HAZEN AND SAWYER
Environmental Engineers & Scientists

Hazen and Sawyer, P.C.
4011 WestChase Blvd.
Suite 500
Raleigh, NC 27607
(919) 833-7152
(919) 833-1828 (Fax)

July 10, 2007

Mr. Dan J. LaMontagne, P.E.
Facilities & Operations Manager
Wake County Solid Waste Management Division
Post Office Box 550
Raleigh, NC 27602

Re: Wake County North Wake C&D Landfill
April 2007 Semi-Annual Groundwater
Sampling Report
H&S No. 30547-004

Dear Mr. LaMontagne,

As authorized by Wake County, Hazen and Sawyer has prepared a report on the Semi-Annual Groundwater Sampling event for North Wake C&D Landfill conducted on April 18, 2007. For this, the first of the 2007 sampling events, a total of four groundwater monitoring wells (MW-1 (background), CD-1, CD-2, and CD-3) were sampled and tested for Appendix I volatile organic compounds (VOC's) as well as eight selected Appendix I metals. Sampling and testing was conducted by Environment 1, Incorporated as a sub-consultant to Hazen and Sawyer.

Locations for each of the wells sampled for the C&D Landfill are provided on the attached "Lined MSW and C&DD Landfills Monitoring Well Location Plan," Drawing GW-2, prepared by Hazen and Sawyer. This drawing reflects the updated well locations and site conditions based upon drawings prepared by Taylor Weisman Taylor (TWT), dated February 21, 2005, under contract with Wake County.

Field activities during sampling as well as presentation and discussion of test results and analyses are provided in the following sections. Complete laboratory data and chain-of-custody are provided in the Appendix.

Field Activities

Samples were obtained from the groundwater monitoring wells sampling points on April 18, 2007 by representatives of Environment 1, Inc. of Greenville, North Carolina. The static water level and total well depth at each well are first recorded using an electric water level indicator. Each monitoring well is purged (3 to 5 well volumes) using properly cleaned and prepared 1-liter non-disposable Teflon bailers. A bailer is prepared and dedicated for each well to be sampled in order to minimize the risk of cross-contamination.

Once the wells have recharged to an extent that sampling is practical, well samples are analyzed in the field for pH, temperature, and conductivity. Groundwater samples are obtained, prepared, and stored, and the Chain-Of-Custody documentation is recorded for each well.

Sampling personnel note any conditions, including monitoring well damage that may impact sampling or testing results. Any such issues will be presented and discussed in the report as necessary.

Groundwater depths in each groundwater monitoring well were converted to groundwater elevations by Hazen and Sawyer based upon the 2006 site and well survey data provided by TWT. Groundwater depths and elevations for each well are presented on Table 1. These elevations are based upon the 2005 TWT survey data. Groundwater elevations were used to prepare a Potentiometric Surface contour map for North Wake Lined Landfill, which is provided on the attached "Potentiometric Surface Map, April 18, 2007," Drawing GW-4.

A summary of field parameters for each well is also presented in Table 1.

Summary of Groundwater and Surface Water Testing

All of the groundwater monitoring wells were analyzed for Appendix I volatile organic compounds as well as eight Appendix I metals. A summary of the detected parameters is provided below. Parameters listed below represent constituents where reported concentrations were above laboratory detection limits. Concentrations that exceed State Groundwater Quality Standards (15A NCAC 02L.0202) are highlighted. A summary of the results for each well is provided on Table 2 for metals and complete laboratory analyses and reports are provided in the Appendix.

In accordance with the October 27, 2006 NCDENR Solid Waste Section Memorandum regarding New Guidelines for Electronic Submittal of Environmental Data (including the February 23, 2007 addendum), laboratories now must report to the Solid Waste Section Limit (SWSL). The SWSL is the lowest concentration of an analyte that can be determined and is often lower than the method limits that can accurately be reported. For all sampling data beginning on or after January 1, 2007, constituents may be reported that have not been reported for a particular well in the past. This may not indicate any changes in groundwater quality, but may only reflect the lower required reporting limits.

MW-1

Metals:	None Detected
Volatile Organic Compounds:	None Detected

CD-1

Metals:	Barium, Chromium, Lead
Volatile Organic Compounds:	None Detected

CD-2

Metals:	Barium
Volatile Organic Compounds:	None Detected

CD-3

Metals:	Barium
Volatile Organic Compounds:	None Detected

Equipment Blanks

Metals:	Not Tested
Volatile Organic Compounds:	None Detected

No VOC's were detected in any of the wells. This agrees with the results of previous testing events since the wells were first sampled in spring 2001. Also, none of the metals detected exceeded State Groundwater Quality Standards in any of the wells.

The sealed Environmental Monitoring Report Form and summary of detected constituents immediately follow this report.

Complete laboratory data for the April 18, 2007 sampling program are provided in digital form as part of the Semi-Annual Sampling Report for the North Wake Lined Landfill, submitted under separate cover. In addition, a copy of this report, including tables, in Portable Document Format (PDF) is also included on the CD. One copy of this report has been provided to the North Carolina Department of Environment and Natural Resources (NCDENR).

Hazen and Sawyer personnel are available to meet with you and your staff to discuss this Report and to answer any questions you may have. In the interim, if you have any questions or require additional information, please contact us.

Very truly yours,

HAZEN AND SAWYER, P.C.

Georgina D Varelas

Georgina D Varelas
Assistant Engineer

John A. Bove, PE
Associate

cc: Jackie Drummond, NCDENR (w/attachment)

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

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

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

Instructions:

- **Prepare one form for each individually monitored unit.**
- **Please type or print legibly.**
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i).
- In accordance with NC General Statutes Chapter 89C and 89E and NC Solid Waste Management Rules 15A NCAC 13B, be sure to affix a seal to the bottom of this page, when applicable.
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

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

Hazen and Sawyer, P.C.

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

Name: John A. Bove, P.E. Phone: (919) 833-7152

E-mail: jbove@hazenandsawyer.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
North Wake C&D Landfill	9004 Deponie Drive Raleigh, NC 27615	92-09	.0500	April 18, 2007

Environmental Status: (Check all that apply)

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

Type of data submitted: (Check all that apply)

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

Notification attached?

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

Certification

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

John A. Bove, P.E.	Associate	(919) 833-7152
Facility Representative Name (Print)	Title	(Area Code) Telephone Number
Signature	7/10/07 Date	Affix NC Licensed/ Professional Geologist/Engineer Seal here:

NORTH CAROLINA PROFESSIONAL SEAL 19391 ENGINEER JOHN A. BOVE

Revised 01/2007

Facility Name: North Wake C&D Landfill
Monitoring Event Date: 04/18/2007

FACILITY PERMIT	WELL ID	CAS Number	SWS ID	PARAMETER	RESULT	UNITS	QUALIFIER	DILUTION FACTOR	COLLECT DATE	EXTRACTION DATE	ANALYSIS DATE
92-09	CD-1	7440-39-3	15	Barium	501	ug/l		1	04/18/2007		04/24/2007
92-09	CD-1	7440-47-3	51	Chromium	15	ug/l		1	04/18/2007		04/24/2007
92-09	CD-1	7439-92-1	131	Lead	11	ug/l		1	04/18/2007		04/24/2007
92-09	CD-2	7440-39-3	15	Barium	192	ug/l		1	04/18/2007		04/24/2007
92-09	CD-3	7440-39-3	15	Barium	109	ug/l		1	04/18/2007		04/24/2007

Table 1
Water Quality Field Parameters - April 18, 2007
North Wake C&D Landfill

	Field Measurements			Groundwater Elevations		
Monitoring Well I.D.	pH (-)	Conductivity (μS)	Temperature (deg. C)	TOC Elevation* (feet AMSL)	Depth to Groundwater (feet)	Groundwater Elevation* (feet AMSL)
MW-1	5.50	78	15.0	333.80	45.18	288.62
CD-1	5.80	114	15.0	296.26	12.41	283.85
CD-2	5.60	112	14.0	282.64	10.90	271.74
CD-3	5.40	66	17.0	301.49	20.66	280.83

NOTES:
AMSL - Above Mean Sea Level
TOC - Top of Casing
* - TOC and Groundwater Elevations Based Upon 2005 Taylor-Weisman-Taylor Survey

Table 2
Detected Groundwater Constituents - Metals
North Wake C & D Landfill April 18, 2007

Monitor Well	Sample Date	Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
NC Standard		0.05	2	0.00175	0.05	0.015	0.00105	0.05	0.0175
MW-1	5-Jun-01	<.010	<.100	<.010	<.010	<.010	<.0003	<.010	<.010
MW-1	29-Nov-01	<.010	<.100	<.010	<.010	<.010		<.010	<.010
MW-1	5-Apr-02	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
MW-1	7-Nov-02	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
MW-1	16-Apr-03	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
MW-1	30-Oct-03	<.010	<.100	<.010	<.010	<.010	<.0003	<.010	<.010
MW-1	7-Apr-04	<.010	<.100	<.010	<.010	<.010	<.0003	<.020	<.010
MW-1	19-Nov-04	<.010	<.500	<.001	<.010	<.010	<.001	<.020	<.010
MW-1	22-Apr-05	<.010	<.500	<.001	<.010	**0.016**	<.0005	<.020	<.010
MW-1	10-Nov-05	<.010	<.500	<.001	<.010	**0.015**	<.001	<.020	<.010
MW-1	13-Apr-06	<.010	<.500	<.001	<.010	<.010	<.001	<.020	<.010
MW-1	8-Nov-06	<.010	<.500	<.001	<.010	<.010	<.0005	<.020	<.010
MW-1	18-Apr-07	<.010	<.100	<.001	<.010	<.010	<.002	<.010	<.010
CD-1	5-Jun-01	<.010	0.102	<.010	<.010	<.010	<.0003	<.010	<.010
CD-1	29-Nov-01	<.010	0.371	<.010	<.010	<.010		<.010	<.010
CD-1	5-Apr-02	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
CD-1	7-Nov-02	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
CD-1	16-Apr-03	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
CD-1	30-Oct-03	<.010	<.100	<.010	<.010	<.010	<.0003	<.010	<.010
CD-1	7-Apr-04	<.010	<.100	<.010	<.010	<.010	<.0003	<.020	<.010
CD-1	19-Nov-04	<.010	<.500	0.001	<.010	<.010	<.001	<.020	<.010
CD-1	22-Apr-05	<.010	0.735	<.001	0.011	0.015	<.0005	<.020	<.010
CD-1	10-Nov-05	<.010	<.500	<.001	<.010	<.010	<.001	<.020	<.010
CD-1	13-Apr-06	<.010	<.500	<.001	<.010	<.010	<.001	<.020	<.010
CD-1	8-Nov-06	<.010	<.500	<.001	<.010	0.011	<.0005	<.020	<.010
CD-1	18-Apr-07	<.010	0.501	<.001	0.015	0.011	<.002	<.010	<.010
CD-2	5-Jun-01	<.010	<.100	<.010	<.010	<.010	<.0003	<.010	<.010
CD-2	29-Nov-01	<.010	0.357	<.010	<.010	<.010		<.010	<.010
CD-2	5-Apr-02	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
CD-2	7-Nov-02	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
CD-2	16-Apr-03	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
CD-2	30-Oct-03	<.010	<.100	<.010	<.010	<.010	<.0003	<.010	<.010
CD-2	7-Apr-04	<.010	<.100	<.010	<.010	<.010	<.0003	<.020	<.010
CD-2	19-Nov-04	<.010	<.500	<.001	0.015	0.011	<.001	<.020	<.010
CD-2	22-Apr-05	<.010	<.500	<.001	<.010	**0.018**	<.0005	<.020	<.010
CD-2	10-Nov-05	<.010	<.500	<.001	<.010	<.010	<.001	<.020	<.010
CD-2	13-Apr-06	<.010	<.500	<.001	<.010	<.010	<.001	<.020	<.010
CD-2	8-Nov-06	<.010	<.500	<.001	<.010	**0.016**	<.0005	<.020	<.010
CD-2	18-Apr-07	<.010	0.192	<.001	<.010	<.010	<.002	<.010	<.010
CD-3	5-Jun-01	<.010	<.100	<.010	<.010	<.010	<.0003	<.010	<.010
CD-3	29-Nov-01	<.010	<.100	<.010	<.010	<.010		<.010	<.010
CD-3	5-Apr-02	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
CD-3	7-Nov-02	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
CD-3	16-Apr-03	<.010	<.500	<.001	<.010	<.010	<.0003	<.020	<.010
CD-3	30-Oct-03	<.010	<.100	<.010	<.010	<.010	<.0003	<.010	<.010
CD-3	7-Apr-04	<.010	<.100	<.010	<.010	<.010	<.0003	<.020	<.010
CD-3	19-Nov-04	<.010	<.500	<.001	<.010	<.010	<.001	<.020	<.010
CD-3	22-Apr-05	<.010	<.500	<.001	<.010	<.010	<.0005	<.020	<.010
CD-3	10-Nov-05	<.010	<.500	<.001	<.010	<.010	<.001	<.020	<.010
CD-3	13-Apr-06	<.010	<.500	<.001	<.010	<.010	<.001	<.020	<.010
CD-3	8-Nov-06	<.010	<.500	<.001	<.010	<.010	<.0005	<.020	<.010
CD-3	18-Apr-07	<.010	0.109	<.001	<.010	<.010	<.002	<.010	<.010

All units are in milligrams per liter (parts per million).

* - Groundwater Protection Standard

- Concentration exceeds N.C. Groundwater Standards (2L).

NOTES:

1 TOPOGRAPHIC INFORMATION FOR CLOSED MSW LANDFILL OBTAINED FROM "COMPREHENSIVE SITE PLAN NORTH WAKE LINED LANDFILL, NEUSE TOWNSHIP, WAKE COUNTY, NORTH CAROLINA" PREPARED BY TAYLOR, WEISMAN AND TAYLOR, CARY, N.C., DATED FEBUARY 21, 2005.

2 COORDINATES AND ELEVATIONS FOR GROUNDWATER MONITORING WELLS OBTAINED FROM "COMPREHENSIVE SITE PLAN NORTH WAKE LINED LANDFILL, NEUSE TOWNSHIP, WAKE COUNTY, NORTH CAROLINA" PREPARED BY TAYLOR, WEISMAN AND TAYLOR, CARY, N.C., DATED FEBUARY 21, 2005.

3 FOR GROUNDWATER WELL LOCATIONS AND SURVEY DATA, SEE DRAWINGS GW-1 FOR NORTH WAKE UNLINED LANDFILL.

GROUNDWATER MONITORING WELL TABLE

WELL DESIGNATION	NORTHING	EASTING	TOP OF CASING ELEVATION	GROUND ELEVATION
MW-CD-1	786056.76	2123435.38	296.19'	293.15'
MW-CD-2	786515.30	2123758.57	282.56'	280.20'
MW-CD-3	786453.70	2123368.79	301.33'	298.90'
MW-1	786333.93	2122923.54	333.68'	330.94'
MW-4	786604.24	2126044.40	226.18'	226.85'
MW-11	784849.07	2123634.42	342.96'	340.55'
MW-11D	784855.44	2123635.84	343.01'	340.40'
MW-12	786403.72	2124969.57	260.76'	258.30'
MW-12D	786403.90	2124973.69	260.82'	258.30'
MW-13	786359.55	2125313.51	270.06'	267.55'
MW-14	786333.89	2125613.00	270.05'	267.60'
MW-15	786532.52	2126066.34	238.67'	236.35'
MW-15D	786534.63	2126061.05	238.75'	236.30'
MW-16	785988.35	2126163.82	266.56'	262.82'
MW-17	785641.25	2125816.11	273.68'	271.10'
MW-17D	785645.21	2125819.36	273.41'	271.00'
MW-18	785085.37	2125470.00	282.35'	279.90'
MW-19	786456.16	2124623.58	283.79'	281.00'
MW-20	786465.49	2124233.80	290.94'	287.20'
MW-21	786040.69	2123711.99	308.77'	305.25'
MW-25	785775.18	2123315.78	294.33'	291.45'
MW-25D	785779.93	2123327.76	293.91'	291.50'
MW-26	786476.65	2123970.24	275.37'	272.45'
MW-X (UNUSED)	784455.43	2123452.77	357.01'	356.30'

LEGEND

MW-12 — DENOTES GROUNDWATER MONITORING WELL LOCATION AND IDENTIFYING NUMBER.

SW-2 — DENOTES SURFACE WATER SAMPLING LOCATION

1"=200'-0" 200 100 0 200'

NO.	ISSUED FOR	DATE	BY
6	APRIL 18, 2007 SAMPLING EVENT	6/07	JAB
5	NOV. 08, 2006 SAMPLING EVENT	2/07	JAB
4	APRIL 13, 2006 SAMPLING EVENT	7/06	JAB
3	NOVEMBER 10,2005 SAMPLING EVENT	2/06	JAB
2	APRIL 21, 2005 SAMPLING EVENT	7/05	JAB
1	NOV.18, 2004 SAMPLING EVENT	3/05	JAB

DESIGNED JAB
DRAWN PWS
CHECKED
PROJ. ENGR. JAB
APPROVED

THIS DOCUMENT ORIGINALLY PREPARED AND SEALED BY JOHN A. BOVE, SEAL NUMBER 19391. THIS MEDIA SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT

HAZEN AND SAWYER
Environmental Engineers & Scientists
4011 WestChase Blvd, Raleigh, North Carolina 27607

WAKE COUNTY SOLID WASTE MANAGEMENT DIVISION

NORTH WAKE LINED LANDFILL
NEUSE TWP WAKE COUNTY, NORTH CAROLINA

LINED MSW AND C&DD LANDFILL
MONITORING WELL LOCATION PLAN

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.

DATE MARCH 2005
H & S JOB NUMBER 30547
CONTRACT NUMBER
DRAWING NUMBER GW2
H&S FLAT FILE NO. .

PLOT DATE 02/23/07 2:16pm FILE= H:\30547\northwake\GEN\gw002_11-08-06 by ENG XREFs=northwake\00\SP-TP-NORTHWAKE, misc\30547TB_NORTHWAKE_Lined, northwake\00\SP-MONWELL-NORTHWAKE_2005C,

NOTES:

1 TOPOGRAPHIC INFORMATION FOR CLOSED MSW LANDFILL OBTAINED FROM "COMPREHENSIVE SITE PLAN NORTH WAKE LINED LANDFILL, NEUSE TOWNSHIP, WAKE COUNTY, NORTH CAROLINA" PREPARED BY TAYLOR, WEISMAN AND TAYLOR, CARY, N.C., DATED FEBUARY 21, 2005.

2 COORDINATES AND ELEVATIONS FOR GROUNDWATER MONITORING WELLS OBTAINED FROM "COMPREHENSIVE SITE PLAN NORTH WAKE LINED LANDFILL, NEUSE TOWNSHIP, WAKE COUNTY, NORTH CAROLINA" PREPARED BY TAYLOR, WEISMAN AND TAYLOR, CARY, N.C., DATED FEBUARY 21, 2005.

3 FOR GROUNDWATER WELL LOCATIONS AND SURVEY DATA FOR NORTH WAKE UNLINED LANDFILL, SEE DRAWINGS GW-1.

4 FOR POTENTIOMETRIC SURFACE MAP FOR NORTH WAKE UNLINED LANDFILL, SEE DRAWING GW-3.

GROUNDWATER MONITORING WELL DATA

MONITORING WELL	TOC ELEVATION (AMSL)	GROUNDWATER ELEVATION APRIL 18, 2007
MW-11**	342.96	300.21
MW-11 D**	343.01	300.10
MW-12	260.76	244.29
MW-12D	260.82	243.43
MW-13	270.06	248.14
MW-14	270.05	227.05
MW-15	238.67	221.39
MW-15D	238.75	221.07
MW-16	266.56	255.46
MW-17	273.68	242.43
MW-17D	273.41	241.60
MW-18	282.35	263.59
MW-19	283.79	246.97
MW-20	290.94	261.34
MW-21	308.77	277.77
MW-25	294.33	286.68
MW-25d	293.91	286.08
MW-26	275.37	266.72
SW-4	---	---
SW-5	---	---
SW-6	---	---
MW-1	333.80	288.62
CD-1	296.26	283.85
CD-2	282.64	271.74
CD-3	301.49	280.83

NS – NOT SAMPLED

LEGEND

MW-12 298.7 — DENOTES GROUNDWATER MONITORING WELL LOCATION, IDENTIFYING NUMBER AND MEASURED GROUNDWATER ELEVATION ON REFERENCED DATE

MW-28 NS — DENOTES GROUNDWATER MONITORING WELL LOCATION, IDENTIFYING NUMBER THAT WAS NOT SAMPLED ON REFERENCED DATE

DENOTES GENERAL GROUNDWATER FLOW DIRECTION

1"=200'-0" 200 100 0 200'

NO.	ISSUED FOR	DATE	BY
6	APRIL 18, 2007 SAMPLING EVENT	6/07	JAB
5	NOV. 08, 2006 SAMPLING EVENT	2/07	JAB
4	APRIL 13, 2006 SAMPLING EVENT	7/06	JAB
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2	APRIL 21, 2005 SAMPLING EVENT	7/05	JAB
1	NOV.18, 2004 SAMPLING EVENT	3/05	JAB

DESIGNED JAB
DRAWN PWS
CHECKED
PROJ. ENGR. JAB
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THIS DOCUMENT ORIGINALLY PREPARED AND SEALED BY JOHN A. BOVE, SEAL NUMBER 19391. THIS MEDIA SHALL NOT BE CONSIDERED A CERTIFIED DOCUMENT

HAZEN AND SAWYER
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WAKE COUNTY SOLID WASTE MANAGEMENT DIVISION

NORTH WAKE LINED LANDFILL
NEUSE TWP WAKE COUNTY, NORTH CAROLINA

POTENTIOMETRIC SURFACE MAP
APRIL 18, 2007

THE SCALE BAR SHOWN BELOW MEASURES ONE INCH LONG ON THE ORIGINAL DRAWING.

DATE MARCH 2005
H & S JOB NUMBER 30547
CONTRACT NUMBER
DRAWING NUMBER GW4
H&S FLAT FILE NO. .

PLOT DATE 02/23/07 11:39am FILE= H:\30547\northwake\GEN\gw004_11-08-06 by ENG XREFs=nnorthwake\00\SP-TP-NORTHWAKE, misc\30547TB_NORTHWAKE_Lined, northwake\00\SP-potent-11-08-06-lined,

Scanned by	Date	Doc ID #
DCH	8/17/07	RCO2822

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

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

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

Instructions:

- **Prepare one form for each individually monitored unit.**
- **Please type or print legibly.**
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i).
- In accordance with NC General Statutes Chapter 89C and 89E and NC Solid Waste Management Rules 15A NCAC 13B, be sure to affix a seal to the bottom of this page, when applicable.
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

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

Hazen and Sawyer, P.C.

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

Name: John A. Bove, P.E. Phone: (919) 833-7152

E-mail: jbove@hazenandsawyer.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
North Wake C&D Landfill	9004 Deponie Drive Raleigh, NC 27615	92-09 P1054	.0500	April 18, 2007

Environmental Status: (Check all that apply)

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

Type of data submitted: (Check all that apply)

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

Notification attached?

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

Certification

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

John A. Bove, P.E.	Associate	(919) 833-7152
Facility Representative Name (Print)	Title	(Area Code) Telephone Number
Signature	7/10/07 Date	Affix NC Licensed/ Professional Geologist/ Engineer Seal here:

NORTH CAROLINA PROFESSIONAL SEAL 19391 ENGINEER JOHN A. BOVE

Revised 01/2007

Environment 1, Incorporated

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6061

NORTH WAKE C&D LANDFILL
C/O MR. JOHN BOVE
HAZEN AND SAWYER
4011 WESTCHASE BLVD, SUITE 500
RALEIGH ,NC 27607

DATE COLLECTED: 04/18/07
DATE REPORTED : 05/03/07

REVIEWED BY:

PARAMETERS	MW-1	CD-1	CD-2	CD-3	Equipment Blank	Analysis Date	Analyst	Method Code
PH (field measurement), Units	5.5	5.8	5.6	5.4		04/18/07	RJH	SM4500HB
Arsenic, ug/l	< 10	< 10	< 10	< 10		04/24/07	LFJ	EPA200.8
Barium, ug/l	< 100	501	192	109		04/24/07	LFJ	EPA200.8
Cadmium, ug/l	<1.0	<1.0	<1.0	<1.0		04/24/07	LFJ	EPA200.8
Total Chromium, ug/l	< 10	15	< 10	< 10		04/24/07	LFJ	EPA200.8
Lead, ug/l	< 10	11	< 10	< 10		04/24/07	LFJ	EPA200.8
Mercury, ug/l	<0.2	<0.2	<0.2	<0.2		04/24/07	LFJ	EPA200.8
Selenium, ug/l	< 10	< 10	< 10	< 10		04/24/07	LFJ	EPA200.8
Silver, ug/l	< 10	< 10	< 10	< 10		04/24/07	LFJ	EPA200.8
Conductivity (at 25c), uMhos	78	114	112	66		04/18/07	RJH	SM2510B
Temperature, °C	15	15	14	17		04/18/07	RJH	SM2550B
Static Water Level, feet	45.18	12.41	10.90	20.66		04/18/07	RJH	
Well Depth, feet	58.53	24.21	24.79	33.21		04/18/07	RJH	

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CLIENT: NORTH WAKE C&D LANDFILL
C/O MR. JOHN BOVE
HAZEN AND SAWYER
4011 WESTCHASE BLVD, SUITE 500
RALEIGH, NC 27607

CLIENT ID: 6061

ANALYST: MAO
DATE COLLECTED: 04/18/07
DATE REPORTED: 05/03/07

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

Date Analyzed: / PARAMETERS, ug/l	04/27/07 MW-1	04/27/07 CD-1	04/27/07 CD-2	04/27/07 CD-3	04/30/07 Equipment Blank
1. Chloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
2. Vinyl Chloride	<5.00	<5.00	<5.00	<5.00	<5.00
3. Bromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
4. Chloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00	<100.00	<100.00
10. Methylene Chloride	<5.00	<5.00	<5.00	<5.00	<5.00
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
13. Vinyl Acetate	<50.00	<50.00	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
15. 2-Butanone	<100.00	<100.00	<100.00	<100.00	<100.00
16. Bromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
17. Chloroform	<5.00	<5.00	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<5.00	<5.00	<5.00	<5.00	<5.00
20. Benzene	<3.00	<3.00	<3.00	<3.00	<3.00
21. 1,2-Dichloroethane	<3.00	<3.00	<3.00	<3.00	<3.00
22. Trichloroethene	<3.00	<3.00	<3.00	<3.00	<3.00
23. 1,2-Dichloropropane	<3.00	<3.00	<3.00	<3.00	<3.00
24. Bromodichloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
25. Cis-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<5.00	<5.00	<5.00	<5.00	<5.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
30. Tetrachloroethene	<3.00	<3.00	<3.00	<3.00	<3.00
31. 2-Hexanone	<50.00	<50.00	<50.00	<50.00	<50.00
32. Dibromochloromethane	<3.00	<3.00	<3.00	<3.00	<3.00
33. 1,2-Dibromoethane	<3.00	<3.00	<3.00	<3.00	<3.00
34. Chlorobenzene	<3.00	<3.00	<3.00	<3.00	<3.00
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00	<5.00	<5.00
37. Xylenes	<4.00	<4.00	<4.00	<4.00	<4.00
38. Dibromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00	<10.00	<10.00
40. Bromoform	<3.00	<3.00	<3.00	<3.00	<3.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<8.00	<8.00	<8.00	<8.00	<8.00
43. 1,4-Dichlorobenzene	<3.00	<3.00	<3.00	<3.00	<3.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<13.00	<13.00	<13.00	<13.00	<13.00
46. Acrylonitrile	<200.00	<200.00	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00	<100.00	<100.00

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GREENVILLE, N.C. 27835-7085

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CLIENT: NORTH WAKE C&D LANDFILL
C/O MR. JOHN BOVE
HAZEN AND SAWYER
4011 WESTCHASE BLVD, SUITE 500
RALEIGH, NC 27607

CLIENT ID: 6061

ANALYST: MAO
DATE COLLECTED: 04/18/07
DATE REPORTED: 05/03/07

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	Date Analyzed: 04/30/07 Trip Blank
1. Chloromethane	<5.00
2. Vinyl Chloride	<5.00
3. Bromomethane	<10.00
4. Chloroethane	<5.00
5. Trichlorofluoromethane	<5.00
6. 1,1-Dichloroethene	<5.00
7. Acetone	<100.00
8. Iodomethane	<10.00
9. Carbon Disulfide	<100.00
10. Methylene Chloride	<5.00
11. trans-1,2-Dichloroethene	<5.00
12. 1,1-Dichloroethane	<5.00
13. Vinyl Acetate	<50.00
14. Cis-1,2-Dichloroethene	<5.00
15. 2-Butanone	<100.00
16. Bromochloromethane	<3.00
17. Chloroform	<5.00
18. 1,1,1-Trichloroethane	<5.00
19. Carbon Tetrachloride	<5.00
20. Benzene	<3.00
21. 1,2-Dichloroethane	<3.00
22. Trichloroethene	<3.00
23. 1,2-Dichloropropane	<3.00
24. Bromodichloromethane	<3.00
25. Cis-1,3-Dichloropropene	<5.00
26. 4-Methyl-2-Pentanone	<100.00
27. Toluene	<5.00
28. trans-1,3-Dichloropropene	<5.00
29. 1,1,2-Trichloroethane	<5.00
30. Tetrachloroethene	<3.00
31. 2-Hexanone	<50.00
32. Dibromochloromethane	<3.00
33. 1,2-Dibromoethane	<3.00
34. Chlorobenzene	<3.00
35. 1,1,1,2-Tetrachloroethane	<5.00
36. Ethylbenzene	<5.00
37. Xylenes	<4.00
38. Dibromomethane	<10.00
39. Styrene	<10.00
40. Bromoform	<3.00
41. 1,1,2,2-Tetrachloroethane	<5.00
42. 1,2,3-Trichloropropane	<8.00
43. 1,4-Dichlorobenzene	<3.00
44. 1,2-Dichlorobenzene	<5.00
45. 1,2-Dibromo-3-Chloropropane	<13.00
46. Acrylonitrile	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00

Environmental, Inc.
P.O. Box 7085 134 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6061 **Week: 16**

NORTH WAKE C&D LANDFILL
C/O MR. JOHN BOVE
HAZEN AND SAWYER
4011 WESTCHASE BLVD, SUITE 500
RALEIGH NC 27607

(919) 833-7152

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	Metals	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1
CHLORINE NEUTRALIZED AT COLLECTION												
pH CHECK (LAB)							L2				L2	L2
CONTAINER TYPE, P/G						P	P	P	P		G	G
CHEMICAL PRESERVATION (PARAMETERS)						A	B	A	A		E	E
MW-1	04 18 07	1100		15	4	G	G	G	G	G	G	G
CD-1	04 18 07	1105		15	4	G	G	G	G	G	G	G
CD-2	04 18 07	1045		14	4	G	G	G	G	G	G	G
CD-3	04 18 07	1050		19	4	G	G	G	G	G	G	G
Equipment Blank	04 18 07				2						G	G
Trip Blank					2							

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 F - ZINC ACETATE
G - NA THIOSULFATE

CLASSIFICATION:
☐ WASTEWATER (NPDES)
☐ DRINKING WATER
☐ DWQ/GW
☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY Y N

SAMPLES COLLECTED BY: (Please Print) Nigel Fox

SAMPLES RECEIVED IN LAB AT 2.0 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Nigel Fox	04 18 07 3:23	Arthur Lada	4/18/07 3:23
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

№ 144482