

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):

Smith Gardner, Inc.

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

Name: Madeline German, PG Phone: 919-828-0577 x 222
 E-mail: madeline@smithgardnerinc.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Halifax Coal Ash Landfill	921 Liles Rd, Aurellan Springs, NC	42-04	.0500	August 28, 2012

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

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.

Madeline German, PG Geologist 919-828-0577 x 222
 Facility Representative Name (Print) Title (Area Code) Telephone Number
 Signature Date Affix NC Licensed Professional Geologist Seal
 14-N. Boylan Avenue, Raleigh, NC 27603
 Facility Representative Address
 C0828
 NC PE Firm License Number (if applicable effective May 1, 2009)



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**Groundwater Monitoring Report
August 2012 Semi-Annual Event**

**Halifax County Coal Ash Landfill
Littleton, North Carolina
NC Solid Waste Permit #42-04**

Prepared for:

**Halifax County Solid Waste Department
P.O. Box 70
Halifax, North Carolina 27839**



September 2012

Prepared by:

SMITH+GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577



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Halifax County Coal Ash Landfill Groundwater Monitoring Report

August 2012 Semi-Annual Event

Table of Contents

	<u>Page</u>
1.0 INTRODUCTION	1
2.0 SITE HYDROGEOLOGY.....	1
3.0 SAMPLING LOCATIONS AND PROCEDURES.....	1
4.0 FIELD AND LABORATORY RESULTS.....	2
4.1 Field Results.....	2
4.2 Laboratory Analysis.....	2
4.3 Laboratory Results.....	2
5.0 GROUND WATER CHARACTERIZATION	3
6.0 CONCLUSIONS	3

FIGURES

Figure 1 Groundwater Map

TABLES

Table 1 Field Parameters
Table 2 Inorganic Constituents Detected in Water Samples
Table 3 Inorganic Constituents Detected in Sediment

APPENDICES

Appendix A Laboratory Analytical Report

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1.0 INTRODUCTION

Smith Gardner, Inc (S+G) is pleased to submit this semi-annual sampling report on behalf of the Halifax County Coal Ash Landfill, operating under Solid Waste Permit #42-04, in accordance with Solid Waste Section Rule 15A NCAC 13B. This report presents semi-annual monitoring results for the event performed August 28, 2012.

The Halifax County Coal Ash Landfill is a monofill landfill that only accepts coal ash from power generation. The ground water monitoring network includes six wells located around the landfill perimeter, a surface water sampling point, a sedimentation basin discharge location and two sediment sampling locations in the stream immediately upgradient and downgradient of the sedimentation basin discharge. This report includes a field procedure summary, laboratory analyses, summary tables and ground water characterization.

2.0 SITE HYDROGEOLOGY

The *1985 North Carolina Geological Map and Ground Water in the Halifax Area, North Carolina* (Dept. of Conservation and Development Bulletin #51, 1946) indicates the Halifax County Coal Ash Landfill is situated on the eastern edge of the Eastern Piedmont Physiographic Province, just west of the Coastal Plain overlap. Western Halifax County is underlain by an assemblage of felsic to intermediate crystalline igneous and metamorphic rocks of early to late Paleozoic age. Eastern piedmont rocks exhibit a northeast strike and locally dip gently eastward as a result of regional metamorphism and folding that produced a broad plunging anticline. The area was simultaneously intruded by a number of felsic (granite) plutons. The rock formation underlying the subject site is a granitic pluton identified as the Butterwood Creek intrusive.

Depths to ground water generally range from near surface in lowland areas along Brewer's Creek and its tributary to around 45 ft. below grade in the MW-12 area. Ground water generally flows to the south.

3.0 SAMPLING LOCATIONS AND PROCEDURES

The sampling event, performed by Environment 1, Inc., on August 28, 2012 was conducted in accordance with the approved site Water Quality Monitoring Plan. Sampling methods followed the protocol outlined in the Solid Waste Section Guidelines for Groundwater, Soil and Surface Water Sampling¹. The depth to water in each well was gauged prior to purging and sampling. Field measurements for pH, specific conductivity, turbidity and temperature were recorded at each well.

The monitoring network at the Halifax Coal Ash Landfill currently includes six ground water wells (MW-8, MW-9, MW-10, MW-11, MW-12 and MW-17), a surface water location (SW-1) one sample collected from Sediment Basin 1 (Basin 1) and two sediment samples collected

¹ Solid Waste Section Guidelines for Groundwater, Soil and surface Water Sampling, NCDENR, DWM, April 2008.

upstream and downstream of the sedimentation basin discharge point (Sediment 1 and Sediment 2).

Samples were collected by Environment 1, Inc. personnel in laboratory prepared containers for the specified analytical procedures. Sampling equipment (bailers) was cleaned at the laboratory and transported to the site in aluminum foil. Ground water samples were properly preserved, placed on ice and transported to the laboratory facility within the specified hold times for each analysis.

Sampling locations are shown on **Figure 1**.

4.0 FIELD AND LABORATORY RESULTS

4.1 Field Results

Temperature, pH and specific conductance were measured in the field prior to sampling via direct read instruments. The field parameter results are summarized in **Table 1** and have remained consistent with previously reported sampling events.

4.2 4.2 Laboratory Analysis

The samples were transported under proper chain of custody, in a cooler with ice to Environment 1, Inc., a North Carolina certified laboratory (NC Wastewater ID #10) located in Greenville, NC. Ground and surface water samples were analyzed for Appendix I metals plus mercury, total organic carbon (TOC), chloride and sulfate via the SWS approved test methods specified in the laboratory report. Sediment samples were analyzed by SGS North America (NC Certification ID #481) located in Wilmington, NC. Samples were analyzed for specific metals detailed in the laboratory report using approved TCLP methods. Parameters were reported at NC Solid Waste Section Practical Quantitation Limits (SWSLs).

The laboratory analytical report is included as **Appendix A**.

4.3 Laboratory Results

The laboratory analysis were compared with the 15A NCAC 2L 0200 Groundwater Standard (2L Standard) and SWSL. Inorganic results remain generally consistent with historically reported detections. Zinc (MW-11, MW-12 and MW-17) were detected above the SWSL. No metals were detected above the 2L Standard. Most inorganic levels were reported as “J-qualified” indicating they are a non-quantifiable value that falls between the method limit and the SWSL. High turbidity levels, indicating increased sediment in the samples, may have contributed to elevated metal concentrations for this event.

No metals were identified in the surface water sample; however, SW-1 had reportable concentrations of chloride and TOC.

Samples from basin 1 had metals detections of arsenic, mercury, selenium and lead. Chloride and sulfate were also identified at reportable concentrations.

No metals were detected in either sediment sample.

Detected inorganic constituents from ground or surface water samples are presented in **Table 2**. Sediment sample results are shown in **Table 3**.

5.0 GROUND WATER CHARACTERIZATION

The depth to water data indicates that ground water is flowing generally south towards the unnamed tributary to Brewer's Creek; which is consistent with historic ground water flow patterns. The ground water flow map is included as **Figure 1**.

6.0 CONCLUSIONS

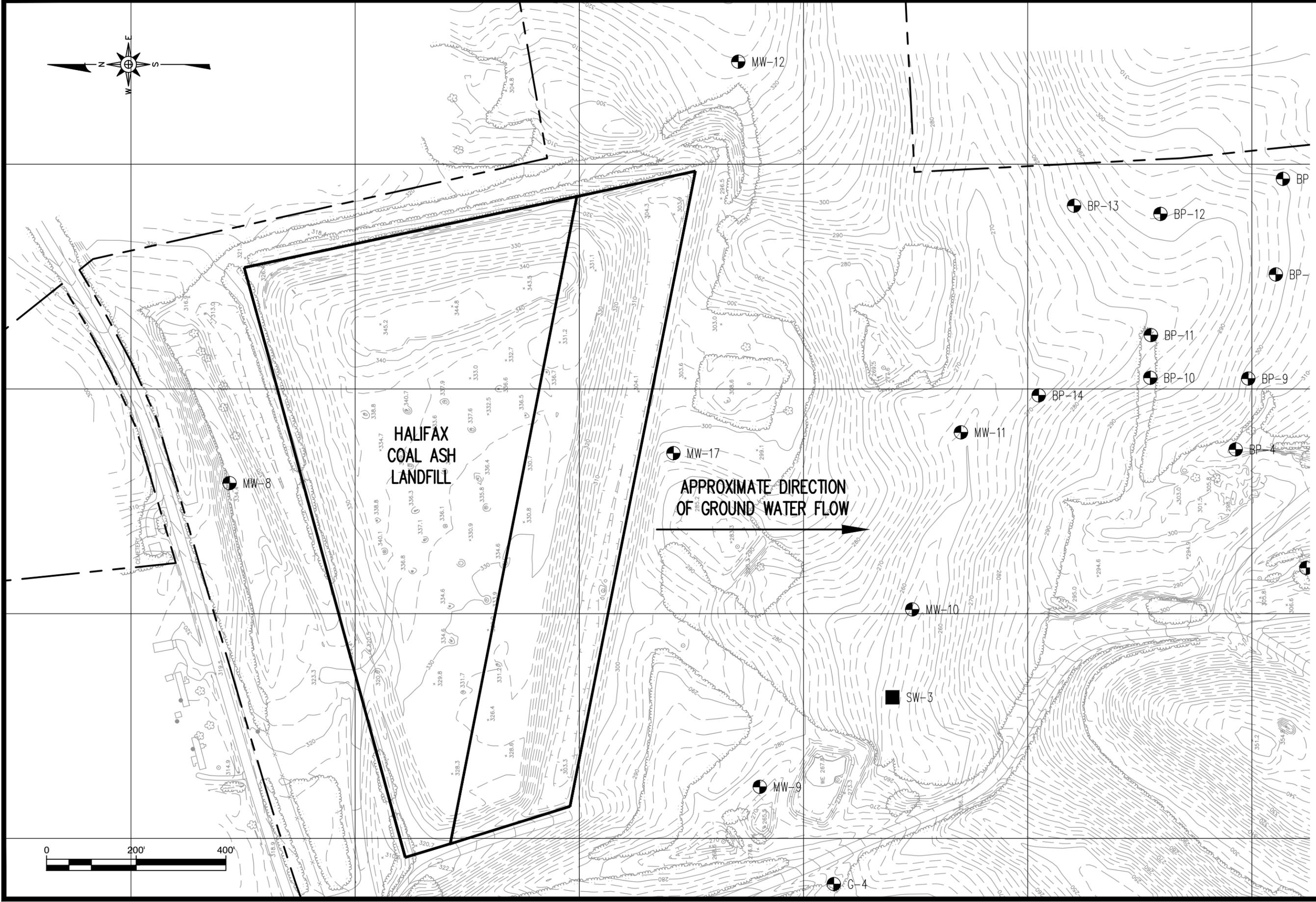
Current and historic analytical data indicate no ground water impact at this site. Turbidity levels for this event in MW-11, MW-12 and MW-17 were reported at 50, 24 and 38 nephelometric turbidity units (NTU) respectively. These turbidity levels may have "biased high" inorganic results due to their natural occurrence in local soil. The landfill is not likely the contamination source. The next semi-annual event is scheduled for February 2012. An event report will be submitted after receipt and analysis of those sampling results.

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FIGURES

**Groundwater Monitoring Report
August 2012 Event
Halifax County Coal Ash Landfill**

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DRAWN: C.T.J.		APPROVED: J.A.S.	SCALE: AS SHOWN	FIGURE NO: 1	PREPARED BY: NC LIC. NO. C-0828 (ENGINEERING)
DATE: Sep 2012		PROJECT NO: HALIFAX-8		FILENAME: HALI-B0103	SMITH+GARDNER 14 N. Boylan Avenue, Raleigh NC 27603 919.828.0577
DIRECTION OF GROUND WATER FLOW HALIFAX COAL ASH LANDFILL AURELIAN SPRINGS, NC					

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TABLES

**Groundwater Monitoring Report
August 2012 Event
Halifax County Coal Ash Landfill**

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**Table 1
Halifax County Coal Ash Landfill
Field Parameters
August 28, 2012**

Monitoring Location	pH (std units)	Static Water Level (feet)	Specific Conductivity (umhos/cm)	Temperature degrees C)	Turbidity (NTU)
MW-8	4.7	7.51	72	22	4.8
MW-9	5.3	10.34	36	21	4.9
MW-10	5.3	3.04	38	21	2
MW-11	6.4	4.62	109	20	50
MW-12	4.7	42.83	35	17	24
MW-17	5.4	19.36	31	19	38
SW-1	6.3	NA	87	22	5.4
Basin 1	6.6	NA	2058.0	25.0	2.0

Table 2
Halifax County Coal Ash Landfill
Inorganic Constituents Detected in Water Samples
August 28, 2012

Monitoring Location	MDL	SWSL	2L Standard	MW-8	MW-9	MW-10	MW-11	MW-12	MW-17	SW-1	Basin #1
Total Organic Carbon	300	NE	NE	1640	<300	<300	<300	<300	<300	5550	<300
Chloride	5000	--	250000	500	10000	39000	10000	9000	5000	14000	51000
Sulfate	5000	250000	250000	17500 J	20800 J	19300 J	<5000	7800 J	8000 J	12600 J	2125000
Arsenic	0.13	10	10	0.19 J	<0.13	<0.13	1.1 J	<0.13	<0.13	0.33 J	11
Barium	0.07	100	700	60.4 J	30.7 J	22.9 J	33.9 J	37.7 J	40.9 J	18.5 J	38.8 J
Cadmium	0.03	1	2	0.10 J	0.15 J	0.68 J	0.11 J	0.11 J	0.14 J	0.05 J	0.05 J
Chromium, total	0.18	10	10	<0.18	<0.18	0.20 J	1.4 J	1.0 J	1.3 J	0.56 J	1.7 J
Copper	0.06	10	1000	0.75 J	0.92 J	0.97 J	6.1 J	1.9 J	4.0 J	1.0 J	0.71 J
Lead	0.08	10	15	0.93 J	0.39 J	0.32 J	1.5 J	1.2 J	0.50 J	0.26 J	<0.08
Mercury	0.02	0.2	1	<0.02	0.04 J	0.05 J	0.03 J	0.03 J	0.02 J	0.05 J	0.57
Selenium	0.17	10	20	<0.17	<0.17	<0.17	<0.17	<0.17	<0.17	0.18 J	52
Zinc	0.48	10	1000	5.5 J	6.8 J	9.3 J	23	20	21	5.0 J	28

NOTE:

- MDL - Method Detection Limit
- SWSL - Solid Waste Section Quantitation Limit
- 2L - Groundwater Standard (15A NCAC 2L 0200)
- < MDL - Not detected at or above the MDL
- Shading - Levels above 2L Standard
- Bold Letters - Constituent detected above SWSL
- J - "J-qualified" reported from laboratory as data between the MDL and SWSL

Results are presented in ug/l.

Data from 09/13/2012 Environment 1, Incorporated Laboratory Report #6042 A.

**Table 3
Halifax County Coal Ash Landfill
Inorganic Constituents Detected in Sediment
August 28, 2012**

Monitoring Location	LOQ/CL	SWSL	2L Standard	Sediment #1 Upstream	Sediment #2 Downstream
Arsenic	100	10	10	<100	<100
Barium	1000	100	700	<1000	<1000
Cadmium	50	1	2	<50	<50
Chromium, total	100	10	10	<100	<100
Lead	100	10	15	<100	<100
Mercury	0.3	0.2	1	<0.3	<0.3
Selenium	200	10	20	<200	<200
Silver	100	10	20	<100	<100

NOTE:

- LOQ/CL - Reporting Limit/Control Limit for the parameter recovery result
- SWSL - Solid Waste Section Quantitation Limit
- 2L - Groundwater Standard (15A NCAC 2L 0200)
- < LOQ/CL - Not detected at or above the LOQ/CL
- Shading - Levels above 2L Standard
- Bold Letters - Constituent detected above SWSL
- J - "J-qualified" reported from laboratory as data between the MDL and SWSL

Results are presented in ug/l unless otherwise noted.

Results by SW-846 7470A TCLP and SW-846 6010C TCLP, as reported by SGS report #31202784.

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Appendix A

Laboratory Analytical Report

**Groundwater Monitoring Report
August 2012 Event
Halifax County Coal Ash Landfill**

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Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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

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

ID#: 6042

HALIFAX CO. (COAL ASH LANDFILL)
MS. GWEN MATTHEWS
P.O. BOX 70
HALIFAX ,NC 27839

DATE COLLECTED: 08/28/12
DATE REPORTED : 09/13/12

REVIEWED BY: 

PARAMETERS	MDL	Well					Analysis		Method
		SWSL	#8	#9	#10	#11	#12	Date	
PH (field measurement), Units			4.7	5.3	5.3	6.4	4.7	08/28/12RJH	SM4500HB
Total Organic Carbon, mg/l	0.30	1.0	1.64	- - U	--- U	--- U	--- U	08/29/12SEJ	SM5310C
Chloride, mg/l	5.0	5.0	5	10	39	10	9	08/29/12MSG	SM4500-CLB
Sulfate, mg/l	5.0	250.0	17.5 J	20.8 J	19.3 J	--- U	7.8 J	09/05/12TRB	4500SO42R97
Arsenic, ug/l	0.13	10.0	0.19 J					09/04/12LFFJ	EPA200.8
Arsenic, ug/l	0.13	10.0		- - U	--- U	1.1 J	--- U	09/07/12LFFJ	EPA200.8
Barium, ug/l	0.07	100.0	60.4 J					09/04/12LFFJ	EPA200.8
Barium, ug/l	0.07	100.0		30.7 J	22.9 J	33.9 J	37.7 J	09/07/12LFFJ	EPA200.8
Cadmium, ug/l	0.03	1.0	0.10 J					09/04/12LFFJ	EPA200.8
Cadmium, ug/l	0.03	1.0		0.15 J	0.68 J	0.11 J	0.11 J	09/07/12LFFJ	EPA200.8
Copper, ug/l	0.06	10.0	0.75 J					09/04/12LFFJ	EPA200.8
Copper, ug/l	0.06	10.0		0.92 J	0.97 J	6.1 J	1.9 J	09/07/12LFFJ	EPA200.8
Total Chromium, ug/l	0.18	10.0	--- U					09/04/12LFFJ	EPA200.8
Total Chromium, ug/l	0.18	10.0		- - U	0.20 J	1.4 J	1.0 J	09/07/12LFFJ	EPA200.8
Lead, ug/l	0.08	10.0	0.93 J					09/04/12LFFJ	EPA200.8
Lead, ug/l	0.08	10.0		0.39 J	0.32 J	1.5 J	1.2 J	09/07/12LFFJ	EPA200.8
Mercury, ug/l	0.02	0.20	--- U					09/04/12LFFJ	EPA200.8
Mercury, ug/l	0.02	0.20		0.04 J	0.05 J	0.03 J	0.03 J	09/07/12LFFJ	EPA200.8
Selenium, ug/l	0.17	10.0	--- U					09/04/12LFFJ	EPA200.8
Selenium, ug/l	0.17	10.0		- - U	--- U	--- U	--- U	09/07/12LFFJ	EPA200.8
Silver, ug/l	0.10	10.0	--- U					09/04/12LFFJ	EPA200.8
Silver, ug/l	0.10	10.0		- - U	--- U	--- U	--- U	09/07/12LFFJ	EPA200.8
Zinc, ug/l	0.48	10.0	5.5 J					09/04/12LFFJ	EPA200.8
Zinc, ug/l	0.48	10.0		6.8 J	9.3 J	23	20	09/07/12LFFJ	EPA200.8
Turbidity, NTU	1.0	1.0	4.8	4.9	2.0	50	24	08/28/12HLB	SM2130B
Conductivity (at 25c), uMhos/cm	1.0	1.0	72	36	38	109	35	08/28/12RJH	SM2510B
Temperature, °C			22	21	21	20	17	08/28/12RJH	SM2550B
Static Water Level, feet			7.54	10.34	3.04	4.62	42.83	08/28/12RJH	
Well Depth, feet			23.29	24.97	16.22	21.71	51.02	08/28/12RJH	

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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

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

ID#: 6042

HALIFAX CO. (COAL ASH LANDFILL)
MS. GWEN MATTHEWS
P.O. BOX 70
HALIFAX ,NC 27839

DATE COLLECTED: 08/28/12
DATE REPORTED : 09/13/12

REVIEWED BY: 

PARAMETERS	MDL	Well		Analysis		Method
		SWSL	#17	Date	Analyst	Code
PH (field measurement), Units				5.4	08/28/12RJH	SM4500HB
Total Organic Carbon, mg/l	0.30	1.0	---	U	08/29/12SEJ	SM5310C
Chloride, mg/l	5.0	5.0		5	08/29/12MSG	SM4500-CLB
Sulfate, mg/l	5.0	250.0		8.0 J	09/05/12TRB	4500SO42E97
Arsenic, ug/l	0.13	10.0	---	U	09/07/12LFJ	EPA200.8
Barium, ug/l	0.07	100.0		40.9 J	09/07/12LFJ	EPA200.8
Cadmium, ug/l	0.03	1.0		0.14 J	09/07/12LFJ	EPA200.8
Copper, ug/l	0.06	10.0		4.0 J	09/07/12LFJ	EPA200.8
Total Chromium, ug/l	0.18	10.0		1.3 J	09/07/12LFJ	EPA200.8
Lead, ug/l	0.08	10.0		0.50 J	09/07/12LFJ	EPA200.8
Mercury, ug/l	0.02	0.20		0.02 J	09/07/12LFJ	EPA200.8
Selenium, ug/l	0.17	10.0	---	U	09/07/12LFJ	EPA200.8
Silver, ug/l	0.10	10.0	---	U	09/07/12LFJ	EPA200.8
Zinc, ug/l	0.48	10.0		21	09/07/12LFJ	EPA200.8
Turbidity, NTU	1.0	1.0		38	08/28/12HLB	SM2130B
Conductivity (at 25c), uMhos/cm	1.0	1.0		31	08/28/12RJH	SM2510B
Temperature, °C				19	08/28/12RJH	SM2550B
Static Water Level, feet				19.36	08/28/12RJH	
Well Depth, feet				26.81	08/28/12RJH	

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

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

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

ID#: 6042 A

HALIFAX CO. (COAL ASH LANDFILL)
MS. GWEN MATTHEWS
P.O. BOX 70
HALIFAX ,NC 27839

DATE COLLECTED: 08/28/12
DATE REPORTED : 09/13/12

REVIEWED BY: 

PARAMETERS	MDL	SW-1		Basin #1	Analysis		Method
		SWSL			Date	Analyst	
PH (field measurement), Units			6.3	6.6	08/28/12	RJH	SM4500HB
Total Organic Carbon, mg/l	0.30	1.0	5.55	- - U	08/29/12	SEJ	SM5310C
Chloride, mg/l	5.0	5.0	14	51	08/29/12	MSG	SM4500-CLB
Sulfate, mg/l	5.0	250.0	12.6 J	2125	09/05/12	TRB	4500S042E97
Arsenic, ug/l	0.13	10.0	0.33 J	11	09/07/12	Lfj	EPA200.8
Barium, ug/l	0.07	100.0	18.5 J	38.8 J	09/07/12	Lfj	EPA200.8
Cadmium, ug/l	0.03	1.0	0.05 J	0.05 J	09/07/12	Lfj	EPA200.8
Copper, ug/l	0.06	10.0	1.0 J	0.71 J	09/07/12	Lfj	EPA200.8
Total Chromium, ug/l	0.18	10.0	0.56 J	1.7 J	09/07/12	Lfj	EPA200.8
Lead, ug/l	0.08	10.0	0.26 J	- - U	09/07/12	Lfj	EPA200.8
Mercury, ug/l	0.02	0.20	0.05 J	0.57	09/07/12	Lfj	EPA200.8
Selenium, ug/l	0.17	10.0	0.18 J	52	09/07/12	Lfj	EPA200.8
Silver, ug/l	0.10	10.0	--- U	- - U	09/07/12	Lfj	EPA200.8
Zinc, ug/l	0.48	10.0	5.0 J	28	09/07/12	Lfj	EPA200.8
Turbidity, NTU	1.0	1.0	5.4	2.0	08/28/12	HLB	SM2130B
Conductivity (at 25c), uMhos/cm	1.0	1.0	87	2058	08/28/12	RJH	SM2510B
Temperature, °C			22	25	08/28/12	RJH	SM2550B

J = Between MDL and SWSL, U = Below ALL Quantitation Limits.

Environment 1, Inc.
 P.O. Box 7085, 114 Oakmont Dr.
 Greenville, NC 27858

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

CLIENT: 6042 A Week: 35

HALIRAX CO. (COAL ASH LANDFILL)
 MS. GWEN MATTHEWS
 P.O. BOX 70
 HALIRAX NC 27839

(252) 583-1807

CHAIN OF CUSTODY RECORD

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	DISINFECTION		Field pH	TOC	Chloride	Sulfate	Metals	Turbidity	Conductivity	Temperature	TCLP Metals	PARAMETERS	CLASSIFICATION:	
	DATE	TIME				CHLORINE	UV												
SW-1	08/28/12	10:10	22	6	6	<input type="checkbox"/>	<input type="checkbox"/>												
Basin #1	08/28/12	10:40	25	6	6	<input type="checkbox"/>	<input type="checkbox"/>												
Sediment Sample #1	08/28/12	10:35	23	1	1	<input type="checkbox"/>	<input type="checkbox"/>												
Sediment Sample #2	08/28/12	10:45	22	1	1	<input type="checkbox"/>	<input type="checkbox"/>												
RECEIVED BY (SIG) <i>[Signature]</i> DATE/TIME <i>8/28/12 8:00</i> RECEIVED BY (SIG) <i>[Signature]</i> DATE/TIME <i>8/28/12 8:00</i>																			
COMMENTS:																			
SAMPLES COLLECTED BY: <i>[Signature]</i> (Please Print) <i>Set</i> CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY <i>[Signature]</i> SAMPLES RECEIVED IN LAB AT <i>0-2°C</i>																			

PLEASE READ Instructions for completing this form on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested. No 246780



Laboratory Report of Analysis

To: Dee Dee Woolard
ENVIRONMENT 1, INC.
P.O. Box 7085
Greenville, NC 27835

Report Number: 31202784

Client Project: 6042A Halifax Co. (Coalash LF)

Dear Dee Dee Woolard,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of five years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of thirty (30) days from the date of this report unless other arrangements are requested.

If there are any questions about the report or services performed during this project, please call Michael D. Page at (910) 350-1903. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Digitally signed by: Michael Page
Date: 2012.09.12 16:08:19 -04'00'

Michael D. Page

Date

Print Date: 09/12/2012

N.C. Certification # 481

ANALYTICAL PERSPECTIVES IS NOW PART OF SGS, THE WORLD'S LEADING INSPECTION, VERIFICATION, TESTING AND CERTIFICATION COMPANY.



Laboratory Qualifiers

Report Definitions

DL	Method, Instrument, or Estimated Detection Limit per Analytical Method
CL	Control Limits for the recovery result of a parameter
LOQ	Reporting Limit
DF	Dilution Factor
RPD	Relative Percent Difference
LCS(D)	Laboratory Control Spike (Duplicate)
MS(D)	Matrix Spike (Duplicate)
MB	Method Blank

Qualifier Definitions

*	Recovery or RPD outside of control limits
B	Analyte was detected in the Lab Method Blank at a level above the LOQ
U	Undetected (Reported as ND or < DL)
V	Recovery is below quality control limit. The data has been validated based on a favorable signal-to-noise and detection limit
A	Amount detected is less than the Lower Method Calibration Limit
J	Estimated Concentration.
O	The recovery of this analyte in the OPR is above the Method QC Limits and the reported concentration in the sample may be biased high
E	Amount detected is greater than the Upper Calibration Limit
S	The amount of analyte present has saturated the detector. This situation results in an underestimation of the affected analyte(s)
Q	Indicates the presence of a quantitative interference. This situation may result in an underestimation of the affected analyte(s)
I	Indicates the presence of a qualitative interference that could cause a false positive or an overestimation of the affected analyte(s)
DPE	Indicates the presence of a peak in the polychlorinated diphenylether channel that could cause a false positive or an overestimation of the affected analyte(s)
TIC	Tentatively Identified Compound
EMPC	Estimated Maximum possible Concentration due to ion ratio failure
ND	Not Detected
K	Result is estimated due to ion ratio failure in High Resolution PCB Analysis
P	RPD > 40% between results of dual columns
D	Spike or surrogate was diluted out in order to achieve a parameter result within instrument calibration range

Samples requiring manual integrations for various congeners and/or standards are marked and dated by the analyst. A code definition is provided below:

M1 Mis-identified peak

Note Results pages that include a value for "Solids (%)" have been adjusted for moisture content.



Sample Summary

<u>Client Sample ID</u>	<u>Lab Sample ID</u>	<u>Collected</u>	<u>Received</u>	<u>Matrix</u>
Sample #1	31202784001	08/28/2012 10:35	08/31/2012 10:20	Soil-Solid as dry weight
Sample #2	31202784002	08/28/2012 10:45	08/31/2012 10:20	Soil-Solid as dry weight

Print Date: 09/12/2012

N.C. Certification # 481

**Results of Sample #1**

Client Sample ID: **Sample #1**
Client Project ID: **6042A Halifax Co. (Coalash LF)**
Lab Sample ID: **31202784001-A**
Lab Project ID: **31202784**

Collection Date: **08/28/2012 10:35**
Received Date: **08/31/2012 10:20**
Matrix: **Soil-Solid as dry weight**
Solids (%):

Results by SW-846 6010C -TCLP

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Arsenic	ND		0.100	mg/L	1	09/11/2012 16:54
Selenium	ND		0.200	mg/L	1	09/11/2012 16:54
Cadmium	ND		0.0500	mg/L	1	09/11/2012 16:54
Lead	ND		0.100	mg/L	1	09/11/2012 16:54
Barium	ND		1.00	mg/L	1	09/11/2012 16:54
Chromium	ND		0.100	mg/L	1	09/11/2012 16:54
Silver	ND		0.100	mg/L	1	09/11/2012 16:54

Batch Information

Analytical Batch: **MIP1721**
Analytical Method: **SW-846 6010C -TCLP**
Instrument: **ICP1**
Analyst: **PSW**

Prep Batch: **MXX2291**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **09/10/2012 09:54**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**



Results of Sample #1

Client Sample ID: **Sample #1**
Client Project ID: **6042A Halifax Co. (Coalash LF)**
Lab Sample ID: **31202784001-A**
Lab Project ID: **31202784**

Collection Date: **08/28/2012 10:35**
Received Date: **08/31/2012 10:20**
Matrix: **Soil-Solid as dry weight**
Solids (%):

Results by SW-846 7470A-TCLP

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND		0.000300	mg/L	1	09/11/2012 14:41

Batch Information

Analytical Batch: **MHG1299**
Analytical Method: **SW-846 7470A-TCLP**
Instrument: **HG2**
Analyst: **NTM**

Prep Batch: **MXX2294**
Prep Method: **SW-846 7470A PREP TCLP**
Prep Date/Time: **09/11/2012 10:46**
Prep Initial Wt./Vol.: **20 mL**
Prep Extract Vol: **57 mL**



Results of Sample #2

Client Sample ID: **Sample #2**
Client Project ID: **6042A Halifax Co. (Coalash LF)**
Lab Sample ID: **31202784002-A**
Lab Project ID: **31202784**

Collection Date: **08/28/2012 10:45**
Received Date: **08/31/2012 10:20**
Matrix: **Soil-Solid as dry weight**
Solids (%):

Results by SW-846 6010C -TCLP

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Arsenic	ND		0.100	mg/L	1	09/11/2012 17:08
Selenium	ND		0.200	mg/L	1	09/11/2012 17:08
Cadmium	ND		0.0500	mg/L	1	09/11/2012 17:08
Lead	ND		0.100	mg/L	1	09/11/2012 17:08
Barium	ND		1.00	mg/L	1	09/11/2012 17:08
Chromium	ND		0.100	mg/L	1	09/11/2012 17:08
Silver	ND		0.100	mg/L	1	09/11/2012 17:08

Batch Information

Analytical Batch: **MIP1721**
Analytical Method: **SW-846 6010C -TCLP**
Instrument: **ICP1**
Analyst: **PSW**

Prep Batch: **MXX2291**
Prep Method: **SW-846 3010A TCLP**
Prep Date/Time: **09/10/2012 09:54**
Prep Initial Wt./Vol.: **5 mL**
Prep Extract Vol: **50 mL**



Results of Sample #2

Client Sample ID: **Sample #2**
Client Project ID: **6042A Halifax Co. (Coalash LF)**
Lab Sample ID: **31202784002-A**
Lab Project ID: **31202784**

Collection Date: **08/28/2012 10:45**
Received Date: **08/31/2012 10:20**
Matrix: **Soil-Solid as dry weight**
Solids (%):

Results by SW-846 7470A-TCLP

<u>Parameter</u>	<u>Result</u>	<u>Qual</u>	<u>LOQ/CL</u>	<u>Units</u>	<u>DF</u>	<u>Date Analyzed</u>
Mercury	ND		0.000300	mg/L	1	09/11/2012 14:45

Batch Information

Analytical Batch: **MHG1299**
Analytical Method: **SW-846 7470A-TCLP**
Instrument: **HG2**
Analyst: **NTM**

Prep Batch: **MXX2294**
Prep Method: **SW-846 7470A PREP TCLP**
Prep Date/Time: **09/11/2012 10:45**
Prep Initial Wt./Vol.: **20 mL**
Prep Extract Vol: **67 mL**

Environment I, Inc.
 P.O. Box 7085, 114 Oakmont Dr.
 Greenville, NC 27858

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

CLIENT: 6042 A Week: 35

HALIFAX CO. (COAL ASH LANDFILL)
 MS. GWEN MATTHEWS
 P.O. BOX 70
 HALIFAX NC 27839

(252) 583-1807

CHAIN OF CUSTODY RECORD

31202784

Page 1 of 1

SAMPLE LOCATION	COLLECTION		TOTAL CHLORINE, mg/l	AT COLLECTION	TEMPERATURE, °C	AT COLLECTION	# OF CONTAINERS	DISINFECTION				P	P	P	P	P	P	G	PARAMETERS	CLASSIFICATION	CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY	SAMPLES COLLECTED BY: (Please Print)	SAMPLES RECEIVED IN LAB AT	
	DATE	TIME						CHLORINE	UV	NONE	CHLORINE NEUTRALIZED AT COLLECTION													pH CHECK (LAB)
SW-1	08/28/12	1010			22		6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
Basin #1	08/28/12	1040			25		6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
Sediment Sample #1	08/28/12	1035			23		1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
Sediment Sample #2	08/28/12	1045			22		1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														
RELINQUISHED BY (SIG.) (SAMPLER)		DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME	COMMENTS:																			
<i>[Signature]</i>		08/28/12	<i>[Signature]</i>	8/28/12 1255	TCLP Metals																			
RELINQUISHED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME																				
<i>[Signature]</i>		8/28/12 800	<i>[Signature]</i>	8/31/12 1020																				
RELINQUISHED BY (SIG.)		DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME																				
<i>[Signature]</i>		08-31 11 25	<i>[Signature]</i>																					

PLEASE READ instructions for completing this form on the reverse side.

0,2°C
 2.03 mg/l

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