	90	96	7	

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Lab Project Number: 9274844
Client Project ID: W-S OSR LF 00162-15029

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
MDL	Adjusted Method Detection Limit
RPD	Relative Percent Difference
(S)	Surrogate

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Asheville Certification IDs

NC Wastewater	40
NC Drinking Water	37712
SC Environmental	99030
FL NELAP	E87648

Charlotte Certification IDs

NC Wastewater	12
NC Drinking Water	37706
SC	99006
FL NELAP	E87627

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CHAIN-OF-CUSTODY / Analytical Request Document

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

857155

Page: 1 of 1

Required Client Information: Section A

Company: HDR ENGINEERING
Address: 128 S. Tryon St, Ste 1400, Charlotte, NC 28202
Phone: 704.338.6700 Fax: 704.338.6768

Required Client Information: Section B

Report To: C. RANDAZZO
Copy To:
Invoice To: (Same)
P.O.
Project Name: W-5 OSR LF
Project Number: 00162-15029

Client Information (Check quote/contract):
Requested Due Date: *TAT: 5 DAY (EDD)

*Turn around time 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: CRANDAZZO
Project #:
Profile #: 37-4

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 — DRINKING WATER DW, GROUNDWATER GW, SURFACE WATER SW, WASTE WATER WW, PRODUCT P, SOIL SL, OIL OL, WIPE WP, AIR AR, OTHER OT

Requested Analysis: DEP I VOCs, Metals (RCRA), pH, Specific Cond

ITEM #	SAMPLE ID	MATRIX CODE	SAMPLE TYPE G=GRAB C=COMP.	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	DEP I VOCs	Metals (RCRA)	pH	Specific Cond	Remarks / Lab ID
1	MW-13	GW	G	8/24/04	09:00						1	4					X	X			92462972 0
2	MW-12				09:45						1	4					X	X			92462973 6
3	MW-11				10:30						1	4					X	X			92462974 4
4	MW-10				11:00						1	4					X	X			92462975 1
5	MW-09				13:15						1	4					X	X			92462976 9
6	MW-14				13:45						1	4					X	X			92462977 7
7	SW-02	SW			14:30						1	4					X	X	X		92462978 5
8	SW-01	SW			15:50						1	4					X	X	X		92462979 3
9	TRIP BLANK											2					X				92462980 1
10																					
11																					
12																					

SITE LOCATION: ☒ NC ☐ SC ☐ GA ☐ Other

REGULATORY AGENCY: ☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ Other

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature] / HDR	8/24/04	[illegible]	[signature]	[illegible]	[illegible]

SAMPLE CONDITION

Temp in °C	0.1
Received on Ice	Y/N
Sealed Cooler	Y/N
Samples Intact	Y/N

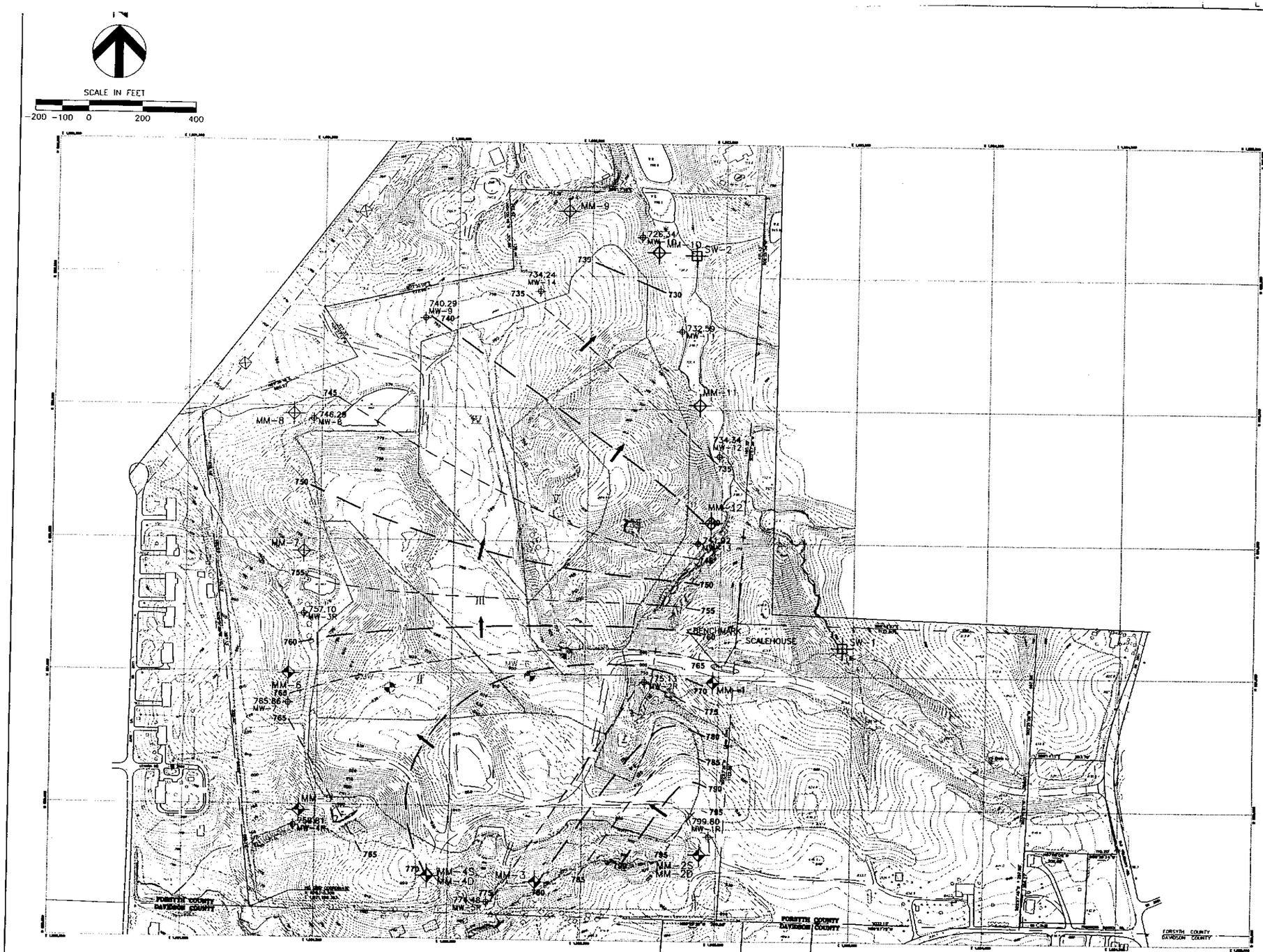
SAMPLE NOTES

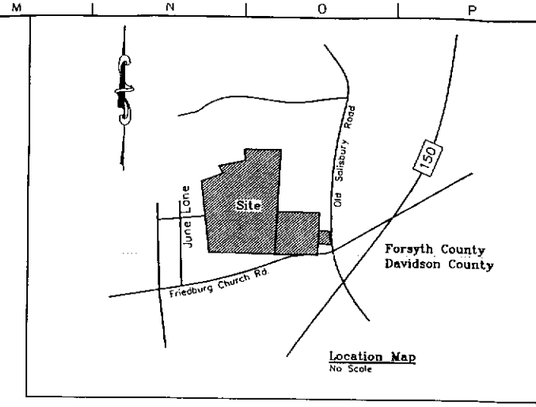
*CONTACT CLIENT IMMEDIATELY UPON DETECTION OF ANY VOCs.
CHRIS RANDAZZO 704.338.6777

Additional Comments:

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: CHRIS RANDAZZO
SIGNATURE of SAMPLER: [signature]
DATE Signed: (MM / DD / YY) 8/24/04





Location Map
No Scale

LEGEND

- EXISTING CONTOURS
- PROPERTY BOUNDARY
- COUNTY LINE
- PROPOSED PHASING BOUNDARY
- SWAMP, STANDING WATER
- STREAM
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- GROUNDWATER OBSERVATION WELL
- SB#2 — SEDIMENTATION BASIN
- METHANE MONITORING PROBE
- 734.24 — GROUNDWATER ELEVATION (FEET MSL)
- 735 — POTENTIOMETRIC CONTOURS (FEET MSL)
- GROUNDWATER FLOW DIRECTION
- SURFACE WATER MONITORING POINT

NOTES

1. PHASE I, II, III AND IV TOPOGRAPHIC INFORMATION PROVIDED BY CARTOGRAPHIC AERIAL MAPPING, INC. DATED FEBRUARY 2, 2003.
2. TOPOGRAPHIC INFORMATION PROVIDED BY CARTOGRAPHIC AERIAL MAPPING DATED APRIL 2, 1999.
3. PROPERTY SURVEY TAKEN FROM DATA SUPPLIED BY BRADY SURVEYING, INC. DATED MARCH 14, 1994.
4. GROUNDWATER ELEVATIONS MEASURED ON AUGUST 24, 2004.
5. MSL- MEAN SEA LEVEL

Issue No.	Description	Date	Drawn.	Chkd.	Resp. Engr.	Proj. Mgr.

HDR
HDR Engineering, Inc. of the Carolinas
Suite 1400
128 S. Tryon Street
Charlotte, NC 28202-5009
(704) 338-6700

BAR LENGTH ON ORIGINAL DRAWING EQUALS ONE INCH. ADJUST SCALE ACCORDINGLY.

Project Manager: J.C. READLING, P.E.
Designed: M.D. PLUMMER, P.E.
Designed:
Checked: C. RANDAZZO
Drawn: J. GAUL

OLD SALISBURY ROAD C & D LANDFILL EXPANSION

WINSTON-SALEM NORTH CAROLINA

GROUNDWATER POTENTIOMETRIC MAP AUGUST 24, 2004

Date	Project No.	Drawing No.	Issue
SEPT. 2004	00162-15029-018	D-01	
Scale: 1"=200'	File Name		