North Wake Subtitle D Landfill Facility Permit No. 92-09 Leachate Sampling Report

(November 2011 Sampling Event)

Wake County

Report

December 2011

WAKE COUNTY
NORTH CAROLINA

CDM

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

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

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

Instructions:

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

Solid Waste Monitoring Data Submittal Information

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

Consultant - Camp Dresser & McKee

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

Name: Mathew F. Colone Phone: 919-787-5620

E-mail: colonemf@cdm.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Wake County North Wake Subtitle D Landfill	9004 Deponie Drive Raleigh, NC 27615	92-09	.1600	November 2, 2011

Environmental Status: (Check all that apply)

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

Type of data submitted: (Check all that apply)

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

Notification attached?

☒ No. No groundwater or surface water standards 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.

Mathew F. Colone — Consultant — (919) 787-5620

Facility Representative Name (Print) — Title — (Area Code) Telephone Number

Mathew F Colone — 12/13/2011 — Affix NC Licensed/ Professional Geologist Seal

Signature — Date

5400 Glenwood Ave, Suite 300, Raleigh, NC 27612

Facility Representative Address

F-0412

NC PE Firm License Number (if applicable effective May 1, 2009)

NORTH CAROLINA LICENSED SEAL 1851 GEOLOGIST MATHEW F. COLONE

12/13/2011

Revised 6/2009

CDM
5400 Glenwood Avenue, Suite 300
Raleigh, North Carolina 27612
tel: 919 787-5620
fax: 919 781-5730

December 13, 2011

Ms. Jaclynne Drummond
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

Subject: November 2011 Semi-Annual Leachate Sampling Results
Wake County Subtitle D Landfill
Facility Permit # 92-09

Dear Ms. Drummond:

CDM, on behalf of Wake County, is submitting an electronic copy of the March 2011 semi-annual leachate sampling results. Leachate samples were collected from the leachate sampling station at the Wake County Subtitle D Landfill on November 2, 2011. **Table 1** presents water quality parameters at the time of sampling.

ENCO Laboratories, Inc. in Cary, North Carolina analyzed the leachate samples for North Carolina Appendix I volatile organic compounds and metals along with biochemical oxygen demand, chemical oxygen demand, phosphate, nitrate, and sulfate. Complete laboratory analytical results are included in **Appendix A**. A copy of this report will be placed in the operating record for this facility.

If you have any questions or require further explanation, do not hesitate to call me at 787-5620.

Very truly yours,

Mat Colone

Mathew F. Colone, P.G.
Camp Dresser & McKee

cc: Elliot Cornell, WCSWM

Table 1
Leachate Water Quality Parameters
November 2011 Semi-Annual Sampling Event
Wake County Subtitle D Landfill

Leachate							
Facility Permit Number	Sampling Date	pH	Conductivity (uS/cm)	Temperature (deg. C)	Turbidity (NTU)	DO (mg/L)	ORP
92-09	29-Oct-10	7.58	8,461	19.0	101	2.64	12.7
92-09	15-Mar-11	7.30	1,361	16.6	55	3.87	-196.7
92-09	2-Nov-11	7.13	15,380	19.6	95	1.97	-25.2

Notes:
1. October 2010 was the first event sampled by CDM
2. uS/cm - Microsiemens per centimeter
3. NTU - Nephleometric Turbidity Units
4. DO - Dissolved Oxygen
5. mg/L - Milligrams per liter
6. ORP - Oxidation Reduction Potential

Appendix A

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

Wednesday, November 16, 2011

CDM (CD004)

Attn: Aaron Weispfenning

5400 GLENWOOD AVE SUITE 300

RALEIGH, NC 27612-

RE: Laboratory Results for
Project Number: [none], Project Name/Desc: N Wake Lined Leachate
ENCO Workorder: C113288

Dear Aaron Weispfenning,

Enclosed is a copy of your laboratory report for test samples received by our laboratory on Wednesday, November 2, 2011.

Unless otherwise noted in an attached project narrative, all samples were received in acceptable condition and processed in accordance with the referenced methods/procedures. Results for these procedures apply only to the samples as submitted.

The analytical results contained in this report are in compliance with NELAC standards, except as noted in the project narrative. This report shall not be reproduced except in full, without the written approval of the Laboratory.

This report contains only those analyses performed by Environmental Conservation Laboratories. Unless otherwise noted, all analyses were performed at ENCO Cary. Data from outside organizations will be reported under separate cover.

If you have any questions or require further information, please do not hesitate to contact me.

Sincerely,

Chuck Smith

Project Manager

Enclosure(s)

The total number of pages in this report, including this page is 19.

www.encolabs.com

SAMPLE SUMMARY/LABORATORY CHRONICLE

Client ID: 9209-Leachate | **Lab ID: C113288-01** | **Sampled: 11/02/11 11:00** | **Received: 11/02/11 11:54**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 300.0	11/30/11	11/07/11 13:26	11/8/2011 08:24
EPA 353.2	11/04/11 11:00	11/02/11 13:48	11/2/2011 13:48
EPA 353.2	11/30/11	11/03/11 05:48	11/3/2011 11:51
EPA 353.2	07/28/14	11/06/11 20:49	11/7/2011 13:33
EPA 365.4	11/30/11	11/04/11 11:05	11/7/2011 16:11
EPA 6010C	04/30/12	11/03/11 09:29	11/7/2011 12:13
EPA 6020A	04/30/12	11/03/11 09:57	11/8/2011 11:16
EPA 8260B	11/16/11	11/08/11 09:10	11/9/2011 09:20
SM 5210B	11/04/11 11:00	11/03/11 16:09	11/3/2011 16:09
SM 5220D	11/30/11	11/11/11 11:57	11/11/2011 15:29

Client ID: 9209-TripBlank | **Lab ID: C113288-02** | **Sampled: 11/02/11 11:00** | **Received: 11/02/11 11:54**

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 8260B	11/16/11	11/08/11 09:10	11/9/2011 08:51

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NORTH CAROLINA SWS SAMPLE DETECTION SUMMARY

Client ID: 9209-Leachate **Lab ID:** C113288-01

Analyte	Results	Flag	DF	MDL	MRL	NC SWSL	Units	Method	Notes
2-Butanone	2800	D	20	26	100	100	ug/L	EPA 8260B	
4-Methyl-2-pentanone	98	JD	20	22	100	100	ug/L	EPA 8260B	
Acetone	4400	D	20	24	100	100	ug/L	EPA 8260B	
Antimony - Total	0.851	J	1	0.220	2.00	6	ug/L	EPA 6020A	
Arsenic - Total	159		1	2.80	10.0	10	ug/L	EPA 6010C	
Barium - Total	248		1	1.00	10.0	100	ug/L	EPA 6010C	
Biochemical Oxygen Demand	1900000		1	2000	2000	NE	ug/L	SM 5210B	
Cadmium - Total	0.799	J	1	0.360	1.00	1	ug/L	EPA 6010C	
Chemical Oxygen Demand	3500000		1	40000	40000	NE	ug/L	SM 5220D	
Chromium - Total	249		1	1.00	10.0	10	ug/L	EPA 6010C	
Cobalt - Total	48.7		1	1.10	10.0	10	ug/L	EPA 6010C	
Copper - Total	4.02	JB	1	1.60	10.0	10	ug/L	EPA 6010C	J
Lead - Total	2.36	J	1	1.90	10.0	10	ug/L	EPA 6010C	
m,p-Xylenes	37	JD	20	28	40	NE	ug/L	EPA 8260B	
Nickel - Total	197	B	1	1.80	10.0	50	ug/L	EPA 6010C	QB-01
Nitrate/Nitrite as N	58	J	1	25	100	NE	ug/L	EPA 353.2	
Nitrite as N	39	J	1	3.0	100	1000	ug/L	EPA 353.2	
Phosphorus	5400	D	10	210	1000	NE	ug/L	EPA 365.4	
Selenium - Total	3.01	J	1	0.830	1.00	10	ug/L	EPA 6020A	
Silver - Total	7.00	J	1	1.90	10.0	10	ug/L	EPA 6010C	
Sulfate as SO4	22000	J	1	20	5000	250000	ug/L	EPA 300.0	
Toluene	41	D	20	17	20	1	ug/L	EPA 8260B	
Vanadium - Total	138		1	1.40	10.0	25	ug/L	EPA 6010C	
Xylenes (Total)	46	JD	20	42	60	5	ug/L	EPA 8260B	
Zinc - Total	77.5		1	3.80	10.0	10	ug/L	EPA 6010C	

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ANALYTICAL RESULTS

Description: 9209-Leachate
Matrix: Ground Water
Project: N Wake Lined Leachate

Lab Sample ID: C113288-01
Sampled: 11/02/11 11:00
Sampled By: Aaron Weispfenning

Received: 11/02/11 11:54
Work Order: C113288

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	18	UD	ug/L	20	18	20	5	EPA 8260B	11/09/11 09:20	JKG	
1,1,1-Trichloroethane [71-55-6] ^	13	UD	ug/L	20	13	20	1	EPA 8260B	11/09/11 09:20	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	15	UD	ug/L	20	15	20	3	EPA 8260B	11/09/11 09:20	JKG	
1,1,2-Trichloroethane [79-00-5] ^	13	UD	ug/L	20	13	20	1	EPA 8260B	11/09/11 09:20	JKG	
1,1-Dichloroethane [75-34-3] ^	1.6	UD	ug/L	20	1.6	20	5	EPA 8260B	11/09/11 09:20	JKG	
1,1-Dichloroethene [75-35-4] ^	12	UD	ug/L	20	12	20	5	EPA 8260B	11/09/11 09:20	JKG	
1,2,3-Trichloropropane [96-18-4] ^	14	UD	ug/L	20	14	20	1	EPA 8260B	11/09/11 09:20	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	9.6	UD	ug/L	20	9.6	20	13	EPA 8260B	11/09/11 09:20	JKG	
1,2-Dibromoethane [106-93-4] ^	13	UD	ug/L	20	13	20	1	EPA 8260B	11/09/11 09:20	JKG	
1,2-Dichlorobenzene [95-50-1] ^	2.2	UD	ug/L	20	2.2	20	5	EPA 8260B	11/09/11 09:20	JKG	
1,2-Dichloroethane [107-06-2] ^	9.4	UD	ug/L	20	9.4	20	1	EPA 8260B	11/09/11 09:20	JKG	
1,2-Dichloropropane [78-87-5] ^	12	UD	ug/L	20	12	20	1	EPA 8260B	11/09/11 09:20	JKG	
1,4-Dichlorobenzene [106-46-7] ^	16	UD	ug/L	20	16	20	1	EPA 8260B	11/09/11 09:20	JKG	
2-Butanone [78-93-3] ^	**2800**	D	ug/L	20	26	100	100	EPA 8260B	11/09/11 09:20	JKG	
2-Hexanone [591-78-6] ^	18	UD	ug/L	20	18	100	50	EPA 8260B	11/09/11 09:20	JKG	
4-Methyl-2-pentanone [108-10-1] ^	**98**	JD	ug/L	20	22	100	100	EPA 8260B	11/09/11 09:20	JKG	
Acetone [67-64-1] ^	**4400**	D	ug/L	20	24	100	100	EPA 8260B	11/09/11 09:20	JKG	
Acrylonitrile [107-13-1] ^	70	UD	ug/L	20	70	200	200	EPA 8260B	11/09/11 09:20	JKG	
Benzene [71-43-2] ^	14	UD	ug/L	20	14	20	1	EPA 8260B	11/09/11 09:20	JKG	
Bromochloromethane [74-97-5] ^	17	UD	ug/L	20	17	20	3	EPA 8260B	11/09/11 09:20	JKG	
Bromodichloromethane [75-27-4] ^	15	UD	ug/L	20	15	20	1	EPA 8260B	11/09/11 09:20	JKG	
Bromoform [75-25-2] ^	14	UD	ug/L	20	14	20	3	EPA 8260B	11/09/11 09:20	JKG	
Bromomethane [74-83-9] ^	12	UD	ug/L	20	12	20	10	EPA 8260B	11/09/11 09:20	JKG	
Carbon disulfide [75-15-0] ^	30	UD	ug/L	20	30	100	100	EPA 8260B	11/09/11 09:20	JKG	
Carbon tetrachloride [56-23-5] ^	14	UD	ug/L	20	14	20	1	EPA 8260B	11/09/11 09:20	JKG	
Chlorobenzene [108-90-7] ^	15	UD	ug/L	20	15	20	3	EPA 8260B	11/09/11 09:20	JKG	
Chloroethane [75-00-3] ^	15	UD	ug/L	20	15	20	10	EPA 8260B	11/09/11 09:20	JKG	
Chloroform [67-66-3] ^	14	UD	ug/L	20	14	20	5	EPA 8260B	11/09/11 09:20	JKG	
Chloromethane [74-87-3] ^	11	UD	ug/L	20	11	20	1	EPA 8260B	11/09/11 09:20	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	14	UD	ug/L	20	14	20	5	EPA 8260B	11/09/11 09:20	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	1.5	UD	ug/L	20	1.5	20	1	EPA 8260B	11/09/11 09:20	JKG	
Dibromochloromethane [124-48-1] ^	13	UD	ug/L	20	13	20	3	EPA 8260B	11/09/11 09:20	JKG	
Dibromomethane [74-95-3] ^	18	UD	ug/L	20	18	20	10	EPA 8260B	11/09/11 09:20	JKG	
Ethylbenzene [100-41-4] ^	12	UD	ug/L	20	12	20	1	EPA 8260B	11/09/11 09:20	JKG	
Iodomethane [74-88-4] ^	34	UD	ug/L	20	34	100	10	EPA 8260B	11/09/11 09:20	JKG	
m,p-Xylenes [108-38-3/106-42-3] ^	**37**	JD	ug/L	20	28	40	NE	EPA 8260B	11/09/11 09:20	JKG	
Methylene chloride [75-09-2] ^	2.8	UD	ug/L	20	2.8	20	1	EPA 8260B	11/09/11 09:20	JKG	
o-Xylene [95-47-6] ^	13	UD	ug/L	20	13	20	NE	EPA 8260B	11/09/11 09:20	JKG	
Styrene [100-42-5] ^	1.1	UD	ug/L	20	1.1	20	1	EPA 8260B	11/09/11 09:20	JKG	
Tetrachloroethene [127-18-4] ^	15	UD	ug/L	20	15	20	1	EPA 8260B	11/09/11 09:20	JKG	
Toluene [108-88-3] ^	**41**	D	ug/L	20	17	20	1	EPA 8260B	11/09/11 09:20	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	2.4	UD	ug/L	20	2.4	20	5	EPA 8260B	11/09/11 09:20	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	10	UD	ug/L	20	10	20	1	EPA 8260B	11/09/11 09:20	JKG	

www.encolabs.com

Description: 9209-Leachate
Matrix: Ground Water
Project: N Wake Lined Leachate

Lab Sample ID: C113288-01
Sampled: 11/02/11 11:00
Sampled By: Aaron Weispfenning

Received: 11/02/11 11:54
Work Order: C113288

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
trans-1,4-Dichloro-2-butene [110-57-6] ^	14	UD	ug/L	20	14	20	100	EPA 8260B	11/09/11 09:20	JKG	
Trichloroethene [79-01-6] ^	14	UD	ug/L	20	14	20	1	EPA 8260B	11/09/11 09:20	JKG	
Trichlorofluoromethane [75-69-4] ^	13	UD	ug/L	20	13	20	1	EPA 8260B	11/09/11 09:20	JKG	
Vinyl acetate [108-05-4] ^	19	UD	ug/L	20	19	100	50	EPA 8260B	11/09/11 09:20	JKG	
Vinyl chloride [75-01-4] ^	12	UD	ug/L	20	12	20	1	EPA 8260B	11/09/11 09:20	JKG	
Xylenes (Total) [1330-20-7] ^	**46**	JD	ug/L	20	42	60	5	EPA 8260B	11/09/11 09:20	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*46*	*1*	*50.0*	*92 %*	*51-122*	*1K08008*	*EPA 8260B*	*11/09/11 09:20*	*JKG*	
Dibromofluoromethane	*46*	*1*	*50.0*	*92 %*	*68-117*	*1K08008*	*EPA 8260B*	*11/09/11 09:20*	*JKG*	
Toluene-d8	*48*	*1*	*50.0*	*97 %*	*67-127*	*1K08008*	*EPA 8260B*	*11/09/11 09:20*	*JKG*	

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Lab Sample ID: C113288-01
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Work Order: C113288

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

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Antimony [7440-36-0] ^	**0.851**	J	ug/L	1	0.220	2.00	6	EPA 6020A	11/08/11 11:16	VLO	
Arsenic [7440-38-2] ^	**159**		ug/L	1	2.80	10.0	10	EPA 6010C	11/07/11 12:13	JDH	
Barium [7440-39-3] ^	**248**		ug/L	1	1.00	10.0	100	EPA 6010C	11/07/11 12:13	JDH	
Beryllium [7440-41-7] ^	0.100	U	ug/L	1	0.100	1.00	1	EPA 6010C	11/07/11 12:13	JDH	
Cadmium [7440-43-9] ^	**0.799**	J	ug/L	1	0.360	1.00	1	EPA 6010C	11/07/11 12:13	JDH	
Chromium [7440-47-3] ^	**249**		ug/L	1	1.00	10.0	10	EPA 6010C	11/07/11 12:13	JDH	
Cobalt [7440-48-4] ^	**48.7**		ug/L	1	1.10	10.0	10	EPA 6010C	11/07/11 12:13	JDH	
Copper [7440-50-8] ^	**4.02**	JB	ug/L	1	1.60	10.0	10	EPA 6010C	11/07/11 12:13	JDH	J
Lead [7439-92-1] ^	**2.36**	J	ug/L	1	1.90	10.0	10	EPA 6010C	11/07/11 12:13	JDH	
Nickel [7440-02-0] ^	**197**	B	ug/L	1	1.80	10.0	50	EPA 6010C	11/07/11 12:13	JDH	QB-01
Selenium [7782-49-2] ^	**3.01**	J	ug/L	1	0.830	1.00	10	EPA 6020A	11/08/11 11:16	VLO	
Silver [7440-22-4] ^	**7.00**	J	ug/L	1	1.90	10.0	10	EPA 6010C	11/07/11 12:13	JDH	
Thallium [7440-28-0] ^	0.110	U	ug/L	1	0.110	1.00	5.5	EPA 6020A	11/08/11 11:16	VLO	
Vanadium [7440-62-2] ^	**138**		ug/L	1	1.40	10.0	25	EPA 6010C	11/07/11 12:13	JDH	
Zinc [7440-66-6] ^	**77.5**		ug/L	1	3.80	10.0	10	EPA 6010C	11/07/11 12:13	JDH	

www.encolabs.com

Description: 9209-Leachate
Matrix: Ground Water
Project: N Wake Lined Leachate

Lab Sample ID: C113288-01
Sampled: 11/02/11 11:00
Sampled By: Aaron Weispfenning

Received: 11/02/11 11:54
Work Order: C113288

Classical Chemistry Parameters

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Biochemical Oxygen Demand [ECL-0017] ^	**1900000**		ug/L	1	2000	2000	NE	SM 5210B	11/03/11 16:09	JOC	
Chemical Oxygen Demand [ECL-0035] ^	**3500000**		ug/L	1	40000	40000	NE	SM 5220D	11/11/11 15:29	JOC	
Nitrate as N [14797-55-8] ^	25	U	ug/L	1	25	100	10000	EPA 353.2	11/07/11 13:33	CCB	
Nitrate/Nitrite as N [ECL-0010] ^	**58**	J	ug/L	1	25	100	NE	EPA 353.2	11/03/11 11:51	CCB	
Nitrite as N [14797-65-0] ^	**39**	J	ug/L	1	3.0	100	1000	EPA 353.2	11/02/11 13:48	CCB	
Phosphorus [7723-14-0] ^	**5400**	D	ug/L	10	210	1000	NE	EPA 365.4	11/07/11 16:11	CCB	
Sulfate as SO4 [14808-79-8] ^	**22000**	J	ug/L	1	20	5000	250000	EPA 300.0	11/08/11 08:24	CCB	

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

www.encolabs.com

Description: 9209-TripBlank
Matrix: Water
Project: N Wake Lined Leachate

Lab Sample ID: C113288-02
Sampled: 11/02/11 11:00
Sampled By: ENCO

Received: 11/02/11 11:54
Work Order: C113288

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
1,1,1,2-Tetrachloroethane [630-20-6] ^	0.90	U	ug/L	1	0.90	1.0	5	EPA 8260B	11/09/11 08:51	JKG	
1,1,1-Trichloroethane [71-55-6] ^	0.65	U	ug/L	1	0.65	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
1,1,2,2-Tetrachloroethane [79-34-5] ^	0.75	U	ug/L	1	0.75	1.0	3	EPA 8260B	11/09/11 08:51	JKG	
1,1,2-Trichloroethane [79-00-5] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
1,1-Dichloroethane [75-34-3] ^	0.080	U	ug/L	1	0.080	1.0	5	EPA 8260B	11/09/11 08:51	JKG	
1,1-Dichloroethene [75-35-4] ^	0.60	U	ug/L	1	0.60	1.0	5	EPA 8260B	11/09/11 08:51	JKG	
1,2,3-Trichloropropane [96-18-4] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
1,2-Dibromo-3-chloropropane [96-12-8] ^	0.48	U	ug/L	1	0.48	1.0	13	EPA 8260B	11/09/11 08:51	JKG	
1,2-Dibromoethane [106-93-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
1,2-Dichlorobenzene [95-50-1] ^	0.11	U	ug/L	1	0.11	1.0	5	EPA 8260B	11/09/11 08:51	JKG	
1,2-Dichloroethane [107-06-2] ^	0.47	U	ug/L	1	0.47	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
1,2-Dichloropropane [78-87-5] ^	0.59	U	ug/L	1	0.59	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
1,4-Dichlorobenzene [106-46-7] ^	0.79	U	ug/L	1	0.79	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
2-Butanone [78-93-3] ^	1.3	U	ug/L	1	1.3	5.0	100	EPA 8260B	11/09/11 08:51	JKG	
2-Hexanone [591-78-6] ^	0.88	U	ug/L	1	0.88	5.0	50	EPA 8260B	11/09/11 08:51	JKG	
4-Methyl-2-pentanone [108-10-1] ^	1.1	U	ug/L	1	1.1	5.0	100	EPA 8260B	11/09/11 08:51	JKG	
Acetone [67-64-1] ^	1.2	U	ug/L	1	1.2	5.0	100	EPA 8260B	11/09/11 08:51	JKG	
Acrylonitrile [107-13-1] ^	3.5	U	ug/L	1	3.5	10	200	EPA 8260B	11/09/11 08:51	JKG	
Benzene [71-43-2] ^	0.68	U	ug/L	1	0.68	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
Bromochloromethane [74-97-5] ^	0.87	U	ug/L	1	0.87	1.0	3	EPA 8260B	11/09/11 08:51	JKG	
Bromodichloromethane [75-27-4] ^	0.75	U	ug/L	1	0.75	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
Bromoform [75-25-2] ^	0.68	U	ug/L	1	0.68	1.0	3	EPA 8260B	11/09/11 08:51	JKG	
Bromomethane [74-83-9] ^	0.58	U	ug/L	1	0.58	1.0	10	EPA 8260B	11/09/11 08:51	JKG	
Carbon disulfide [75-15-0] ^	1.5	U	ug/L	1	1.5	5.0	100	EPA 8260B	11/09/11 08:51	JKG	
Carbon tetrachloride [56-23-5] ^	0.69	U	ug/L	1	0.69	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
Chlorobenzene [108-90-7] ^	0.74	U	ug/L	1	0.74	1.0	3	EPA 8260B	11/09/11 08:51	JKG	
Chloroethane [75-00-3] ^	0.75	U	ug/L	1	0.75	1.0	10	EPA 8260B	11/09/11 08:51	JKG	
Chloroform [67-66-3] ^	0.70	U	ug/L	1	0.70	1.0	5	EPA 8260B	11/09/11 08:51	JKG	
Chloromethane [74-87-3] ^	0.55	U	ug/L	1	0.55	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
cis-1,2-Dichloroethene [156-59-2] ^	0.72	U	ug/L	1	0.72	1.0	5	EPA 8260B	11/09/11 08:51	JKG	
cis-1,3-Dichloropropene [10061-01-5] ^	0.075	U	ug/L	1	0.075	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
Dibromochloromethane [124-48-1] ^	0.63	U	ug/L	1	0.63	1.0	3	EPA 8260B	11/09/11 08:51	JKG	
Dibromomethane [74-95-3] ^	0.90	U	ug/L	1	0.90	1.0	10	EPA 8260B	11/09/11 08:51	JKG	
Ethylbenzene [100-41-4] ^	0.62	U	ug/L	1	0.62	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
Iodomethane [74-88-4] ^	1.7	U	ug/L	1	1.7	5.0	10	EPA 8260B	11/09/11 08:51	JKG	
m,p-Xylenes [108-38-3/106-42-3] ^	1.4	U	ug/L	1	1.4	2.0	NE	EPA 8260B	11/09/11 08:51	JKG	
Methylene chloride [75-09-2] ^	0.14	U	ug/L	1	0.14	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
o-Xylene [95-47-6] ^	0.63	U	ug/L	1	0.63	1.0	NE	EPA 8260B	11/09/11 08:51	JKG	
Styrene [100-42-5] ^	0.053	U	ug/L	1	0.053	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
Tetrachloroethene [127-18-4] ^	0.73	U	ug/L	1	0.73	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
Toluene [108-88-3] ^	0.85	U	ug/L	1	0.85	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
trans-1,2-Dichloroethene [156-60-5] ^	0.12	U	ug/L	1	0.12	1.0	5	EPA 8260B	11/09/11 08:51	JKG	
trans-1,3-Dichloropropene [10061-02-6] ^	0.50	U	ug/L	1	0.50	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
trans-1,4-Dichloro-2-butene [110-57-6] ^	0.70	U	ug/L	1	0.70	1.0	100	EPA 8260B	11/09/11 08:51	JKG	
Trichloroethene [79-01-6] ^	0.72	U	ug/L	1	0.72	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
Trichlorofluoromethane [75-69-4] ^	0.66	U	ug/L	1	0.66	1.0	1	EPA 8260B	11/09/11 08:51	JKG	

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Description: 9209-TripBlank
Matrix: Water
Project: N Wake Lined Leachate

Lab Sample ID: C113288-02
Sampled: 11/02/11 11:00
Sampled By: ENCO

Received: 11/02/11 11:54
Work Order: C113288

Volatile Organic Compounds by GCMS

^ - ENCO Cary certified analyte [NC 591]

Analyte [CAS Number]	Results	Flag	Units	DF	MDL	MRL	NC SWSL	Method	Analyzed	By	Notes
Vinyl acetate [108-05-4] ^	0.95	U	ug/L	1	0.95	5.0	50	EPA 8260B	11/09/11 08:51	JKG	
Vinyl chloride [75-01-4] ^	0.60	U	ug/L	1	0.60	1.0	1	EPA 8260B	11/09/11 08:51	JKG	
Xylenes (Total) [1330-20-7] ^	2.1	U	ug/L	1	2.1	3.0	5	EPA 8260B	11/09/11 08:51	JKG	

Surrogates	*Results*	*DF*	*Spike Lvl*	*% Rec*	*% Rec Limits*	*Batch*	*Method*	*Analyzed*	*By*	Notes
4-Bromofluorobenzene	*49*	*1*	*50.0*	*97 %*	*51-122*	*1K08008*	*EPA 8260B*	*11/09/11 08:51*	*JKG*	
Dibromofluoromethane	*48*	*1*	*50.0*	*97 %*	*68-117*	*1K08008*	*EPA 8260B*	*11/09/11 08:51*	*JKG*	
Toluene-d8	*50*	*1*	*50.0*	*100 %*	*67-127*	*1K08008*	*EPA 8260B*	*11/09/11 08:51*	*JKG*	

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

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 1K08008 - EPA 5030B_MS

Blank (1K08008-BLK1) Prepared: 11/08/2011 09:10 Analyzed: 11/08/2011 23:44

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1,1,2-Tetrachloroethane	0.90	U	1.0	ug/L							
1,1,1-Trichloroethane	0.65	U	1.0	ug/L							
1,1,2,2-Tetrachloroethane	0.75	U	1.0	ug/L							
1,1,2-Trichloroethane	0.66	U	1.0	ug/L							
1,1-Dichloroethane	0.080	U	1.0	ug/L							
1,1-Dichloroethene	0.60	U	1.0	ug/L							
1,2,3-Trichloropropane	0.72	U	1.0	ug/L							
1,2-Dibromo-3-chloropropane	0.48	U	1.0	ug/L							
1,2-Dibromoethane	0.66	U	1.0	ug/L							
1,2-Dichlorobenzene	0.11	U	1.0	ug/L							
1,2-Dichloroethane	0.47	U	1.0	ug/L							
1,2-Dichloropropane	0.59	U	1.0	ug/L							
1,4-Dichlorobenzene	0.79	U	1.0	ug/L							
2-Butanone	1.3	U	5.0	ug/L							
2-Hexanone	0.88	U	5.0	ug/L							
4-Methyl-2-pentanone	1.1	U	5.0	ug/L							
Acetone	1.2	U	5.0	ug/L							
Acrylonitrile	3.5	U	10	ug/L							
Benzene	0.68	U	1.0	ug/L							
Bromochloromethane	0.87	U	1.0	ug/L							
Bromodichloromethane	0.75	U	1.0	ug/L							
Bromoform	0.68	U	1.0	ug/L							
Bromomethane	0.58	U	1.0	ug/L							
Carbon disulfide	1.5	U	5.0	ug/L							
Carbon tetrachloride	0.69	U	1.0	ug/L							
Chlorobenzene	0.74	U	1.0	ug/L							
Chloroethane	0.75	U	1.0	ug/L							
Chloroform	0.70	U	1.0	ug/L							
Chloromethane	0.55	U	1.0	ug/L							
cis-1,2-Dichloroethene	0.72	U	1.0	ug/L							
cis-1,3-Dichloropropene	0.075	U	1.0	ug/L							
Dibromochloromethane	0.63	U	1.0	ug/L							
Dibromomethane	0.90	U	1.0	ug/L							
Ethylbenzene	0.62	U	1.0	ug/L							
Iodomethane	1.7	U	5.0	ug/L							
m,p-Xylenes	1.4	U	2.0	ug/L							
Methylene chloride	0.14	U	1.0	ug/L							
o-Xylene	0.63	U	1.0	ug/L							
Styrene	0.053	U	1.0	ug/L							
Tetrachloroethene	0.73	U	1.0	ug/L							
Toluene	0.85	U	1.0	ug/L							
trans-1,2-Dichloroethene	0.12	U	1.0	ug/L							
trans-1,3-Dichloropropene	0.50	U	1.0	ug/L							
trans-1,4-Dichloro-2-butene	0.70	U	1.0	ug/L							
Trichloroethene	0.72	U	1.0	ug/L							
Trichlorofluoromethane	0.66	U	1.0	ug/L							
Vinyl acetate	0.95	U	5.0	ug/L							
Vinyl chloride	0.60	U	1.0	ug/L							
Xylenes (Total)	2.1	U	3.0	ug/L							

QUALITY CONTROL

Volatile Organic Compounds by GCMS - Quality Control

Batch 1K08008 - EPA 5030B_MS

Blank (1K08008-BLK1) Continued Prepared: 11/08/2011 09:10 Analyzed: 11/08/2011 23:44

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Surrogate: 4-Bromofluorobenzene	*46*			*ug/L*	*50.0*		*92*	*51-122*			
Surrogate: Dibromofluoromethane	*49*			*ug/L*	*50.0*		*97*	*68-117*			
Surrogate: Toluene-d8	*48*			*ug/L*	*50.0*		*96*	*67-127*			

LCS (1K08008-BS1) Prepared: 11/08/2011 09:10 Analyzed: 11/09/2011 00:13

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	18		1.0	ug/L	20.0		90	75-133			
Benzene	19		1.0	ug/L	20.0		97	81-134			
Chlorobenzene	20		1.0	ug/L	20.0		100	83-117			
Toluene	20		1.0	ug/L	20.0		100	71-118			
Trichloroethene	20		1.0	ug/L	20.0		101	75-115			
Surrogate: 4-Bromofluorobenzene	*46*			*ug/L*	*50.0*		*91*	*51-122*			
Surrogate: Dibromofluoromethane	*46*			*ug/L*	*50.0*		*93*	*68-117*			
Surrogate: Toluene-d8	*49*			*ug/L*	*50.0*		*97*	*67-127*			

Matrix Spike (1K08008-MS1) Prepared: 11/08/2011 09:10 Analyzed: 11/09/2011 00:42

Source: C113583-10

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	20		1.0	ug/L	20.0	0.60 U	99	75-133			
Benzene	20		1.0	ug/L	20.0	0.68 U	99	81-134			
Chlorobenzene	21		1.0	ug/L	20.0	0.74 U	105	83-117			
Toluene	21		1.0	ug/L	20.0	0.85 U	105	71-118			
Trichloroethene	22		1.0	ug/L	20.0	0.72 U	109	75-115			
Surrogate: 4-Bromofluorobenzene	*47*			*ug/L*	*50.0*		*93*	*51-122*			
Surrogate: Dibromofluoromethane	*46*			*ug/L*	*50.0*		*92*	*68-117*			
Surrogate: Toluene-d8	*49*			*ug/L*	*50.0*		*99*	*67-127*			

Matrix Spike Dup (1K08008-MSD1) Prepared: 11/08/2011 09:10 Analyzed: 11/09/2011 01:11

Source: C113583-10

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
1,1-Dichloroethene	19		1.0	ug/L	20.0	0.60 U	97	75-133	2	20	
Benzene	20		1.0	ug/L	20.0	0.68 U	99	81-134	0.2	17	
Chlorobenzene	21		1.0	ug/L	20.0	0.74 U	103	83-117	2	16	
Toluene	21		1.0	ug/L	20.0	0.85 U	104	71-118	0.3	17	
Trichloroethene	22		1.0	ug/L	20.0	0.72 U	110	75-115	0.8	18	
Surrogate: 4-Bromofluorobenzene	*48*			*ug/L*	*50.0*		*95*	*51-122*			
Surrogate: Dibromofluoromethane	*46*			*ug/L*	*50.0*		*92*	*68-117*			
Surrogate: Toluene-d8	*50*			*ug/L*	*50.0*		*99*	*67-127*			

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

Batch 1K03011 - EPA 3005A

Blank (1K03011-BLK1) Prepared: 11/03/2011 09:29 Analyzed: 11/07/2011 11:07

QUALITY CONTROL

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

Batch 1K03011 - EPA 3005A

Blank (1K03011-BLK1) Continued Prepared: 11/03/2011 09:29 Analyzed: 11/07/2011 11:07

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	2.80	U	10.0	ug/L							
Barium	1.00	U	10.0	ug/L							
Beryllium	0.100	U	1.00	ug/L							
Cadmium	0.360	U	1.00	ug/L							
Chromium	1.00	U	10.0	ug/L							
Cobalt	1.10	U	10.0	ug/L							
Copper	**2.59**	**J**	10.0	ug/L							
Lead	1.90	U	10.0	ug/L							
Nickel	**1.86**	**J**	10.0	ug/L							
Silver	1.90	U	10.0	ug/L							
Vanadium	1.40	U	10.0	ug/L							
Zinc	3.80	U	10.0	ug/L							

LCS (1K03011-BS1) Prepared: 11/03/2011 09:29 Analyzed: 11/07/2011 11:14

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	211		10.0	ug/L	200		106	80-120			
Barium	203		10.0	ug/L	200		102	80-120			
Beryllium	20.2		1.00	ug/L	20.0		101	80-120			
Cadmium	21.3		1.00	ug/L	20.0		106	80-120			
Chromium	206		10.0	ug/L	200		103	80-120			
Cobalt	212		10.0	ug/L	200		106	80-120			
Copper	206	B	10.0	ug/L	200		103	80-120			
Lead	208		10.0	ug/L	200		104	80-120			
Nickel	210	B	10.0	ug/L	200		105	80-120			
Silver	213		10.0	ug/L	200		107	80-120			
Vanadium	205		10.0	ug/L	200		102	80-120			
Zinc	219		10.0	ug/L	200		110	80-120			

Matrix Spike (1K03011-MS1) Prepared: 11/03/2011 09:29 Analyzed: 11/07/2011 11:20

Source: C113286-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	218		10.0	ug/L	200	2.80 U	109	75-125			
Barium	332		10.0	ug/L	200	123	104	75-125			
Beryllium	21.5		1.00	ug/L	20.0	0.100 U	108	75-125			
Cadmium	22.0		1.00	ug/L	20.0	0.360 U	110	75-125			
Chromium	215		10.0	ug/L	200	3.28	106	75-125			
Cobalt	219		10.0	ug/L	200	2.17	108	75-125			
Copper	211	B	10.0	ug/L	200	1.60 U	106	75-125			
Lead	214		10.0	ug/L	200	1.90 U	107	75-125			
Nickel	217	B	10.0	ug/L	200	5.83	106	75-125			
Silver	221		10.0	ug/L	200	1.90 U	111	75-125			
Vanadium	213		10.0	ug/L	200	1.40 U	107	75-125			
Zinc	232		10.0	ug/L	200	8.33	112	75-125			

Matrix Spike Dup (1K03011-MSD1) Prepared: 11/03/2011 09:29 Analyzed: 11/07/2011 11:22

QUALITY CONTROL

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

Batch 1K03011 - EPA 3005A

Matrix Spike Dup (1K03011-MSD1) Continued Prepared: 11/03/2011 09:29 Analyzed: 11/07/2011 11:22

Source: C113286-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	223		10.0	ug/L	200	2.80 U	112	75-125	2	20	
Barium	334		10.0	ug/L	200	123	106	75-125	0.8	20	
Beryllium	21.8		1.00	ug/L	20.0	0.100 U	109	75-125	1	20	
Cadmium	22.4		1.00	ug/L	20.0	0.360 U	112	75-125	2	20	
Chromium	217		10.0	ug/L	200	3.28	107	75-125	1	20	
Cobalt	226		10.0	ug/L	200	2.17	112	75-125	3	20	
Copper	215	B	10.0	ug/L	200	1.60 U	107	75-125	2	20	
Lead	220		10.0	ug/L	200	1.90 U	110	75-125	3	20	
Nickel	220	B	10.0	ug/L	200	5.83	107	75-125	1	20	
Silver	224		10.0	ug/L	200	1.90 U	112	75-125	1	20	
Vanadium	216		10.0	ug/L	200	1.40 U	108	75-125	1	20	
Zinc	238		10.0	ug/L	200	8.33	115	75-125	3	20	

Post Spike (1K03011-PS1) Prepared: 11/03/2011 09:29 Analyzed: 11/07/2011 11:24

Source: C113286-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Arsenic	0.212		0.0100	mg/L	0.200	-0.00323	107	80-120			
Barium	0.316		0.0100	mg/L	0.200	0.123	96	80-120			
Beryllium	0.0204		0.00100	mg/L	0.0200	-0.000147	103	80-120			
Cadmium	0.0210		0.00100	mg/L	0.0200	0.000202	104	80-120			
Chromium	0.204		0.0100	mg/L	0.200	0.00328	100	80-120			
Cobalt	0.208		0.0100	mg/L	0.200	0.00217	103	80-120			
Copper	0.200	B	0.0100	mg/L	0.200	0.000705	100	80-120			
Lead	0.202		0.0100	mg/L	0.200	-0.00154	102	80-120			
Nickel	0.206	B	0.0100	mg/L	0.200	0.00583	100	80-120			
Silver	0.209		0.0100	mg/L	0.200	0.00158	104	80-120			
Vanadium	0.202		0.0100	mg/L	0.200	-0.000482	101	80-120			
Zinc	0.221		0.0100	mg/L	0.200	0.00833	106	80-120			

Batch 1K03013 - EPA 3005A

Blank (1K03013-BLK1) Prepared: 11/03/2011 09:57 Analyzed: 11/08/2011 10:54

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

LCS (1K03013-BS1) Prepared: 11/03/2011 09:57 Analyzed: 11/08/2011 12:34

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	205		2.00	ug/L	200		102	80-120			
Selenium	214		1.00	ug/L	200		107	80-120			
Thallium	203		1.00	ug/L	200		102	80-120			

QUALITY CONTROL

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

Batch 1K03013 - EPA 3005A

Matrix Spike (1K03013-MS1) Prepared: 11/03/2011 09:57 Analyzed: 11/08/2011 12:12

Source: C113287-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	193		2.00	ug/L	200	0.220 U	97	75-125			
Selenium	219		1.00	ug/L	200	0.830 U	109	75-125			
Thallium	185		1.00	ug/L	200	0.110 U	93	75-125			

Matrix Spike Dup (1K03013-MSD1) Prepared: 11/03/2011 09:57 Analyzed: 11/08/2011 12:14

Source: C113287-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	190		2.00	ug/L	200	0.220 U	95	75-125	2	20	
Selenium	224		1.00	ug/L	200	0.830 U	112	75-125	2	20	
Thallium	188		1.00	ug/L	200	0.110 U	94	75-125	2	20	

Post Spike (1K03013-PS1) Prepared: 11/03/2011 09:57 Analyzed: 11/08/2011 11:03

Source: C113287-04

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Antimony	200		2.00	ug/L	200	-0.0158	100	80-120			
Selenium	228		1.00	ug/L	200	0.119	114	80-120			
Thallium	197		1.00	ug/L	200	-0.0602	99	80-120			

Classical Chemistry Parameters - Quality Control

Batch 1K02001 - NO PREP

Blank (1K02001-BLK1) Prepared: 11/02/2011 07:23 Analyzed: 11/02/2011 07:23

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	3.0	U	100	ug/L							

LCS (1K02001-BS1) Prepared: 11/02/2011 07:25 Analyzed: 11/02/2011 07:25

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	0.98		0.10	mg/L	1.00		98	90-110			

Matrix Spike (1K02001-MS1) Prepared: 11/02/2011 08:05 Analyzed: 11/02/2011 08:05

Source: C113215-01RE1

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	1.7		0.10	mg/L	1.00	0.75	100	90-110			

Matrix Spike Dup (1K02001-MSD1) Prepared: 11/02/2011 08:06 Analyzed: 11/02/2011 08:06

Source: C113215-01RE1

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrite as N	1.8		0.10	mg/L	1.00	0.75	101	90-110	0.4	10	

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QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 1K03004 - NO PREP

Blank (1K03004-BLK1) Prepared: 11/03/2011 05:48 Analyzed: 11/03/2011 11:34

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	25	U	100	ug/L							

LCS (1K03004-BS1) Prepared: 11/03/2011 05:48 Analyzed: 11/03/2011 11:36

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	1.3		0.10	mg/L	1.25		102	90-110			

Matrix Spike (1K03004-MS1) Prepared: 11/03/2011 05:48 Analyzed: 11/03/2011 12:24

Source: C113137-01RE1

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	1.3		0.10	mg/L	0.513	0.77	97	90-110			

Matrix Spike Dup (1K03004-MSD1) Prepared: 11/03/2011 05:48 Analyzed: 11/03/2011 12:25

Source: C113137-01RE1

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Nitrate/Nitrite as N	1.3		0.10	mg/L	0.513	0.77	98	90-110	0.1	10	

Batch 1K03021 - NO PREP

Blank (1K03021-BLK1) Prepared & Analyzed: 11/03/2011 16:09

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Biochemical Oxygen Demand	2000	U	2000	ug/L							B-03

LCS (1K03021-BS1) Prepared & Analyzed: 11/03/2011 16:09

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Biochemical Oxygen Demand	190		2.0	mg/L	198		95	85-115			

Duplicate (1K03021-DUP1) Prepared & Analyzed: 11/03/2011 16:09

Source: C108950-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Biochemical Oxygen Demand	2000	U	2000	ug/L		2000 U				25	

Batch 1K04003 - Same

Blank (1K04003-BLK1) Prepared: 11/04/2011 11:05 Analyzed: 11/07/2011 15:28

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Phosphorus	21	U	100	ug/L							

LCS (1K04003-BS1) Prepared: 11/04/2011 11:05 Analyzed: 11/07/2011 15:30

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 1K04003 - Same

LCS (1K04003-BS1) Continued Prepared: 11/04/2011 11:05 Analyzed: 11/07/2011 15:30

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Phosphorus	1.6		0.10	mg/L	1.60		99	80-120			

Matrix Spike (1K04003-MS1) Prepared: 11/04/2011 11:05 Analyzed: 11/07/2011 15:32

Source: C112053-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Phosphorus	1.7		0.10	mg/L	0.640	1.0	114	80-120			

Matrix Spike Dup (1K04003-MSD1) Prepared: 11/04/2011 11:05 Analyzed: 11/07/2011 15:34

Source: C112053-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Phosphorus	1.6		0.10	mg/L	0.640	1.0	101	80-120	5	25	

Batch 1K07021 - NO PREP

Blank (1K07021-BLK1) Prepared: 11/07/2011 13:26 Analyzed: 11/07/2011 23:03

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

LCS (1K07021-BS1) Prepared: 11/07/2011 13:26 Analyzed: 11/07/2011 23:21

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate as SO4	48		5.0	mg/L	50.0		95	90-110			

Matrix Spike (1K07021-MS1) Prepared: 11/07/2011 13:26 Analyzed: 11/07/2011 23:38

Source: C113257-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate as SO4	28		5.0	mg/L	20.0	11	87	90-110			QM-05

Matrix Spike Dup (1K07021-MSD1) Prepared: 11/07/2011 13:26 Analyzed: 11/07/2011 23:56

Source: C113257-02

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Sulfate as SO4	28		5.0	mg/L	20.0	11	89	90-110	1	10	QM-05

Batch 1K11013 - Same

Blank (1K11013-BLK1) Prepared: 11/11/2011 11:57 Analyzed: 11/11/2011 15:29

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chemical Oxygen Demand	10000	U	10000	ug/L							

LCS (1K11013-BS1) Prepared: 11/11/2011 11:57 Analyzed: 11/11/2011 15:29

QUALITY CONTROL

Classical Chemistry Parameters - Quality Control

Batch 1K11013 - Same

LCS (1K11013-BS1) Continued Prepared: 11/11/2011 11:57 Analyzed: 11/11/2011 15:29

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chemical Oxygen Demand	500		10	mg/L	500		100	90-110			

Matrix Spike (1K11013-MS1) Prepared: 11/11/2011 11:57 Analyzed: 11/11/2011 15:29

Source: C112088-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chemical Oxygen Demand	650		10	mg/L	500	150	100	90-110			

Matrix Spike Dup (1K11013-MSD1) Prepared: 11/11/2011 11:57 Analyzed: 11/11/2011 15:29

Source: C112088-01

Analyte	Result	Flag	MRL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Chemical Oxygen Demand	650		10	mg/L	500	150	102	90-110	1	10	

FLAGS/NOTES AND DEFINITIONS

B	The analyte was detected in the associated method blank.
D	The sample was analyzed at dilution.
J	The reported value is between the laboratory method detection limit (MDL) and the laboratory method reporting limit (MRL), adjusted for actual sample preparation data and moisture content, where applicable.
U	The analyte was analyzed for but not detected to the level shown, adjusted for actual sample preparation data and moisture content, where applicable.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument. This value is considered an estimate.
MRL	Method Reporting Limit. The MRL is roughly equivalent to the practical quantitation limit (PQL) and is based on the low point of the calibration curve, when applicable, sample preparation factor, dilution factor, and, in the case of soil samples, moisture content.
B-03	Blank exceeds the method required oxygen depletion of < 0.2 mg/L.
QB-01	The method blank had a positive result for the analyte; however, the concentration in the method blank is less than 10% of the sample result, which minimizes the impact of the deviation.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.

ENVIRONMENTAL CONSERVATION LABORATORIES CHAIN-OF-CUSTODY RECORD

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Client Name: CDM (CD004)	Project Number: [none]
Address: 5400 GLENWOOD AVE SUITE 300	Project Name/Desc: N Wake Lined Leachate
City/ST/Zip: RALEIGH, NC 27612-	PO # / Billing Info
Tel: 325-3500 Fax: ()-	Reporting Contact: Aaron Weispfenning
Sampler(s) Name, Affiliation (Print): Aaron Weispfenning CDM	Billing Contact: Anarosa Jones
Sampler(s) Signature: [signature]	Site Location / Time Zone

Requested Analyses

Requested Turnaround Times

Note : Rush requests subject to acceptance by the facility

X Standard

___ Expedited

Due ___/___/___

Lab Workorder: C113288

Preservation (See Codes) (Combine as necessary)

Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers	8260B Appendix 1	Ag,As,Ba,Be,Cd,Co,Cr,Cu,Ni,Pb,Sb,Se,Tl,V,Zn	BOD SM5210B	COD SM5220D	Nitrate Calc 353.2	Nitrite as N 353.2	NOX 353.2,P	Sulfate 300			Sample Comments
	9209-Leachate	11/2/11	1100	G	GW	7	X	X	X	X	X	X	X	X			- report according to SW's guidelines
	9209-TripBlank	—	—	—	WA	2	X										- provide edd
																	- report "J" values

<-- Total # of Containers

Sample Kit Prepared By	Date/Time	Relinquished By: [signature]	Date/Time: 11/2/11 1155	Received By	Date/Time
Comments/Special Reporting Requirements		Relinquished By	Date/Time	Received By	Date/Time
		Relinquished By	Date/Time	Received By: [signature]	Date/Time: 11/2/11 1154
		Cooler #'s & Temps on Receipt: 0.5°C		Condition Upon Receipt: X Acceptable ___ Unacceptable	

Matrix : GW-Groundwater SO-Soil DW-Drinking Water SE-Sediment SW-Surface Water WW-Wastewater A-Air O-Other (detail in comments) Preservation: I-Ice H-HCl N-HNO3 S-H2SO4 NO-NaOH O-Other (detail in comments)

Note : All samples submitted to ENCO Labs are in accordance with the terms and conditions listed on the reverse of this form, unless prior written agreements exist