Semi-Annual Water Quality Monitoring Report

Prepared for

Alexander County Active C&D and Closed MSWLF
Taylorsville, North Carolina

June 2013

UIC Permit Number:WI0300160
Facility Permit Number: 02-01
MESCO Project Number: G10059.0

Submitted: October 24, 2013

P.O. Box 97
Garner, NC 27529
License No. C-0281

Municipal Services Garner, NC
Engineering Company, P.A. Boone, NC
Municipal Engineering Services Company, P.A.
Garner and Boone, North Carolina

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License No. C-0281

CIVIL/SANITARY/ENVIRONMENTAL ENGINEERS

SOLID WASTE MANAGEMENT

Municipal Services Engineering Company, P.A.

SITE PLANNING/SUBDIVISIONS

SUBSURFACE UTILITY ENGINEERING (SUE)

October 24, 2013

Mr. Thomas Slusser, P.G.
Aquifer Protection Section-Underground Injection Control Staff
Division of Water Quality
North Carolina Department of Environment and Natural Resources
1636 Mail Service Center
Raleigh, NC 27699-1636

Re: ***Semi-Annual Water Quality Monitoring Report***
Alexander County Active C&D and Closed MSWLF
2500 Paynes Dairy Road
Taylorsville, NC 28681
SWS Permit No. 02-01
UIC Permit No. WI0300160
MESCO Project No. G10059.0
Event Date(s):June 27, 2013

Dear Mr. Slusser:

Introduction

On behalf of Alexander County, Municipal Engineering Services Company, P.A. (MESCO) is pleased to present this brief Semi-Annual *Water Quality Monitoring Report* for the summer 2013 event performed at the Alexander County active construction and demolition (C&D) and closed municipal solid waste landfill (MSWLF). *Injection Well Permit* (January 31, 2013) requires that Alexander County provide this report to the Underground Injection Control (UIC) program on a semi-annual basis. This report documents the quality of the groundwater in the MW-26 area of concern (AOC) during this monitoring event performed on June 27, 2013.

Latest laboratory analytical results indicate that concentrations of benzene continues to persist within MW-26 located at the compliance boundary downgradient of the injection point. During this event total VOCs and benzene concentrations have decreased downgradient and upgradient of the injection point compared to their respective baseline averages established during the four events prior to the February 2011 injection event.

Background

The Alexander County active C&D and closed MSWLF, is located at 2500 Paynes Dairy Road near Taylorsville North Carolina. The site location topographic map is depicted in the attached **Figure 1**.

Per the SWS approved *Corrective Action Plan* (*CAP*) enhanced bioremediation via substrate injection in Area of Concern (AOC) MW-26 was initiated in accordance with requirements outlined in the *Injection Well Permit Application* and Well Permit No. WI0300160 (11/25/10). To attempt to remediate low level benzene concentrations (<3.2 ug/l) as detected in MW-26, located at the compliance boundary, Bac-9 was injected into IW-1, located approximately 50 feet hydraulically upgradient of MW-26 on February 17, 2011. Details of the injection event were previously provided in the *Injection Event Record* dated March 11, 2011. As directed by the UIC, quarterly post injection water quality monitoring has previously been performed on June 29, 2011, September 22, 2011, December 15, 201, March 29, 2012, June 13, 2012 and September 27, 2012. The *Injection Well Permit* renewal application was sent to the UIC on January 14, 2013 and was renewed on January 31, 2013. The Injection Well Permit reduced monitoring and reporting frequency from quarterly to semi-annually.

PO Box 97, Garner, North Carolina 27529 (919) 772-5393 PO Box 349, Boone, NC 28607 (828) 262-1767

Sampling Procedure

MESCO personnel performed this sampling event following the parameters, frequency and well locations established by the UIC.

Water samples were collected and analyzed from five wells located within AOC MW-26. Wells (MW-3, MW-11 and MW-27) are located hydraulically upgradient and (MW-26, MW-31) are downgradient of injection well (IW-1). Monitoring locations are depicted on the potentiometric map (**Figure 2**).

Sampling was performed per the protocols outlined in the SWS approved Groundwater and Surface Water Sampling and Analysis Plan included as Appendix B of the *CAP-Add.* The depth to water in each well was electronically gaged prior to purging to quantify the static water level elevation. Low-flow pumping methodology or bailing was utilized to adequately purge the wells to a minimum of three times the volume of standing water in the well or until dry. During purging the field parameters were recorded. The samples were then placed into laboratory-prepared, pre-preserved containers via a new disposable polyethylene bailer. Samples were collected/separated based on likelihood of potential cross-contamination, kept on ice, and transported to a NC-certified laboratory under proper C-O-C protocols.

Field Parameter Data

Field parameters were recorded for pH, specific conductance, temperature, dissolved oxygen (DO), oxidation reduction potential (ORP), total dissolved solids (TDS) and turbidity. A summary of the field parameter data is presented in **Table 3.**

Laboratory Results

Pace Analytical Laboratories (PACE) of Huntersville and Asheville, NC, performed the laboratory analysis. Groundwater samples were analyzed for the parameters prescribed and subsequently approved by the UIC in the *Injection Well Permit Application* dated November 25, 2010. This event was performed in conjunction with the required SWS semi-annual water quality monitoring event; therefore additional information not required by the UIC may be reported.

A sampling and analysis table summarizing the locations, target parameters and laboratory methods is presented as **Table 1**. Laboratory results and C-O-Cs are presented in **Appendix A**.

Water samples were reported at the laboratory specific Method Detection Limits (MDL), which are quantifiable at or below the current Solid Waste Section Limits (SWSL). **Table 2** summarizes Appendix I constituents detected in the water samples in concentrations above the current SWSL or North Carolina Groundwater Standards (2L). **Table 3** summarizes indicator parameters quantified in the field and laboratory.

The contaminant constituents detected in AOC MW-26 in concentrations above the SWSL and in exceedance of their respective 2L Standard during this event were aromatics benzene (MW-3, MW-11, MW-26) and paradichlorobenzene (MW-3, MW-11).

A site map depicting the spatial distribution of VOC concentrations detected above the 2L Standard in AOC MW-26 during this event is presented on **Figure 2.**

Groundwater Characterization

A potentiometric map of the uppermost aquifer in AOC MW-26 created from static groundwater elevations recorded during this event is included as **Figure 2**. Groundwater flow rates and directions were calculated via modified Darcy's equation and are included in **Table 4**. Groundwater in AOC MW-26 flows in the unconfined and upper bedrock water-bearing zones in a general southwesterly direction away from the waste limits. Groundwater velocities calculated for wells located in AOC MW-26 during this event ranged from 5 ft/yr (MW-3) to 54 ft/yr (MW-26). Based solely upon the average linear velocity rates calculated over the last four events from MW-26 the injectant was predicted to reach MW-26 in March 2012.

Findings

The quarterly laboratory results indicate that low level (<34.2 uq/L) dissolved phase VOCs, consisting primarily of the lone contaminant of concern benzene, continues to be detected in groundwater samples collected within 250 feet of the waste boundary. The plume identified in AOC MW-26 continues to exhibit a decreasing concentration trend over time and distance. All identified contaminants were within their respective historically identified range. Change in contaminant concentrations compared to their own respective baselines established during the four events prior to injection are presented in **Figure 3**. During this event total cumulative VOCs and benzene levels compared to their own respective established baselines decreased both upgradient and downgradient of the injection point.

Closing

Water quality monitoring is expected to continue to evaluate the effectiveness of enhanced bioremediation via substrate injection in AOC MW-26. The next semi-annual event is scheduled to be performed in conjunction with SWS routine monitoring in December 2013. Additional substrate injection is currently not planned at this facility before June 2013. If you have any questions or comments regarding this report, please contact us at (919) 772-5393 or by email at jpfohl@mesco.com or sgandy@mesco.com.

Sincerely,
MUNICIPAL ENGINEERING SERVICES CO., P.A.

Jonathan Pfohl
Environmental Specialist

Enclosures

cc: Mr. Josh Mitchell
Alexander County

Ms. Jaclynne Drummond
SWS-Compliance Branch

Figures

Topographic Map with Site Location
Alexander County Active C&D and Closed MSWLF

2500 Paynes Dairy Road
Taylorsville, NC 28681
Lat:35-15-18.7246
Long:-81-08-51.51.32
Northing:767009.09
Easting:1363506.43

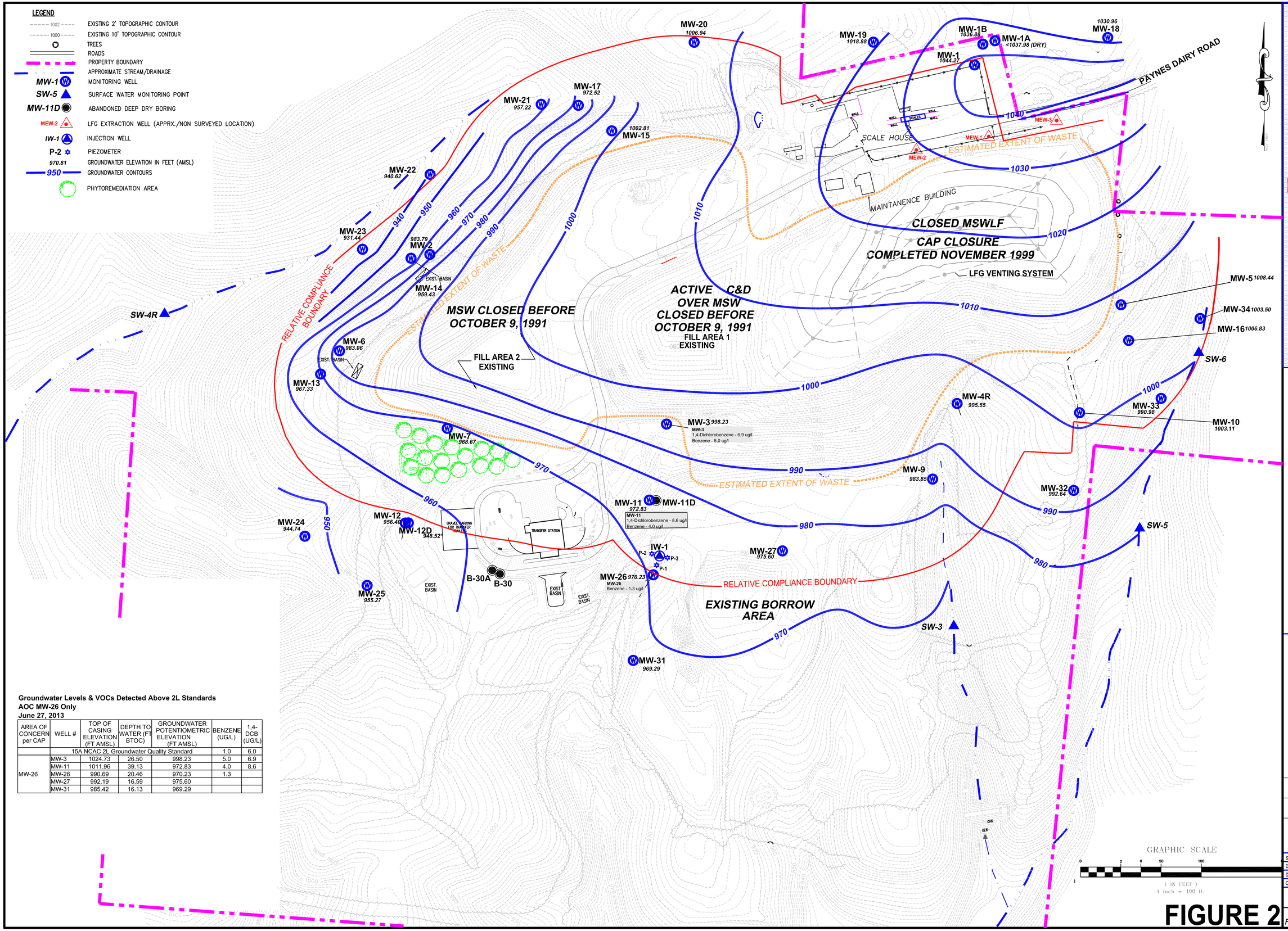
QUADRANGLE LEGEND

ROAD CLASSIFICATION

Primary highway, hard surface
Light-duty road, hard or improved surface
Secondary highway, hard surface
Unimproved road
Interstate Route
U. S. Route
State Route

0 1/2 1 MILE

FIGURE 1



Groundwater Levels & VOCs Detected Above 2L Standards
AOC MW-26 Only
June 27, 2013

AREA OF CONCERN per CAP	WELL #	TOP OF CASING ELEVATION (FT AMSL)	DEPTH TO WATER (FT BTOC)	GROUNDWATER POTENTIOMETRIC ELEVATION (FT AMSL)	BENZENE (UG/L)	1,4-DCB (UG/L)
15A NCAC 2L Groundwater Quality Standard					1.0	6.0
MW-26	MW-3	1024.73	26.50	998.23	5.0	6.9
	MW-11	1011.96	39.13	972.83	4.0	8.6
	MW-26	990.69	20.46	970.23	1.3	
	MW-27	992.19	16.59	975.60		
	MW-31	985.42	16.13	969.29		

FIGURE 2

Municipal Services Engineering Company, P.A.
P.O. BOX 97, GARNER, N.C. 27529 (919) 772-5393 LICENSE NUMBER: C-0281
P.O. BOX 349 BOONE, N.C. 28607 (828) 262-1767 LICENSE NUMBER: C-0281

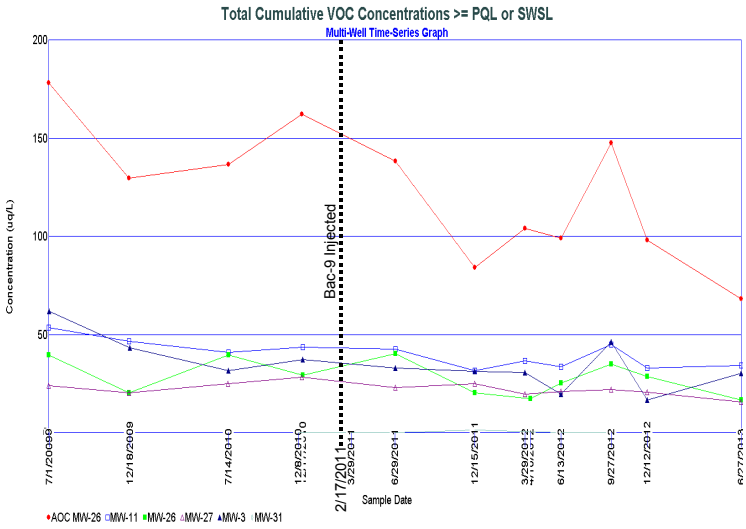
ACTIVE CONSTRUCTION and DEMOLITION
CLOSED UNLINED MSW LANDFILL FACILITY
ALEXANDER COUNTY
NORTH CAROLINA

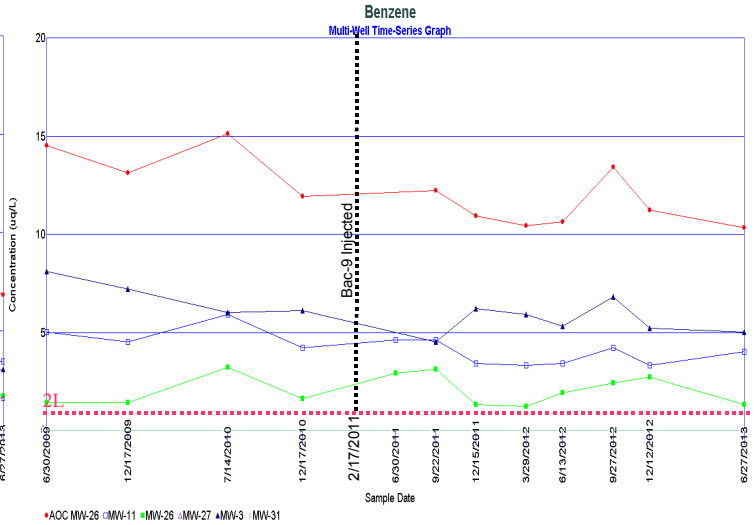
DATE	BY	REV.	DESCRIPTION

POTENTIOMETRIC MAP OF UPPERMOST AQUIFER WITH VOCS DETECTED IN AOC MW-26 ABOVE 2L STANDARDS

SCALE:	SEE SCALEBAR
DATE:	9/20/13
DRWN. BY:	J. PFOHL
CHKD. BY:	S. GANDY
PROJECT NUMBER	G13003.0
DRAWING NO.	FIGURE 2
SHEET NO.	1 OF 1

Figure 3
Total VOCs and Benzene Concentrations Pre/Post Injection Comparison in AOC MW-26
June 30, 2009 – June 27, 2013





Total VOCs & Benzene Concentrations Pre/Post Injection Comparison in AOC MW-26

Hydraulic Gradient In Relation to Injection Well (IW-1)	Well ID	June 2009 (ug/L)		Dec 2009 (ug/L)		July 2010 (ug/L)		Dec. 2010 (ug/L)		Average of Four Events Preceding Injection (ug/L)		June 2013 (ug/L)		Difference (ug/L)		Difference (%)	
		All VOCs	Benzene	All VOCs	Benzene	All VOCs	Benzene	All VOCs	Benzene	All VOCs	Benzene	All VOCs	Benzene	All VOCs	Benzene	All VOCs	Benzene
Up	MW-3	61.66	8.10	43.03	7.20	31.50	6.00	37.04	6.10	43.31	6.85	30.00	5.00	-13.31	-1.85	-31	-27
Up	MW-11	53.28	5.00	46.25	4.50	40.81	5.90	43.20	4.20	45.89	4.90	34.20	4.00	-11.69	-0.90	-25	-18
Up	MW-27	23.70	0.00	20.20	0.00	24.60	0.00	28.00	0.00	24.13	0.00	15.50	0.00	-8.63	0.00	-36	0
Subtotal Upgradient		138.64	13.10	109.48	11.70	96.91	11.90	108.24	10.30	113.32	11.75	79.70	9.00	-33.62	-2.75	-30	-23
Down	MW-26	39.40	1.40	20.00	1.40	39.50	3.20	29.00	1.60	31.98	1.90	16.60	1.30	-15.38	-0.60	-48	-32
Down	MW-31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Subtotal Downgradient		39.40	1.40	20.00	1.40	39.50	3.20	29.00	1.60	31.98	1.90	16.60	1.30	-15.38	-0.60	-48	-32
Up&Down Gradient Total		178.04	14.50	129.48	13.10	136.41	15.10	137.24	11.90	145.29	13.65	96.30	10.30	-48.99	-3.35	-34	-25

Tables

Table 1
Sampling and Analysis Summary
June 26, 2013

		App. I		Indicator Parameters									App. II				
Constituent	Reason Not Sampled	VOCs	Total Metals	Alkalinity	Sulfate	Sulfide	Chloride	TOC	COD	BOD	Iron	Nitrate	1,2,4-Trichlorobenzene	Naphthalene	1,3-Dichlorobenzene	Sulfide	Mercury (Total)
Laboratory		PACE	PACE	PACE	PACE	PACE	PACE	PACE	PACE	PACE	PACE	PACE	PACE	PACE	PACE	PACE	PACE
Method		Lab EPA 8260B	Lab EPA 6000/7000	Lab SM 2320B	EPA 300.0	Lab SM18 4500-S D	Lab SM 4500-Cl-E	SM 5310B	SM 5220D	SM5210B	Lab EPA 6010	Lab 353.2	Lab EPA 8260B	Lab EPA 8260B	Lab EPA 8260B	Lab SM18 4500-S D	Lab EPA 7470
MW-3		x	x	x	x		x	x		x				x			
MW-11		x	x	x	x	x	x	x	x	x	x	x	x			x	
MW-18		x	x	x	x	x	x	x	x		x	x				x	
MW-26		x	x	x	x	x	x	x	x	x	x	x	x		x	x	
MW-27		x	x	x	x	x	x	x		x						x	
MW-31		x	x	x	x	x	x	x	x	x	x	x				x	
EB		x	x														x
FB		x	x														x
TB		x															

App I & II = Appendix I & II List from current 40 CFR 258

Table 2
Detections that Attain or are Above SWSL
June 27, 2013

Sample ID	Parameter Name [1]	Sample Date	Result	Unit	MDL [2]	SWSL [3]	2L [4]	Exceedance Amount
MW-3	**1,4-Dichlorobenzene**	**6/27/13**	**6.9**	**ug/L**	**0.33**	**1**	**6**	**0.9**
MW-3	**Benzene**	**6/27/13**	**5**	**ug/L**	**0.25**	**1**	**1**	**4**
MW-3	Xylene (Total)	6/27/13	6.6	ug/L	0.66	5	530	
MW-3	Ethylbenzene	6/27/13	1.6	ug/L	0.3	1	550	
MW-3	Toluene	6/27/13	1.3	ug/L	0.26	1	600	
MW-3	cis-1,2-Dichloroethene	6/27/13	7.5	ug/L	0.19	5	70	
MW-3	Trichloroethene	6/27/13	1.1	ug/L	0.47	1	3	
MW-3	Cobalt, total	6/27/13	27.3	ug/L	5	10		
MW-11	**1,4-Dichlorobenzene**	**6/27/13**	**8.6**	**ug/L**	**0.33**	**1**	**6**	**2.6**
MW-11	**Benzene**	**6/27/13**	**4**	**ug/L**	**0.25**	**1**	**1**	**3**
MW-11	Cobalt, total	6/27/13	185	ug/L	5	10		
MW-11	Zinc, total	6/27/13	16.6	ug/L	10	10	1000	
MW-11	cis-1,2-Dichloroethene	6/27/13	21.6	ug/L	0.19	5	70	
MW-11	Barium, total	6/27/13	115	ug/L	5	100	700	
MW-18	Cobalt, total	6/27/13	54.1	ug/L	5	10		
MW-18	Zinc, total	6/27/13	38.9	ug/L	10	10	1000	
MW-18	Nickel, total	6/27/13	71.9	ug/L	5	50	100	
MW-18	Copper, total	6/27/13	93.2	ug/L	5	10	1000	
MW-26	**Benzene**	**6/27/13**	**1.3**	**ug/L**	**0.25**	**1**	**1**	**0.3**
MW-26	Cobalt, total	6/27/13	162	ug/L	5	10		
MW-26	cis-1,2-Dichloroethene	6/27/13	12	ug/L	0.19	5	70	
MW-26	1,4-Dichlorobenzene	6/27/13	3.3	ug/L	0.33	1	6	
MW-26	Zinc, total	6/27/13	27.3	ug/L	10	10	1000	
MW-27	cis-1,2-Dichloroethene	6/27/13	15.5	ug/L	0.19	5	70	

[1] Table contains constituents detected at or above SWSL

[2] MDL = Method Detection Limit

[3] SWSL = Solid Waste Section Reporting Limit

[4] 2L = North Carolina 15A NCAC 2L Groundwater Quality Standard

BOLD = Concentration > 2L Standard

Table 3
Indicator Parameter Data Summary
June 27, 2013

Parameters	Method	MDL*	Units	MW-3 6/27/13	MW-11 6/27/13	MW-16 6/27/13	MW-26 6/27/13	MW-27 6/27/13	MW-18 6/27/13
VFA – Acetic Acid	AM23G	21	ug/L	NS	NS	NS	NS	NS	NS
VFA – Butyric Acid	AM23G	7	ug/L	NS	NS	NS	NS	NS	NS
VFA – Lactic Acid	AM23G	32	ug/L	NS	NS	NS	NS	NS	NS
VFA – Propionic Acid	AM23G	4	ug/L	NS	NS	NS	NS	NS	NS
VFA – Pyruvic Acid	AM23G	4	ug/L	NS	NS	NS	NS	NS	NS
Hydrogen	AM20GAX	0.07	nM	NS	NS	NS	NS	NS	NS
Methane	AM20GAX/RSK175	0.00043	ug/L	NS	NS	NS	NS	NS	NS
Ethene	AM20GAX	0.007	ug/L	NS	NS	NS	NS	NS	NS
Ethane	AM20GAX	0.001	ug/L	NS	NS	NS	NS	NS	NS
CO2-Dissolved	Field HACH Kit	5	mg/L	NS	NS	NS	NS	NS	NS
Alkalinity	SM 2320B	1000	ug/L	121000	245000	40500	172000	73000	<1000
Sulfate	EPA 300.0	2000	ug/L	<2000	3250	6320	4920	6300	29600
Sulfide	SM 4500-S2D	100	ug/L	NS	<100	<100	<100	<100	<100
Chloride	SM 4500-Cl-E	5000	ug/L	17400	25700	3240	18500	18100	<1000
TOC	SM 5310B	1000	ug/L	13700	16700	11200	11700	2430	<1000
COD	SM 5220D	25000	ug/L	NS	39000	<25000	27000	<25000	<25000
BOD	SM5210B	2000	ug/L	<2000	<2000	NS	<2000	<2000	NS
Iron (total)	EPA 6010	50	ug/L	NS	46300	<50	28200	816	363
Nitrate	EPA 353.2	20	ug/L	NS	<20	72.4	<20	NS	31.9
Temperature	Field Instrument	0	C	16.1	16.8	15.9	16.5	17.5	16.6
ORP	Field Instrument	-900	mV	-13	152	302	81	282	299
DO	Field Instrument	0	mg/L	0.1	1.7	0.8	0.8	3.2	3.8
pH	Field Instrument	0	SU	5.91	6.07	5.81	6.07	6.19	6.98
Sp. Conductance	Field Instrument	0	us/cm	280	410	80	400	220	40
Turbidity	Field Instrument	0	NTU	350	11.5	103	19.2	20.3	91

Notes:

VFA = Volatile Fatty Acids

MDL* = Lab Method Detection Limit or lowest field measurement possible. Constituents detected below quantifiable limits are shown as < MDL value.

>100 = CO2 Concentration exceeds maximum capability of method used.

MNA monitoring not required for MW-31 by SWS but recorded per UIC.

NS = Not Sampled since not required by SWS nor UIC during this specific event.

Table 4
Hydrologic Properties at Monitoring Well Locations
June 27, 2013

Monitoring Well	Hydraulic Conductivity (cm/sec)	Effective Porosity (%)	Hydraulic Gradient (ft/ft)	Average Linear Velocity Rate (ft/yr)	Flow Direction	Depth to Groundwater (ft btoc)	Groundwater Potentiometric Elevation (ft amsl)	Screened Interval Lithology
MW-31	n/a	28	0.037	n/a	S25W	16.13	969.29	UC
MW-3	3.90E-06	10	0.134	5	S20W	26.50	998.23	UC/UBR
MW-11	n/a	10	0.053	n/a	S26W	39.13	972.83	UBR
MW-26	1.16E-04	10	0.045	54	S25W	20.46	970.23	UBR
MW-27	2.83E-05	10	0.072	21	S00W	16.59	975.60	UBR
MW-18	1.19E-04	10	0.311	n/a	n/a	53.37	1030.96	LBR

NOTE: Values for hydraulic conductivity obtained from GAI Consultants Sampling Report (April, 1995) & MESCO ACM Report (2008).

Average Linear Groundwater Velocities calculated only for UC & UBR wells with hydraulic conductivity values.

UC = Unconfined/saprolite; UBR = Upper Bedrock fracture system; LBR = Lower Bedrock fracture system.

Wells screened in LBR not utilized for flow directions/gradients.

Hydrologic Gradient taken from water elevations recorded between June 27, 2013.

Flow rate (Q) calculated via modified Darcy's equation:

$$Q = -\frac{K}{n_e} \cdot \frac{dh}{dl}$$

K= hydraulic conductivity

n_e = effective porosity

dh= head difference

dl= horizontal distance

Appendix A
Laboratory Analysis Reports
Chains of Custody

Pace Analytical Services, Inc.
205 East Meadow Road - Suite A
Eden, NC 27288
(336)623-8921

Pace Analytical Services, Inc.
2225 Riverside Dr.
Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

July 17, 2013

Mr. Jonathan Pfohl
Municipal Engineering Services
PO Box 97
Garner, NC 27529

RE: Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Dear Mr. Pfohl:
Enclosed are the analytical results for sample(s) received by the laboratory on June 28, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

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

Sincerely,

Kevin Godwin

kevin.godwin@pacelabs.com
Project Manager

Enclosures

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..

Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

CERTIFICATIONS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Charlotte Certification IDs
9800 Kincey Ave. Ste 100, Huntersville, NC 28078
North Carolina Drinking Water Certification #: 37706
North Carolina Field Services Certification #: 5342
North Carolina Wastewater Certification #: 12
South Carolina Certification #: 99006001
Florida/NELAP Certification #: E87627
Kentucky UST Certification #: 84
West Virginia Certification #: 357
Virginia/VELAP Certification #: 460221

Asheville Certification IDs
2225 Riverside Dr., Asheville, NC 28804
Florida/NELAP Certification #: E87648
Massachusetts Certification #: M-NC030
North Carolina Drinking Water Certification #: 37712
North Carolina Wastewater Certification #: 40
South Carolina Certification #: 99030001
West Virginia Certification #: 356
Virginia/VELAP Certification #: 460222

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Pace Analytical Services, Inc.
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Huntersville, NC 28078
(704)875-9092

SAMPLE SUMMARY

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92163329001	**MW-26**	Water	06/27/13 16:35	06/28/13 13:35
92163329002	**MW-11**	Water	06/27/13 17:10	06/28/13 13:35
92163329003	**MW-31**	Water	06/27/13 15:15	06/28/13 13:35
92163329004	**MW-27**	Water	06/27/13 16:00	06/28/13 13:35
92163329005	**MW-3**	Water	06/27/13 17:40	06/28/13 13:35

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SAMPLE ANALYTE COUNT

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
92163329001	**MW-26**	EPA 6010	JDA	16	PASI-A
		EPA 8260	MCK	54	PASI-C
		SM 2320B	AES2	1	PASI-A
		SM 4500-S2D	SAE	1	PASI-A
		SM 5210B	MDW	1	PASI-A
		EPA 300.0	SAE	1	PASI-A
		EPA 353.2	DMN	1	PASI-A
		SM 4500-Cl-E	DMN	1	PASI-A
		SM 5220D	EWS	1	PASI-A
		SM 5310B	SAE	1	PASI-A
92163329002	**MW-11**	EPA 6010	JDA	16	PASI-A
		EPA 8260	MCK	52	PASI-C
		SM 2320B	AES2	1	PASI-A
		SM 4500-S2D	SAE	1	PASI-A
		SM 5210B	MDW	1	PASI-A
		EPA 300.0	SAE	1	PASI-A
		EPA 353.2	DMN	1	PASI-A
		SM 4500-Cl-E	DMN	1	PASI-A
		SM 5220D	EWS	1	PASI-A
		SM 5310B	SAE	1	PASI-A
92163329003	**MW-31**	EPA 6010	JDA	16	PASI-A
		EPA 8260	MCK	52	PASI-C
		SM 2320B	AES2	1	PASI-A
		SM 4500-S2D	SAE	1	PASI-A
		SM 5210B	MDW	1	PASI-A
		EPA 300.0	SAE	1	PASI-A
		EPA 353.2	DMN	1	PASI-A
		SM 4500-Cl-E	DMN	1	PASI-A
		SM 5220D	EWS	1	PASI-A
		SM 5310B	SAE	1	PASI-A
92163329004	**MW-27**	EPA 6010	JDA	15	PASI-A
		EPA 8260	MCK	52	PASI-C
		SM 2320B	AES2	1	PASI-A
		SM 4500-S2D	SAE	1	PASI-A
		SM 5210B	MDW	1	PASI-A
		EPA 300.0	SAE	1	PASI-A
		SM 4500-Cl-E	DMN	1	PASI-A

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SAMPLE ANALYTE COUNT

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		SM 5310B	SAE	1	PASI-A
92163329005	**MW-3**	EPA 6010	JDA	15	PASI-A
		EPA 8260	MCK	53	PASI-C
		SM 2320B	AES2	1	PASI-A
		SM 5210B	MDW	1	PASI-A
		EPA 300.0	SAE	1	PASI-A
		SM 4500-Cl-E	DMN	1	PASI-A
		SM 5310B	SAE	1	PASI-A

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-26 **Lab ID: 92163329001** Collected: 06/27/13 16:35 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Antimony	ND	ug/L	6.0	5.0	1	06/29/13 14:55	07/06/13 13:49	7440-36-0	
Arsenic	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:49	7440-38-2	
Barium	**84.5J**	ug/L	100	5.0	1	06/29/13 14:55	07/06/13 13:49	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	06/29/13 14:55	07/06/13 13:49	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	06/29/13 14:55	07/06/13 13:49	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:49	7440-47-3	
Cobalt	**162**	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:49	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:49	7440-50-8	
Iron	**28200**	ug/L	300	50.0	1	06/29/13 14:55	07/06/13 13:49	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:49	7439-92-1	
Nickel	**8.8J**	ug/L	50.0	5.0	1	06/29/13 14:55	07/06/13 13:49	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:49	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:49	7440-22-4	
Thallium	ND	ug/L	5.5	5.5	1	06/29/13 14:55	07/06/13 13:49	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	06/29/13 14:55	07/06/13 13:49	7440-62-2	
Zinc	**27.3**	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:49	7440-66-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		07/10/13 15:51	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		07/10/13 15:51	107-13-1	
Benzene	**1.3**	ug/L	1.0	0.25	1		07/10/13 15:51	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		07/10/13 15:51	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		07/10/13 15:51	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		07/10/13 15:51	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		07/10/13 15:51	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		07/10/13 15:51	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		07/10/13 15:51	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		07/10/13 15:51	56-23-5	
Chlorobenzene	**0.90J**	ug/L	3.0	0.23	1		07/10/13 15:51	108-90-7	
Chloroethane	**0.69J**	ug/L	10.0	0.54	1		07/10/13 15:51	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		07/10/13 15:51	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		07/10/13 15:51	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		07/10/13 15:51	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		07/10/13 15:51	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		07/10/13 15:51	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		07/10/13 15:51	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		07/10/13 15:51	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	5.0	0.24	1		07/10/13 15:51	541-73-1	
1,4-Dichlorobenzene	**3.3**	ug/L	1.0	0.33	1		07/10/13 15:51	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		07/10/13 15:51	110-57-6	
1,1-Dichloroethane	**0.36J**	ug/L	5.0	0.32	1		07/10/13 15:51	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		07/10/13 15:51	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		07/10/13 15:51	75-35-4	
cis-1,2-Dichloroethene	**12.0**	ug/L	5.0	0.19	1		07/10/13 15:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		07/10/13 15:51	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		07/10/13 15:51	78-87-5	

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-26 **Lab ID: 92163329001** Collected: 06/27/13 16:35 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		07/10/13 15:51	142-28-9	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		07/10/13 15:51	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		07/10/13 15:51	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		07/10/13 15:51	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		07/10/13 15:51	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		07/10/13 15:51	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		07/10/13 15:51	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		07/10/13 15:51	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		07/10/13 15:51	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		07/10/13 15:51	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		07/10/13 15:51	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		07/10/13 15:51	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		07/10/13 15:51	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/L	10.0	0.35	1		07/10/13 15:51	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		07/10/13 15:51	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		07/10/13 15:51	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/10/13 15:51	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		07/10/13 15:51	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		07/10/13 15:51	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		07/10/13 15:51	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/10/13 15:51	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		07/10/13 15:51	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		07/10/13 15:51	460-00-4	
Dibromofluoromethane (S)	98	%	70-130		1		07/10/13 15:51	1868-53-7	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		07/10/13 15:51	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		07/10/13 15:51	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**172000**	ug/L	5000	1000	1		07/03/13 13:47		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2D								
Sulfide	ND	ug/L	1000	100	1		07/02/13 14:49	18496-25-8	
5210B BOD, 5 day	Analytical Method: SM 5210B								
BOD, 5 day	ND	ug/L	2000	2000	1	06/28/13 23:20	07/03/13 17:30		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**4920J**	ug/L	250000	2000	1		07/15/13 21:16	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	ug/L	10000	20.0	1		06/29/13 02:12		
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**18500**	ug/L	1000	1000	1		07/10/13 17:02	16887-00-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-26 **Lab ID: 92163329001** Collected: 06/27/13 16:35 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	**27000**	ug/L	25000	25000	1		07/16/13 08:35		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	**11700**	ug/L	1000	1000	1		07/12/13 17:54	7440-44-0	

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-11 **Lab ID: 92163329002** Collected: 06/27/13 17:10 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Antimony	ND	ug/L	6.0	5.0	1	06/29/13 14:55	07/06/13 13:53	7440-36-0	
Arsenic	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:53	7440-38-2	
Barium	**115**	ug/L	100	5.0	1	06/29/13 14:55	07/06/13 13:53	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	06/29/13 14:55	07/06/13 13:53	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	06/29/13 14:55	07/06/13 13:53	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:53	7440-47-3	
Cobalt	**185**	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:53	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:53	7440-50-8	
Iron	**46300**	ug/L	300	50.0	1	06/29/13 14:55	07/06/13 13:53	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:53	7439-92-1	
Nickel	**8.9J**	ug/L	50.0	5.0	1	06/29/13 14:55	07/06/13 13:53	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:53	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:53	7440-22-4	
Thallium	ND	ug/L	5.5	5.5	1	06/29/13 14:55	07/06/13 13:53	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	06/29/13 14:55	07/06/13 13:53	7440-62-2	
Zinc	**16.6**	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:53	7440-66-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		07/10/13 16:07	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		07/10/13 16:07	107-13-1	
Benzene	**4.0**	ug/L	1.0	0.25	1		07/10/13 16:07	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		07/10/13 16:07	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		07/10/13 16:07	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		07/10/13 16:07	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		07/10/13 16:07	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		07/10/13 16:07	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		07/10/13 16:07	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		07/10/13 16:07	56-23-5	
Chlorobenzene	**2.3J**	ug/L	3.0	0.23	1		07/10/13 16:07	108-90-7	
Chloroethane	**0.65J**	ug/L	10.0	0.54	1		07/10/13 16:07	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		07/10/13 16:07	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		07/10/13 16:07	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		07/10/13 16:07	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		07/10/13 16:07	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		07/10/13 16:07	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		07/10/13 16:07	74-95-3	
1,2-Dichlorobenzene	**0.45J**	ug/L	5.0	0.30	1		07/10/13 16:07	95-50-1	
1,4-Dichlorobenzene	**8.6**	ug/L	1.0	0.33	1		07/10/13 16:07	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		07/10/13 16:07	110-57-6	
1,1-Dichloroethane	**0.68J**	ug/L	5.0	0.32	1		07/10/13 16:07	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		07/10/13 16:07	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		07/10/13 16:07	75-35-4	
cis-1,2-Dichloroethene	**21.6**	ug/L	5.0	0.19	1		07/10/13 16:07	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		07/10/13 16:07	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		07/10/13 16:07	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		07/10/13 16:07	142-28-9	

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-11 **Lab ID: 92163329002** Collected: 06/27/13 17:10 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		07/10/13 16:07	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		07/10/13 16:07	10061-02-6	
Ethylbenzene	**0.42J**	ug/L	1.0	0.30	1		07/10/13 16:07	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		07/10/13 16:07	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		07/10/13 16:07	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		07/10/13 16:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		07/10/13 16:07	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		07/10/13 16:07	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		07/10/13 16:07	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		07/10/13 16:07	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		07/10/13 16:07	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		07/10/13 16:07	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		07/10/13 16:07	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		07/10/13 16:07	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/10/13 16:07	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		07/10/13 16:07	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		07/10/13 16:07	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		07/10/13 16:07	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/10/13 16:07	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		07/10/13 16:07	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		07/10/13 16:07	460-00-4	
Dibromofluoromethane (S)	99	%	70-130		1		07/10/13 16:07	1868-53-7	
1,2-Dichloroethane-d4 (S)	101	%	70-130		1		07/10/13 16:07	17060-07-0	
Toluene-d8 (S)	99	%	70-130		1		07/10/13 16:07	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**245000**	ug/L	5000	1000	1		07/03/13 14:17		M1
4500S2D Sulfide Water	Analytical Method: SM 4500-S2D								
Sulfide	ND	ug/L	1000	100	1		07/02/13 14:49	18496-25-8	
5210B BOD, 5 day	Analytical Method: SM 5210B								
BOD, 5 day	ND	ug/L	2000	2000	1	06/28/13 23:20	07/03/13 17:30		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**3250J**	ug/L	250000	2000	1		07/15/13 21:29	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	ND	ug/L	10000	20.0	1		06/29/13 02:13		
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**25700**	ug/L	2000	2000	2		07/10/13 17:04	16887-00-6	

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-11 **Lab ID: 92163329002** Collected: 06/27/13 17:10 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	**39000**	ug/L	25000	25000	1		07/16/13 08:35		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	**16700**	ug/L	1000	1000	1		07/12/13 18:47	7440-44-0	

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-31 **Lab ID: 92163329003** Collected: 06/27/13 15:15 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Antimony	ND	ug/L	6.0	5.0	1	06/29/13 14:55	07/06/13 13:56	7440-36-0	
Arsenic	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:56	7440-38-2	
Barium	**85.6J**	ug/L	100	5.0	1	06/29/13 14:55	07/06/13 13:56	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	06/29/13 14:55	07/06/13 13:56	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	06/29/13 14:55	07/06/13 13:56	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:56	7440-47-3	
Cobalt	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:56	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:56	7440-50-8	
Iron	**363**	ug/L	300	50.0	1	06/29/13 14:55	07/06/13 13:56	7439-89-6	
Lead	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:56	7439-92-1	
Nickel	ND	ug/L	50.0	5.0	1	06/29/13 14:55	07/06/13 13:56	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:56	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:56	7440-22-4	
Thallium	ND	ug/L	5.5	5.5	1	06/29/13 14:55	07/06/13 13:56	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	06/29/13 14:55	07/06/13 13:56	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:56	7440-66-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		07/10/13 16:24	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		07/10/13 16:24	107-13-1	
Benzene	**0.26J**	ug/L	1.0	0.25	1		07/10/13 16:24	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		07/10/13 16:24	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		07/10/13 16:24	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		07/10/13 16:24	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		07/10/13 16:24	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		07/10/13 16:24	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		07/10/13 16:24	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		07/10/13 16:24	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		07/10/13 16:24	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		07/10/13 16:24	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		07/10/13 16:24	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		07/10/13 16:24	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		07/10/13 16:24	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		07/10/13 16:24	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		07/10/13 16:24	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		07/10/13 16:24	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		07/10/13 16:24	95-50-1	
1,4-Dichlorobenzene	**0.93J**	ug/L	1.0	0.33	1		07/10/13 16:24	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		07/10/13 16:24	110-57-6	
1,1-Dichloroethane	**0.33J**	ug/L	5.0	0.32	1		07/10/13 16:24	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		07/10/13 16:24	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		07/10/13 16:24	75-35-4	
cis-1,2-Dichloroethene	**2.0J**	ug/L	5.0	0.19	1		07/10/13 16:24	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		07/10/13 16:24	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		07/10/13 16:24	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		07/10/13 16:24	142-28-9	

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-31 **Lab ID: 92163329003** Collected: 06/27/13 15:15 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		07/10/13 16:24	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		07/10/13 16:24	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		07/10/13 16:24	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		07/10/13 16:24	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		07/10/13 16:24	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		07/10/13 16:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		07/10/13 16:24	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		07/10/13 16:24	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		07/10/13 16:24	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		07/10/13 16:24	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		07/10/13 16:24	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		07/10/13 16:24	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		07/10/13 16:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		07/10/13 16:24	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/10/13 16:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		07/10/13 16:24	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		07/10/13 16:24	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		07/10/13 16:24	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/10/13 16:24	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		07/10/13 16:24	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	95	%	70-130		1		07/10/13 16:24	460-00-4	
Dibromofluoromethane (S)	98	%	70-130		1		07/10/13 16:24	1868-53-7	
1,2-Dichloroethane-d4 (S)	100	%	70-130		1		07/10/13 16:24	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		07/10/13 16:24	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**39100**	ug/L	5000	1000	1		07/03/13 15:01		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2D								
Sulfide	ND	ug/L	1000	100	1		07/02/13 14:49	18496-25-8	
5210B BOD, 5 day	Analytical Method: SM 5210B								
BOD, 5 day	ND	ug/L	2000	2000	1	06/28/13 23:20	07/03/13 17:30		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**2120J**	ug/L	250000	2000	1		07/15/13 22:10	14808-79-8	
353.2 Nitrogen, NO2/NO3 unpres	Analytical Method: EPA 353.2								
Nitrogen, Nitrate	**862J**	ug/L	10000	20.0	1		06/29/13 02:11		
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**10400**	ug/L	1000	1000	1		07/10/13 17:05	16887-00-6	

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-31 **Lab ID: 92163329003** Collected: 06/27/13 15:15 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
5220D COD	Analytical Method: SM 5220D								
Chemical Oxygen Demand	ND	ug/L	25000	25000	1		07/16/13 08:35		
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	**7330**	ug/L	1000	1000	1		07/12/13 18:57	7440-44-0	

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-27 **Lab ID: 92163329004** Collected: 06/27/13 16:00 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Antimony	ND	ug/L	6.0	5.0	1	06/29/13 14:55	07/06/13 13:59	7440-36-0	
Arsenic	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:59	7440-38-2	
Barium	**47.2J**	ug/L	100	5.0	1	06/29/13 14:55	07/06/13 13:59	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	06/29/13 14:55	07/06/13 13:59	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	06/29/13 14:55	07/06/13 13:59	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:59	7440-47-3	
Cobalt	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:59	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:59	7440-50-8	
Lead	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:59	7439-92-1	
Nickel	ND	ug/L	50.0	5.0	1	06/29/13 14:55	07/06/13 13:59	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:59	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 13:59	7440-22-4	
Thallium	ND	ug/L	5.5	5.5	1	06/29/13 14:55	07/06/13 13:59	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	06/29/13 14:55	07/06/13 13:59	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 13:59	7440-66-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		07/10/13 16:40	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		07/10/13 16:40	107-13-1	
Benzene	ND	ug/L	1.0	0.25	1		07/10/13 16:40	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		07/10/13 16:40	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		07/10/13 16:40	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		07/10/13 16:40	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		07/10/13 16:40	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		07/10/13 16:40	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		07/10/13 16:40	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		07/10/13 16:40	56-23-5	
Chlorobenzene	ND	ug/L	3.0	0.23	1		07/10/13 16:40	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		07/10/13 16:40	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		07/10/13 16:40	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		07/10/13 16:40	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		07/10/13 16:40	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		07/10/13 16:40	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		07/10/13 16:40	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		07/10/13 16:40	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	5.0	0.30	1		07/10/13 16:40	95-50-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	0.33	1		07/10/13 16:40	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		07/10/13 16:40	110-57-6	
1,1-Dichloroethane	**0.36J**	ug/L	5.0	0.32	1		07/10/13 16:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		07/10/13 16:40	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		07/10/13 16:40	75-35-4	
cis-1,2-Dichloroethene	**15.5**	ug/L	5.0	0.19	1		07/10/13 16:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		07/10/13 16:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		07/10/13 16:40	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		07/10/13 16:40	142-28-9	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		07/10/13 16:40	10061-01-5	

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-27 **Lab ID: 92163329004** Collected: 06/27/13 16:00 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		07/10/13 16:40	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	0.30	1		07/10/13 16:40	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		07/10/13 16:40	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		07/10/13 16:40	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		07/10/13 16:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		07/10/13 16:40	108-10-1	
Styrene	ND	ug/L	1.0	0.26	1		07/10/13 16:40	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		07/10/13 16:40	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		07/10/13 16:40	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		07/10/13 16:40	127-18-4	
Toluene	ND	ug/L	1.0	0.26	1		07/10/13 16:40	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		07/10/13 16:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		07/10/13 16:40	79-00-5	
Trichloroethene	ND	ug/L	1.0	0.47	1		07/10/13 16:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		07/10/13 16:40	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		07/10/13 16:40	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		07/10/13 16:40	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/10/13 16:40	75-01-4	
Xylene (Total)	ND	ug/L	5.0	0.66	1		07/10/13 16:40	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	97	%	70-130		1		07/10/13 16:40	460-00-4	
Dibromofluoromethane (S)	101	%	70-130		1		07/10/13 16:40	1868-53-7	
1,2-Dichloroethane-d4 (S)	103	%	70-130		1		07/10/13 16:40	17060-07-0	
Toluene-d8 (S)	98	%	70-130		1		07/10/13 16:40	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**73000**	ug/L	5000	1000	1		07/03/13 15:12		
4500S2D Sulfide Water	Analytical Method: SM 4500-S2D								
Sulfide	ND	ug/L	1000	100	1		07/02/13 14:49	18496-25-8	
5210B BOD, 5 day	Analytical Method: SM 5210B								
BOD, 5 day	ND	ug/L	2000	2000	1	06/28/13 23:20	07/03/13 17:30		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	**6300J**	ug/L	250000	2000	1		07/15/13 22:24	14808-79-8	
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**18100**	ug/L	1000	1000	1		07/10/13 17:06	16887-00-6	
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	**2430**	ug/L	1000	1000	1		07/12/13 19:09	7440-44-0	

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-3 **Lab ID: 92163329005** Collected: 06/27/13 17:40 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, 3030C	Analytical Method: EPA 6010 Preparation Method: SM 3030C								
Antimony	ND	ug/L	6.0	5.0	1	06/29/13 14:55	07/06/13 14:02	7440-36-0	
Arsenic	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 14:02	7440-38-2	
Barium	**36.8J**	ug/L	100	5.0	1	06/29/13 14:55	07/06/13 14:02	7440-39-3	
Beryllium	ND	ug/L	1.0	1.0	1	06/29/13 14:55	07/06/13 14:02	7440-41-7	
Cadmium	ND	ug/L	1.0	1.0	1	06/29/13 14:55	07/06/13 14:02	7440-43-9	
Chromium	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 14:02	7440-47-3	
Cobalt	**27.3**	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 14:02	7440-48-4	
Copper	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 14:02	7440-50-8	
Lead	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 14:02	7439-92-1	
Nickel	**13.1J**	ug/L	50.0	5.0	1	06/29/13 14:55	07/06/13 14:02	7440-02-0	
Selenium	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 14:02	7782-49-2	
Silver	ND	ug/L	10.0	5.0	1	06/29/13 14:55	07/06/13 14:02	7440-22-4	
Thallium	ND	ug/L	5.5	5.5	1	06/29/13 14:55	07/06/13 14:02	7440-28-0	
Vanadium	ND	ug/L	25.0	5.0	1	06/29/13 14:55	07/06/13 14:02	7440-62-2	
Zinc	ND	ug/L	10.0	10.0	1	06/29/13 14:55	07/06/13 14:02	7440-66-6	
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
Acetone	ND	ug/L	100	10.0	1		07/10/13 16:57	67-64-1	
Acrylonitrile	ND	ug/L	200	1.9	1		07/10/13 16:57	107-13-1	
Benzene	**5.0**	ug/L	1.0	0.25	1		07/10/13 16:57	71-43-2	
Bromochloromethane	ND	ug/L	3.0	0.17	1		07/10/13 16:57	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	0.18	1		07/10/13 16:57	75-27-4	
Bromoform	ND	ug/L	3.0	0.26	1		07/10/13 16:57	75-25-2	
Bromomethane	ND	ug/L	10.0	0.29	1		07/10/13 16:57	74-83-9	
2-Butanone (MEK)	ND	ug/L	100	0.96	1		07/10/13 16:57	78-93-3	
Carbon disulfide	ND	ug/L	100	1.2	1		07/10/13 16:57	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	0.25	1		07/10/13 16:57	56-23-5	
Chlorobenzene	**1.1J**	ug/L	3.0	0.23	1		07/10/13 16:57	108-90-7	
Chloroethane	ND	ug/L	10.0	0.54	1		07/10/13 16:57	75-00-3	
Chloroform	ND	ug/L	5.0	0.14	1		07/10/13 16:57	67-66-3	
Chloromethane	ND	ug/L	1.0	0.11	1		07/10/13 16:57	74-87-3	
1,2-Dibromo-3-chloropropane	ND	ug/L	13.0	2.5	1		07/10/13 16:57	96-12-8	
Dibromochloromethane	ND	ug/L	3.0	0.21	1		07/10/13 16:57	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	0.27	1		07/10/13 16:57	106-93-4	
Dibromomethane	ND	ug/L	10.0	0.21	1		07/10/13 16:57	74-95-3	
1,2-Dichlorobenzene	**0.54J**	ug/L	5.0	0.30	1		07/10/13 16:57	95-50-1	
1,4-Dichlorobenzene	**6.9**	ug/L	1.0	0.33	1		07/10/13 16:57	106-46-7	
trans-1,4-Dichloro-2-butene	ND	ug/L	100	1.0	1		07/10/13 16:57	110-57-6	
1,1-Dichloroethane	**1.3J**	ug/L	5.0	0.32	1		07/10/13 16:57	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	0.12	1		07/10/13 16:57	107-06-2	
1,1-Dichloroethene	ND	ug/L	5.0	0.56	1		07/10/13 16:57	75-35-4	
cis-1,2-Dichloroethene	**7.5**	ug/L	5.0	0.19	1		07/10/13 16:57	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.49	1		07/10/13 16:57	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	0.27	1		07/10/13 16:57	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	0.28	1		07/10/13 16:57	142-28-9	
cis-1,3-Dichloropropene	ND	ug/L	1.0	0.13	1		07/10/13 16:57	10061-01-5	

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ANALYTICAL RESULTS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Sample: MW-3 **Lab ID: 92163329005** Collected: 06/27/13 17:40 Received: 06/28/13 13:35 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Low Level Landfill	Analytical Method: EPA 8260								
trans-1,3-Dichloropropene	ND	ug/L	1.0	0.26	1		07/10/13 16:57	10061-02-6	
Ethylbenzene	**1.6**	ug/L	1.0	0.30	1		07/10/13 16:57	100-41-4	
2-Hexanone	ND	ug/L	50.0	0.46	1		07/10/13 16:57	591-78-6	
Iodomethane	ND	ug/L	10.0	0.32	1		07/10/13 16:57	74-88-4	
Methylene Chloride	ND	ug/L	1.0	0.97	1		07/10/13 16:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	0.33	1		07/10/13 16:57	108-10-1	
Naphthalene	**2.9J**	ug/L	10.0	0.24	1		07/10/13 16:57	91-20-3	
Styrene	ND	ug/L	1.0	0.26	1		07/10/13 16:57	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	0.33	1		07/10/13 16:57	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	3.0	0.40	1		07/10/13 16:57	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.46	1		07/10/13 16:57	127-18-4	
Toluene	**1.3**	ug/L	1.0	0.26	1		07/10/13 16:57	108-88-3	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.48	1		07/10/13 16:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.29	1		07/10/13 16:57	79-00-5	
Trichloroethene	**1.1**	ug/L	1.0	0.47	1		07/10/13 16:57	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.20	1		07/10/13 16:57	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	1.0	0.41	1		07/10/13 16:57	96-18-4	
Vinyl acetate	ND	ug/L	50.0	0.35	1		07/10/13 16:57	108-05-4	
Vinyl chloride	ND	ug/L	1.0	0.62	1		07/10/13 16:57	75-01-4	
Xylene (Total)	**6.6**	ug/L	5.0	0.66	1		07/10/13 16:57	1330-20-7	
Surrogates									
4-Bromofluorobenzene (S)	96	%	70-130		1		07/10/13 16:57	460-00-4	
Dibromofluoromethane (S)	99	%	70-130		1		07/10/13 16:57	1868-53-7	
1,2-Dichloroethane-d4 (S)	99	%	70-130		1		07/10/13 16:57	17060-07-0	
Toluene-d8 (S)	100	%	70-130		1		07/10/13 16:57	2037-26-5	
2320B Alkalinity	Analytical Method: SM 2320B								
Alkalinity, Total as CaCO3	**121000**	ug/L	5000	1000	1		07/03/13 15:23		
5210B BOD, 5 day	Analytical Method: SM 5210B								
BOD, 5 day	ND	ug/L	2000	2000	1	06/28/13 23:20	07/03/13 17:30		
300.0 IC Anions 28 Days	Analytical Method: EPA 300.0								
Sulfate	ND	ug/L	250000	2000	1		07/15/13 22:37	14808-79-8	
4500 Chloride	Analytical Method: SM 4500-Cl-E								
Chloride	**17400**	ug/L	1000	1000	1		07/10/13 17:07	16887-00-6	
5310B TOC	Analytical Method: SM 5310B								
Total Organic Carbon	**13700**	ug/L	1000	1000	1		07/12/13 19:19	7440-44-0	

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

QC Batch: MPRP/13660 Analysis Method: EPA 6010
QC Batch Method: SM 3030C Analysis Description: 6010 MET 3030C
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

METHOD BLANK: 1002429 Matrix: Water
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Antimony	ug/L	ND	6.0	07/06/13 16:08	
Arsenic	ug/L	ND	10.0	07/06/13 16:08	
Barium	ug/L	ND	100	07/06/13 16:08	
Beryllium	ug/L	ND	1.0	07/06/13 16:08	
Cadmium	ug/L	ND	1.0	07/06/13 16:08	
Chromium	ug/L	ND	10.0	07/07/13 15:23	
Cobalt	ug/L	ND	10.0	07/06/13 16:08	
Copper	ug/L	ND	10.0	07/06/13 16:08	
Iron	ug/L	ND	300	07/06/13 16:08	
Lead	ug/L	ND	10.0	07/06/13 16:08	
Nickel	ug/L	ND	50.0	07/06/13 16:08	
Selenium	ug/L	ND	10.0	07/06/13 16:08	
Silver	ug/L	ND	10.0	07/06/13 16:08	
Thallium	ug/L	ND	5.5	07/06/13 16:08	
Vanadium	ug/L	ND	25.0	07/06/13 16:08	
Zinc	ug/L	ND	10.0	07/06/13 16:08	

LABORATORY CONTROL SAMPLE: 1002430

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	500	493	99	80-120	
Arsenic	ug/L	500	517	103	80-120	
Barium	ug/L	500	441	88	80-120	
Beryllium	ug/L	500	538	108	80-120	
Cadmium	ug/L	500	547	109	80-120	
Chromium	ug/L	500	454	91	80-120	
Cobalt	ug/L	500	503	101	80-120	
Copper	ug/L	500	429	86	80-120	
Iron	ug/L	5000	5040	101	80-120	
Lead	ug/L	500	508	102	80-120	
Nickel	ug/L	500	523	105	80-120	
Selenium	ug/L	500	570	114	80-120	
Silver	ug/L	250	246	98	80-120	
Thallium	ug/L	500	431	86	80-120	
Vanadium	ug/L	500	488	98	80-120	
Zinc	ug/L	500	575	115	80-120	

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1002431 1002432

Parameter	Units	92163306001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Antimony	ug/L	ND	500	500	494	489	99	98	75-125	1	20	
Arsenic	ug/L	ND	500	500	524	515	105	103	75-125	2	20	
Barium	ug/L	54.3	500	500	497	492	89	88	75-125	1	20	
Beryllium	ug/L	ND	500	500	525	517	105	103	75-125	2	20	
Cadmium	ug/L	ND	500	500	527	520	105	104	75-125	1	20	
Chromium	ug/L	ND	500	500	456	447	91	89	75-125	2	20	
Cobalt	ug/L	78.2	500	500	564	558	97	96	75-125	1	20	
Copper	ug/L	ND	500	500	445	442	89	88	75-125	1	20	
Iron	ug/L	55000	5000	5000	58400	58500	67	70	75-125	0	20	M1
Lead	ug/L	5.2	500	500	493	487	98	96	75-125	1	20	
Nickel	ug/L	ND	500	500	515	508	103	101	75-125	1	20	
Selenium	ug/L	ND	500	500	493	487	97	96	75-125	1	20	
Silver	ug/L	ND	250	250	243	239	97	96	75-125	2	20	
Thallium	ug/L	11.6	500	500	462	456	90	89	75-125	1	20	
Vanadium	ug/L	ND	500	500	498	491	99	97	75-125	1	20	
Zinc	ug/L	ND	500	500	559	553	111	110	75-125	1	20	

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

QC Batch: MSV/23560 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV Low Level Landfill
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

METHOD BLANK: 1005963 Matrix: Water
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	5.0	07/10/13 06:55	
1,1,1-Trichloroethane	ug/L	ND	1.0	07/10/13 06:55	
1,1,2,2-Tetrachloroethane	ug/L	ND	3.0	07/10/13 06:55	
1,1,2-Trichloroethane	ug/L	ND	1.0	07/10/13 06:55	
1,1-Dichloroethane	ug/L	ND	5.0	07/10/13 06:55	
1,1-Dichloroethene	ug/L	ND	5.0	07/10/13 06:55	
1,2,3-Trichloropropane	ug/L	ND	1.0	07/10/13 06:55	
1,2,4-Trichlorobenzene	ug/L	ND	10.0	07/10/13 06:55	
1,2-Dibromo-3-chloropropane	ug/L	ND	13.0	07/10/13 06:55	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	07/10/13 06:55	
1,2-Dichlorobenzene	ug/L	ND	5.0	07/10/13 06:55	
1,2-Dichloroethane	ug/L	ND	1.0	07/10/13 06:55	
1,2-Dichloropropane	ug/L	ND	1.0	07/10/13 06:55	
1,3-Dichlorobenzene	ug/L	ND	5.0	07/10/13 06:55	
1,3-Dichloropropane	ug/L	ND	1.0	07/10/13 06:55	
1,4-Dichlorobenzene	ug/L	ND	1.0	07/10/13 06:55	
2-Butanone (MEK)	ug/L	ND	100	07/10/13 06:55	
2-Hexanone	ug/L	ND	50.0	07/10/13 06:55	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	07/10/13 06:55	
Acetone	ug/L	ND	100	07/10/13 06:55	
Acrylonitrile	ug/L	ND	200	07/10/13 06:55	
Benzene	ug/L	ND	1.0	07/10/13 06:55	
Bromochloromethane	ug/L	ND	3.0	07/10/13 06:55	
Bromodichloromethane	ug/L	ND	1.0	07/10/13 06:55	
Bromoform	ug/L	ND	3.0	07/10/13 06:55	
Bromomethane	ug/L	ND	10.0	07/10/13 06:55	
Carbon disulfide	ug/L	ND	100	07/10/13 06:55	
Carbon tetrachloride	ug/L	ND	1.0	07/10/13 06:55	
Chlorobenzene	ug/L	ND	3.0	07/10/13 06:55	
Chloroethane	ug/L	ND	10.0	07/10/13 06:55	
Chloroform	ug/L	ND	5.0	07/10/13 06:55	
Chloromethane	ug/L	ND	1.0	07/10/13 06:55	
cis-1,2-Dichloroethene	ug/L	ND	5.0	07/10/13 06:55	
cis-1,3-Dichloropropene	ug/L	ND	1.0	07/10/13 06:55	
Dibromochloromethane	ug/L	ND	3.0	07/10/13 06:55	
Dibromomethane	ug/L	ND	10.0	07/10/13 06:55	
Ethylbenzene	ug/L	ND	1.0	07/10/13 06:55	
Iodomethane	ug/L	ND	10.0	07/10/13 06:55	
Methylene Chloride	ug/L	ND	1.0	07/10/13 06:55	
Naphthalene	ug/L	ND	10.0	07/10/13 06:55	
Styrene	ug/L	ND	1.0	07/10/13 06:55	
Tetrachloroethene	ug/L	ND	1.0	07/10/13 06:55	
Toluene	ug/L	ND	1.0	07/10/13 06:55	

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

METHOD BLANK: 1005963 Matrix: Water

Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
trans-1,2-Dichloroethene	ug/L	ND	5.0	07/10/13 06:55	
trans-1,3-Dichloropropene	ug/L	ND	1.0	07/10/13 06:55	
trans-1,4-Dichloro-2-butene	ug/L	ND	100	07/10/13 06:55	
Trichloroethene	ug/L	ND	1.0	07/10/13 06:55	
Trichlorofluoromethane	ug/L	ND	1.0	07/10/13 06:55	
Vinyl acetate	ug/L	ND	50.0	07/10/13 06:55	
Vinyl chloride	ug/L	ND	1.0	07/10/13 06:55	
Xylene (Total)	ug/L	ND	5.0	07/10/13 06:55	
1,2-Dichloroethane-d4 (S)	%	96	70-130	07/10/13 06:55	
4-Bromofluorobenzene (S)	%	97	70-130	07/10/13 06:55	
Dibromofluoromethane (S)	%	95	70-130	07/10/13 06:55	
Toluene-d8 (S)	%	98	70-130	07/10/13 06:55	

LABORATORY CONTROL SAMPLE: 1005964

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	52.2	104	70-130	
1,1,1-Trichloroethane	ug/L	50	55.1	110	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	55.9	112	70-130	
1,1,2-Trichloroethane	ug/L	50	57.8	116	70-130	
1,1-Dichloroethane	ug/L	50	55.4	111	70-130	
1,1-Dichloroethene	ug/L	50	56.9	114	70-132	
1,2,3-Trichloropropane	ug/L	50	56.7	113	70-130	
1,2,4-Trichlorobenzene	ug/L	50	59.0	118	70-134	
1,2-Dibromo-3-chloropropane	ug/L	50	52.0	104	70-130	
1,2-Dibromoethane (EDB)	ug/L	50	57.7	115	70-130	
1,2-Dichlorobenzene	ug/L	50	57.2	114	70-130	
1,2-Dichloroethane	ug/L	50	49.9	100	70-130	
1,2-Dichloropropane	ug/L	50	59.0	118	70-130	
1,3-Dichlorobenzene	ug/L	50	55.6	111	70-130	
1,3-Dichloropropane	ug/L	50	58.0	116	70-130	
1,4-Dichlorobenzene	ug/L	50	56.3	113	70-130	
2-Butanone (MEK)	ug/L	100	88.7J	89	70-145	
2-Hexanone	ug/L	100	85.3	85	70-144	
4-Methyl-2-pentanone (MIBK)	ug/L	100	88.5J	88	70-140	
Acetone	ug/L	100	88.2J	88	50-175	
Acrylonitrile	ug/L	250	309	123	70-143	
Benzene	ug/L	50	54.8	110	70-130	
Bromochloromethane	ug/L	50	56.5	113	70-130	
Bromodichloromethane	ug/L	50	55.8	112	70-130	
Bromoform	ug/L	50	50.1	100	70-130	
Bromomethane	ug/L	50	55.1	110	54-130	F3
Carbon disulfide	ug/L	50	53.3J	107	70-131	
Carbon tetrachloride	ug/L	50	53.2	106	70-132	
Chlorobenzene	ug/L	50	55.8	112	70-130	

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

LABORATORY CONTROL SAMPLE: 1005964

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloroethane	ug/L	50	49.5	99	64-134	
Chloroform	ug/L	50	55.0	110	70-130	
Chloromethane	ug/L	50	48.9	98	64-130	
cis-1,2-Dichloroethene	ug/L	50	52.9	106	70-131	
cis-1,3-Dichloropropene	ug/L	50	54.0	108	70-130	
Dibromochloromethane	ug/L	50	52.5	105	70-130	
Dibromomethane	ug/L	50	57.3	115	70-131	
Ethylbenzene	ug/L	50	55.9	112	70-130	
Iodomethane	ug/L	100	79.2	79	49-180	
Methylene Chloride	ug/L	50	56.4	113	63-130	
Naphthalene	ug/L	50	52.3	105	70-138	
Styrene	ug/L	50	58.8	118	70-130	
Tetrachloroethene	ug/L	50	55.6	111	70-130	
Toluene	ug/L	50	53.6	107	70-130	
trans-1,2-Dichloroethene	ug/L	50	53.1	106	70-130	
trans-1,3-Dichloropropene	ug/L	50	53.4	107	70-132	
trans-1,4-Dichloro-2-butene	ug/L	50	45.5J	91	70-141	
Trichloroethene	ug/L	50	52.2	104	70-130	
Trichlorofluoromethane	ug/L	50	52.8	106	62-133	
Vinyl acetate	ug/L	100	110	110	66-157	
Vinyl chloride	ug/L	50	59.6	119	69-130	
Xylene (Total)	ug/L	150	172	115	70-130	
1,2-Dichloroethane-d4 (S)	%			94	70-130	
4-Bromofluorobenzene (S)	%			101	70-130	
Dibromofluoromethane (S)	%			100	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1008017 1008018

Parameter	Units	92163329004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethene	ug/L	ND	50	50	64.5	53.8	129	108	70-166	18	30	
Benzene	ug/L	ND	50	50	59.3	49.0	119	98	70-148	19	30	
Chlorobenzene	ug/L	ND	50	50	56.9	47.1	114	94	70-146	19	30	
Toluene	ug/L	ND	50	50	55.2	45.2	110	90	70-155	20	30	
Trichloroethene	ug/L	ND	50	50	59.2	48.5	118	97	69-151	20	30	
1,2-Dichloroethane-d4 (S)	%						96	96	70-130			
4-Bromofluorobenzene (S)	%						96	97	70-130			
Dibromofluoromethane (S)	%						96	96	70-130			
Toluene-d8 (S)	%						98	98	70-130			

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

QC Batch: WET/26076 — Analysis Method: SM 2320B
QC Batch Method: SM 2320B — Analysis Description: 2320B Alkalinity
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

METHOD BLANK: 1004259 — Matrix: Water
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Alkalinity, Total as CaCO3	ug/L	ND	5000	07/03/13 11:53	

LABORATORY CONTROL SAMPLE: 1004260

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Alkalinity, Total as CaCO3	ug/L	50000	50900	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1004261 — 1004262

Parameter	Units	92163576001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	ug/L	11.0 mg/L	50000	50000	62000	61300	102	101	75-125	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1004263 — 1004264

Parameter	Units	92163329002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Alkalinity, Total as CaCO3	ug/L	245000	50000	50000	257000	255000	23	21	75-125	1	20	M1

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

QC Batch: WET/26047 Analysis Method: SM 4500-S2D
QC Batch Method: SM 4500-S2D Analysis Description: 4500S2D Sulfide Water
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004

METHOD BLANK: 1002877 Matrix: Water
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfide	ug/L	ND	1000	07/02/13 14:49	

LABORATORY CONTROL SAMPLE: 1002878

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfide	ug/L	500	502J	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1002879 1002880

Parameter	Units	92163157024 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfide	ug/L	ND	500	500	ND	ND	0	0	75-125		20	M1

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

QC Batch: WET/26028 Analysis Method: SM 5210B
QC Batch Method: SM 5210B Analysis Description: 5210B BOD, 5 day
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

METHOD BLANK: 1002335 Matrix: Water
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
BOD, 5 day	ug/L	ND	2000	07/03/13 17:30	

LABORATORY CONTROL SAMPLE: 1002336

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
BOD, 5 day	ug/L	198000	204000	103	84.5-115.4	

SAMPLE DUPLICATE: 1002337

Parameter	Units	92163289001 Result	Dup Result	RPD	Max RPD	Qualifiers
BOD, 5 day	ug/L	2980 mg/L	3040000	2	20	

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

QC Batch: WETA/15836 — Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 — Analysis Description: 300.0 IC Anions
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

METHOD BLANK: 1009969 — Matrix: Water
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Sulfate	ug/L	ND	250000	07/15/13 18:33	

LABORATORY CONTROL SAMPLE: 1009970

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Sulfate	ug/L	20000	18800J	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1009971 — 1009972

Parameter	Units	92164431001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	ug/L	463 mg/L	20000	20000	470000J	471000J	36	39	90-110	0	20	M6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1009973 — 1009974

Parameter	Units	92163329002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Sulfate	ug/L	3250J	20000	20000	24600J	24700J	107	107	90-110	0	20	

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

QC Batch: WETA/15717 — Analysis Method: EPA 353.2
QC Batch Method: EPA 353.2 — Analysis Description: 353.2 Nitrate + Nitrite, Unpres.
Associated Lab Samples: 92163329001, 92163329002, 92163329003

METHOD BLANK: 1002338 — Matrix: Water
Associated Lab Samples: 92163329001, 92163329002, 92163329003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Nitrate	ug/L	ND	10000	06/29/13 01:54	

LABORATORY CONTROL SAMPLE: 1002339

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Nitrate	ug/L	2500	2520J	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1002340 1002341

Parameter	Units	92163157023 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Nitrate	ug/L	349J	2500	2500	2900J	2900J	102	102	90-110	0	20	

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

QC Batch: WETA/15801 — Analysis Method: SM 4500-Cl-E
QC Batch Method: SM 4500-Cl-E — Analysis Description: 4500 Chloride
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

METHOD BLANK: 1007570 — Matrix: Water
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chloride	ug/L	ND	1000	07/10/13 16:41	

LABORATORY CONTROL SAMPLE: 1007571

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chloride	ug/L	20000	20000	100	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1007572 1007573

Parameter	Units	92163253006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	5480	20000	20000	25500	25300	100	99	75-125	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1007574 1007575

Parameter	Units	92163279007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chloride	ug/L	7880	20000	20000	27400	27100	98	96	75-125	1	20	

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

QC Batch: WETA/15824 — Analysis Method: SM 5220D
QC Batch Method: SM 5220D — Analysis Description: 5220D COD
Associated Lab Samples: 92163329001, 92163329002, 92163329003

METHOD BLANK: 1009205 — Matrix: Water
Associated Lab Samples: 92163329001, 92163329002, 92163329003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	ug/L	ND	25000	07/16/13 08:35	

LABORATORY CONTROL SAMPLE: 1009206

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	ug/L	750000	758000	101	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1009207 1009208

Parameter	Units	92163647001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	ug/L	34.0 mg/L	750000	750000	786000	788000	100	101	75-125	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1009209 1009210

Parameter	Units	92163157026 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Chemical Oxygen Demand	ug/L	ND	750000	750000	756000	756000	98	98	75-125	0	20	

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QUALITY CONTROL DATA

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

QC Batch: WETA/15822 — Analysis Method: SM 5310B
QC Batch Method: SM 5310B — Analysis Description: 5310B TOC
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

METHOD BLANK: 1008803 — Matrix: Water
Associated Lab Samples: 92163329001, 92163329002, 92163329003, 92163329004, 92163329005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Organic Carbon	ug/L	ND	1000	07/12/13 16:10	

LABORATORY CONTROL SAMPLE: 1008804

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Organic Carbon	ug/L	25000	24800	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1008805 — 1008806

Parameter	Units	92163157022 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	ug/L	7000	25000	25000	29000	28600	88	86	75-125	1	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1008807 — 1008808

Parameter	Units	92164818003 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Total Organic Carbon	ug/L	11.0 mg/L	25000	25000	34400	34000	93	92	75-125	1	20	

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Pace Analytical Services, Inc.
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(336)623-8921

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Asheville, NC 28804
(828)254-7176

Pace Analytical Services, Inc.
9800 Kincey Ave. Suite 100
Huntersville, NC 28078
(704)875-9092

QUALIFIERS

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Acid preservation may not be appropriate for 2-Chloroethylvinyl ether, Styrene, and Vinyl chloride.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

LABORATORIES

PASI-A	Pace Analytical Services - Asheville
PASI-C	Pace Analytical Services - Charlotte

ANALYTE QUALIFIERS

F3	The recovery of the second source standard used to verify the initial calibration curve for this analyte is outside the laboratory's control limits. The result is estimated.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
M6	Matrix spike and Matrix spike duplicate recovery not evaluated against control limits due to sample dilution.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92163329001	**MW-26**	SM 3030C	MPRP/13660	EPA 6010	ICP/12451
92163329002	**MW-11**	SM 3030C	MPRP/13660	EPA 6010	ICP/12451
92163329003	**MW-31**	SM 3030C	MPRP/13660	EPA 6010	ICP/12451
92163329004	**MW-27**	SM 3030C	MPRP/13660	EPA 6010	ICP/12451
92163329005	**MW-3**	SM 3030C	MPRP/13660	EPA 6010	ICP/12451
92163329001	**MW-26**	EPA 8260	MSV/23560		
92163329002	**MW-11**	EPA 8260	MSV/23560		
92163329003	**MW-31**	EPA 8260	MSV/23560		
92163329004	**MW-27**	EPA 8260	MSV/23560		
92163329005	**MW-3**	EPA 8260	MSV/23560		
92163329001	**MW-26**	SM 2320B	WET/26076		
92163329002	**MW-11**	SM 2320B	WET/26076		
92163329003	**MW-31**	SM 2320B	WET/26076		
92163329004	**MW-27**	SM 2320B	WET/26076		
92163329005	**MW-3**	SM 2320B	WET/26076		
92163329001	**MW-26**	SM 4500-S2D	WET/26047		
92163329002	**MW-11**	SM 4500-S2D	WET/26047		
92163329003	**MW-31**	SM 4500-S2D	WET/26047		
92163329004	**MW-27**	SM 4500-S2D	WET/26047		
92163329001	**MW-26**	SM 5210B	WET/26028	SM 5210B	WET/26029
92163329002	**MW-11**	SM 5210B	WET/26028	SM 5210B	WET/26029
92163329003	**MW-31**	SM 5210B	WET/26028	SM 5210B	WET/26029
92163329004	**MW-27**	SM 5210B	WET/26028	SM 5210B	WET/26029
92163329005	**MW-3**	SM 5210B	WET/26028	SM 5210B	WET/26029
92163329001	**MW-26**	EPA 300.0	WETA/15836		
92163329002	**MW-11**	EPA 300.0	WETA/15836		
92163329003	**MW-31**	EPA 300.0	WETA/15836		
92163329004	**MW-27**	EPA 300.0	WETA/15836		
92163329005	**MW-3**	EPA 300.0	WETA/15836		
92163329001	**MW-26**	EPA 353.2	WETA/15717		
92163329002	**MW-11**	EPA 353.2	WETA/15717		
92163329003	**MW-31**	EPA 353.2	WETA/15717		
92163329001	**MW-26**	SM 4500-Cl-E	WETA/15801		
92163329002	**MW-11**	SM 4500-Cl-E	WETA/15801		
92163329003	**MW-31**	SM 4500-Cl-E	WETA/15801		
92163329004	**MW-27**	SM 4500-Cl-E	WETA/15801		
92163329005	**MW-3**	SM 4500-Cl-E	WETA/15801		
92163329001	**MW-26**	SM 5220D	WETA/15824		
92163329002	**MW-11**	SM 5220D	WETA/15824		
92163329003	**MW-31**	SM 5220D	WETA/15824		
92163329001	**MW-26**	SM 5310B	WETA/15822		
92163329002	**MW-11**	SM 5310B	WETA/15822		
92163329003	**MW-31**	SM 5310B	WETA/15822		
92163329004	**MW-27**	SM 5310B	WETA/15822		

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Alexander LF (SWS & UIC)
Pace Project No.: 92163329

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92163329005	**MW-3**	SM 5310B	WETA/15822		

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Pace Analytical	Sample Condition Upon Receipt (SCUR)	Page 1 of 2
	Document Number: F-CHR-CS-03-rev.11	Issuing Authority: Pace Huntersville Quality Office

Client Name: Municipal

Where Received: ☑ Huntersville ☐ Asheville ☐ Eden ☐ Raleigh

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other_____

Custody Seal on Cooler/Box Present: ☐ yes ☐ no Seals intact: ☐ yes ☐ no

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other_____

Thermometer Used: IR Gun T1102 T1301 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Temp Correction Factor **T1102**: No Correction **T1301**: No Correction

Corrected Cooler Temp.: 2.6 C **Biological Tissue is Frozen:** Yes No N/A

Temp should be above freezing to 6°C

Optional
Proj. Due Date:
Proj. Name:

Date and Initials of person examining contents: [illegible] 6/28/13

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☑Yes ☐No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	☑Yes ☐No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☐No ☑N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix:_____	☐Yes ☑No ☐N/A	12. no time/date on all bottles
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☑Yes ☐No	
Samples checked for dechlorination:	☑Yes ☐No ☐N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☐Yes ☐No ☑N/A	16.
Trip Blank Custody Seals Present	☐Yes ☐No ☑N/A	
Pace Trip Blank Lot # (if purchased):_____		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

SCURF Review: [illegible] **Date:** 6/28/13

SRF Review: [illegible] **Date:** 7/1/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

WO# : 92163329

92163329

Only C-O-C for this Report! (Done)

Pace Analytical

CHAIN-OF-CUSTODY / Analytical Request Document

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

Page : 1 Of 1

Section A — Required Client Information:

Company:	Municipal Engineering Services
Address:	P.O. Box 97
	Garner, NC 27529
Email To:	jpfohl@mesco.com
Phone:	919-772-5393 Fax:
Requested Due Date/TAT:	10 Day (Default)

Section B — Required Project Information:

Report To:	Jonathan Pfohl
Copy To:	
Purchase Order No.	
Client Project ID:	Alexander LF (SWS & UIC)
Container Order Number:	

Section C — Invoice Information:

Attention:	Municipal Engineering Services
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Kevin Godwin
Pace Profile #:	

Regulatory Agency
State / Location
North Carolina

Requested Analysis Filtered (Y/N)

ITEM#	SAMPLE ID (One Character per box. (A-Z, 0-9 / , -) Sample Ids must be unique)	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED START DATE	COLLECTED START TIME	COLLECTED END DATE	COLLECTED END TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Unpreserved	H2SO4	HNO3	HCl	NaOH	Na2S2O3	Methanol	Other	Analyses Test Y/N	VOCs Appendix I	Total Metals Appendix I	Napthalene (8260B)	Alkalinity	Chloride	Sulfate	Sulfide	TOC	COD	BOD	Iron	Nitrate	1,2,4-Trichlorobenzene (8260B)	1,3-Dichlorobenzene (8260B)	92163329
1	MW-3	WT	G			6/27/13	5:40PM					1	3						X	X	X	X	X	X		X		X					005
2	MW-11	WT	G				5:10PM					1	3						X	X		X	X	X	X	X	X	X	X	X			002
3	MW-26	WT	G				4:35PM					1	3						X	X		X	X	X	X	X	X	X	X	X	X	X	001
4	MW-27	WT	G				4:00PM					1	3						X	X		X	X	X	X	X		X					004
5	MW-31	WT	G				3:15					1	3						X	X		X	X	X	X	X	X	X	X				003
6																																	
7																																	
8																																	
9																																	
10																																	
11																																	
12																																	

Matrix codes: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Other OT; Tissue TS

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS
	MESCO Left @ Pace	6/27/13	9:10PM	Pace	6/28/13	1140	
	Pace	06/28/13	1335		6/28/13	13:35	2.8

SAMPLER NAME AND SIGNATURE		TEMP in C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PRINT Name of SAMPLER:	Jonathan Pfohl				
SIGNATURE of SAMPLER:	DATE Signed: 6/27/13				