



526 South Church Street
Charlotte, NC 28202

Mailing Address:
PO Box 1006
Mail Code EC13K
Charlotte, NC 28201-1006

704 382 4761

704 382 6240 fax

July 19, 2016

Ms. Elizabeth Werner
North Carolina Department of Environment and Natural Resources
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646

Subject: Semi-annual Leachate Sampling Results – March 2016
Duke Energy Carolinas, LLC
Allen Steam Station
Retired Ash Basin (RAB) Ash Landfill, Phase I, Cells 1 and 2, Permit #36-12

Dear Ms. Werner:

In accordance with the landfill *Operations Plan*, Duke Energy is providing the results of semi-annual leachate sampling for the Allen Retired Ash Basin (RAB) Ash Landfill located in Belmont, North Carolina.

On March 22, 2016, leachate samples were collected from the leachate collection system. The samples were collected by Duke Energy personnel. A summary of sampling results can be found in Table 1. As noted in the table, 15 NCAC 2L .0202 standards are provided for reference only. The parameters tested are not bound by state groundwater or surface water standards. The leachate is conveyed to the station's ash impoundment, which discharges via a NPDES permitted outfall. All laboratory analytical and field results are provided as Attachments 1 and 2, respectively.

Duke Energy personnel sample landfill leachate at Allen Steam Station's RAB Ash Landfill semi-annually during March and September. The next landfill leachate sampling event will occur during September 2016 with documentation to follow.

If you have any questions or concerns, please contact me at 704-382-4761 or at Sean.DeNeale@duke-energy.com

Sincerely,

A handwritten signature in black ink that reads 'Sean DeNeale'.

Sean DeNeale, Engineer III
Environmental Services

Cc: Mr. Scott Harris – Allen Steam Station
Mr. Randy Gantt – Allen Steam Station
Ms. Kimberlee Witt – Duke Energy Corporation

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):
 Duke Energy, Inc.

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:
 Name: Sean DeNeale Phone: (704) 382-4761
 E-mail: Sean.DeNeale@duke-energy.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Retired Ash Basin (RAB) Ash Landfill Duke Energy Allen Steam Station	253 Plant Allen Rd. Belmont, NC 28012	36-12	.0500	March 22, 2016

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.

Kimberlee Hutchinson, PE Senior Engineer (336) 215-4576
 Facility Representative Name (Print) Title (Area Code) Telephone Number
Kimberlee Hutchinson _____ 07/19/2016 Affix NC Licensed Professional Geologist Seal
 Signature Date

Duke Energy Corporation, Mail Code EC13K, P.O. Box 1006, Charlotte, NC 28201-1006
 Facility Representative Address
 #F-0566
 NC PE Firm License Number (if applicable effective May 1, 2009)

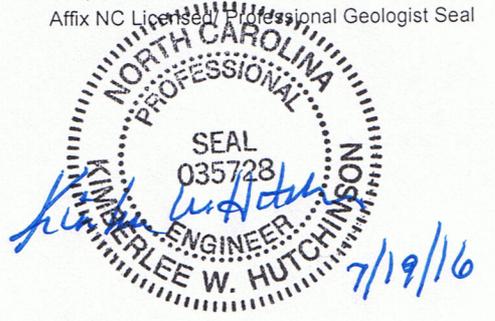


Table 1
Allen Steam Station
Retired Ash Basin (RAB) Ash Landfill (Permit No. 36-12)
Leachate Analytical Data

Constituent	15A NCAC 2L .0202 Standard		Analytical Result			
			March 22, 2016			
			Cell 1		Cell 2	
Arsenic	10	ug/L	400	ug/L	420	ug/L
Barium	700	ug/L	45	ug/L	41	ug/L
Boron	700	ug/L	56,100	ug/L	104,000	ug/L
Cadmium	2	ug/L	12.1	ug/L	< 10	ug/L
Chloride	250	mg/L	69	mg/L	98	mg/L
Chromium	10	ug/L	< 5	ug/L	< 5	ug/L
Copper	1	mg/L	0.274	mg/L	0.175	mg/L
Fluoride	2	mg/L	5.1	mg/L	6.3	mg/L
Iron	300	ug/L	119	ug/L	66	ug/L
Lead	15	ug/L	< 10	ug/L	< 10	ug/L
Manganese	50	ug/L	31,500	ug/L	40,200	ug/L
Mercury	1	ug/L	0.08	ug/L	0.05	ug/L
Nickel	100	ug/L	1,000	ug/L	280	ug/L
Nitrate (as N)	10	mg-N/L	22	mg-N/L	72	mg-N/L
pH	6.5-8.5	SU	4.03	SU	4.20	SU
Selenium	20	ug/L	127	ug/L	268	ug/L
Silver	20	ug/L	< 5	ug/L	< 5	ug/L
Sulfate	250	mg/L	4,800	mg/L	5,700	mg/L
Temperature (°C)	n/a	°C	19.36	°C	19.05	°C
TDS	500	mg/L	5,500	mg/L	6,200	mg/L
Zinc	1	mg/L	1.45	mg/L	0.525	mg/L

NOTE: 15A NCAC 2L .0202 Standards are provided only for reference. Analytical results are for landfill leachate, which is NOT bound by state groundwater or surface water standards. Landfill leachate is conveyed to the station's ash impoundment, which discharges via a NPDES permitted outfall.

Attachment 1

Allen Retired Ash Basin (RAB) Ash Landfill

Semi-Annual Monitoring Event

Leachate Analytical Results

March 22, 2016



Analytical Laboratory

13339 Hagers Ferry Road
Huntersville, NC 28078-7929
McGuire Nuclear Complex - MG03A2
Phone: 980-875-5245 Fax: 980-875-4349

Order Summary Report

Order Number: J16020401

Project Name: ALLEN - GW LEACHATE

Customer Name(s): C. Campbell, T Hunsucker, R Gantt,S DeNeale

Customer Address: 253 Plant Allen Road

Belmont, NC 28012

Lab Contact: Peggy Kendall

Phone:

Report Authorized By:
(Signature)

Peggy F Kendall

Date:

4/1/2016

Peggy Kendall

Program Comments:

Please contact the Program Manager (Peggy Kendall) with any questions regarding this report.

Data Flags & Calculations:

Any analytical tests or individual analytes within a test flagged with a Qualifier indicate a deviation from the method quality system or quality control requirement. The qualifier description is found at the end of the Certificate of Analysis (sample results) under the qualifiers heading. All results are reported on a dry weight basis unless otherwise noted. Subcontracted data included on the Duke Certificate of Analysis is to be used as information only. Certified vendor results can be found in the subcontracted lab final report. Duke Energy Analytical Laboratory subcontracts analyses to other vendor laboratories that have been qualified by Duke Energy to perform these analyses except where noted.

Data Package:

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical laboratory with any questions. The order of individual sections within this report is as follows:

Job Summary Report, Sample Identification, Technical Validation of Data Package, Analytical Laboratory Certificate of Analysis, Analytical Laboratory QC Reports, Sub-contracted Laboratory Results, Customer Specific Data Sheets, Reports & Documentation, Customer Database Entries, Test Case Narratives, Chain of Custody (COC)

Certification:

The Analytical Laboratory holds the following State Certifications : North Carolina (DENR) Certificate #248, South Carolina (DHEC) Laboratory ID # 99005. Contact the Analytical Laboratory for definitive information about the certification status of specific methods.

Sample ID's & Descriptions:

Sample ID	Plant/Station	Collection Date and Time	Collected By	Sample Description
2016004525	ALLEN	22-Mar-16 8:40 AM	LDC	LEACHATE LCS-CELL 1
2016004526	ALLEN	22-Mar-16 9:00 AM	LDC	LEACHATE LCS-CELL 2
2016004527	ALLEN	22-Mar-16 9:15 AM	LDC	FIELD BLANK
3 Total Samples				

Technical Validation Review

Checklist:

- COC and .pdf report are in agreement with sample totals and analyses (compliance programs and procedures). Yes No
- All Results are less than the laboratory reporting limits. Yes No
- All laboratory QA/QC requirements are acceptable. Yes No

Report Sections Included:

- | | |
|---|--|
| <input checked="" type="checkbox"/> Job Summary Report | <input type="checkbox"/> Sub-contracted Laboratory Results |
| <input checked="" type="checkbox"/> Sample Identification | <input type="checkbox"/> Customer Specific Data Sheets, Reports, & Documentation |
| <input checked="" type="checkbox"/> Technical Validation of Data Package | <input type="checkbox"/> Customer Database Entries |
| <input checked="" type="checkbox"/> Analytical Laboratory Certificate of Analysis | <input checked="" type="checkbox"/> Chain of Custody |
| <input type="checkbox"/> Analytical Laboratory QC Report | <input checked="" type="checkbox"/> Electronic Data Deliverable (EDD) Sent Separatel |

Reviewed By: DBA Account

Date: 4/1/2016

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Order # J16020401

Site: LEACHATE LCS-CELL 1

Sample #: 2016004525

Collection Date: 22-Mar-16 8:40 AM

Matrix: GW_WW

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<u>INORGANIC IONS BY IC</u>								
Chloride	69	mg/L		2.5	25	EPA 300.0	03/22/2016 18:05	BGN9034
Fluoride	5.1	mg/L		2.5	25	EPA 300.0	03/22/2016 18:05	BGN9034
Nitrate	96	mg/L		2.5	25	EPA 300.0	03/22/2016 18:05	BGN9034
Nitrate as N	22	mg-N/L		0.023	1	EPA 300.0	03/22/2016 18:05	BGN9034
Sulfate	4800	mg/L		100	1000	EPA 300.0	03/22/2016 18:05	BGN9034
<u>MERCURY (COLD VAPOR) IN WATER</u>								
Mercury (Hg)	0.08	ug/L		0.05	1	EPA 245.1	03/28/2016 13:14	DMFRANC
<u>TOTAL RECOVERABLE METALS BY ICP</u>								
Barium (Ba)	0.045	mg/L		0.005	1	EPA 200.7	03/29/2016 11:28	JJMACKE
Boron (B)	56.1	mg/L		0.5	10	EPA 200.7	03/29/2016 11:28	JJMACKE
Chromium (Cr)	< 0.005	mg/L		0.005	1	EPA 200.7	03/29/2016 11:28	JJMACKE
Copper (Cu)	0.274	mg/L		0.005	1	EPA 200.7	03/29/2016 11:28	JJMACKE
Iron (Fe)	0.119	mg/L		0.01	1	EPA 200.7	03/29/2016 11:28	JJMACKE
Manganese (Mn)	31.5	mg/L		0.05	10	EPA 200.7	03/29/2016 11:28	JJMACKE
Nickel (Ni)	1.00	mg/L		0.005	1	EPA 200.7	03/29/2016 11:28	JJMACKE
Silver (Ag)	< 0.005	mg/L		0.005	1	EPA 200.7	03/29/2016 11:28	JJMACKE
Zinc (Zn)	1.45	mg/L		0.005	1	EPA 200.7	03/29/2016 11:28	JJMACKE
<u>TOTAL RECOVERABLE METALS BY ICP-MS</u>								
Arsenic (As)	400	ug/L		10	10	EPA 200.8	03/30/2016 12:40	JAHERMA
Cadmium (Cd)	12.1	ug/L		10	10	EPA 200.8	03/30/2016 12:40	JAHERMA
Lead (Pb)	< 10	ug/L		10	10	EPA 200.8	03/30/2016 12:40	JAHERMA
Selenium (Se)	127	ug/L		10	10	EPA 200.8	03/30/2016 12:40	JAHERMA
<u>TOTAL DISSOLVED SOLIDS</u>								
TDS	5500	mg/L		500	1	SM2540C	03/23/2016 13:40	PARMSTR

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Order # J16020401

Site: LEACHATE LCS-CELL 2
Collection Date: 22-Mar-16 9:00 AM

Sample #: 2016004526
Matrix: GW_WW

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<u>INORGANIC IONS BY IC</u>								
Chloride	98	mg/L		5	50	EPA 300.0	03/22/2016 18:22	BGN9034
Fluoride	6.3	mg/L		5	50	EPA 300.0	03/22/2016 18:22	BGN9034
Nitrate	320	mg/L		10	100	EPA 300.0	03/22/2016 18:22	BGN9034
Nitrate as N	72	mg-N/L		0.023	1	EPA 300.0	03/22/2016 18:22	BGN9034
Sulfate	5700	mg/L		200	2000	EPA 300.0	03/22/2016 18:22	BGN9034
<u>MERCURY (COLD VAPOR) IN WATER</u>								
Mercury (Hg)	0.05	ug/L		0.05	1	EPA 245.1	03/28/2016 13:16	DMFRANC
<u>TOTAL RECOVERABLE METALS BY ICP</u>								
Barium (Ba)	0.041	mg/L		0.005	1	EPA 200.7	03/29/2016 11:32	JJMACKE
Boron (B)	104	mg/L		0.5	10	EPA 200.7	03/29/2016 11:32	JJMACKE
Chromium (Cr)	< 0.005	mg/L		0.005	1	EPA 200.7	03/29/2016 11:32	JJMACKE
Copper (Cu)	0.175	mg/L		0.005	1	EPA 200.7	03/29/2016 11:32	JJMACKE
Iron (Fe)	0.066	mg/L		0.01	1	EPA 200.7	03/29/2016 11:32	JJMACKE
Manganese (Mn)	40.2	mg/L		0.05	10	EPA 200.7	03/29/2016 11:32	JJMACKE
Nickel (Ni)	0.280	mg/L		0.005	1	EPA 200.7	03/29/2016 11:32	JJMACKE
Silver (Ag)	< 0.005	mg/L		0.005	1	EPA 200.7	03/29/2016 11:32	JJMACKE
Zinc (Zn)	0.525	mg/L		0.005	1	EPA 200.7	03/29/2016 11:32	JJMACKE
<u>TOTAL RECOVERABLE METALS BY ICP-MS</u>								
Arsenic (As)	420	ug/L		10	10	EPA 200.8	03/30/2016 12:45	JAHERMA
Cadmium (Cd)	< 10	ug/L		10	10	EPA 200.8	03/30/2016 12:45	JAHERMA
Lead (Pb)	< 10	ug/L		10	10	EPA 200.8	03/30/2016 12:45	JAHERMA
Selenium (Se)	268	ug/L		10	10	EPA 200.8	03/30/2016 12:45	JAHERMA
<u>TOTAL DISSOLVED SOLIDS</u>								
TDS	6200	mg/L		500	1	SM2540C	03/23/2016 13:40	PARMSTR

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Order # J16020401

Site: FIELD BLANK

Sample #: 2016004527

Collection Date: 22-Mar-16 9:15 AM

Matrix: GW_WW

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
<u>INORGANIC IONS BY IC</u>								
Chloride	< 0.1	mg/L		0.1	1	EPA 300.0	03/22/2016 16:58	BGN9034
Fluoride	< 0.1	mg/L		0.1	1	EPA 300.0	03/22/2016 16:58	BGN9034
Nitrate	< 0.1	mg/L		0.1	1	EPA 300.0	03/22/2016 16:58	BGN9034
Nitrate as N	< 0.023	mg-N/L		0.023	1	EPA 300.0	03/22/2016 16:58	BGN9034
Sulfate	< 0.1	mg/L		0.1	1	EPA 300.0	03/22/2016 16:58	BGN9034
<u>MERCURY (COLD VAPOR) IN WATER</u>								
Mercury (Hg)	< 0.05	ug/L		0.05	1	EPA 245.1	03/28/2016 13:19	DMFRANC
<u>TOTAL RECOVERABLE METALS BY ICP</u>								
Barium (Ba)	< 0.005	mg/L		0.005	1	EPA 200.7	03/29/2016 11:36	JJMACKE
Boron (B)	< 0.05	mg/L		0.05	1	EPA 200.7	03/29/2016 11:36	JJMACKE
Chromium (Cr)	< 0.005	mg/L		0.005	1	EPA 200.7	03/29/2016 11:36	JJMACKE
Copper (Cu)	< 0.005	mg/L		0.005	1	EPA 200.7	03/29/2016 11:36	JJMACKE
Iron (Fe)	< 0.01	mg/L		0.01	1	EPA 200.7	03/29/2016 11:36	JJMACKE
Manganese (Mn)	< 0.005	mg/L		0.005	1	EPA 200.7	03/29/2016 11:36	JJMACKE
Nickel (Ni)	< 0.005	mg/L		0.005	1	EPA 200.7	03/29/2016 11:36	JJMACKE
Silver (Ag)	< 0.005	mg/L		0.005	1	EPA 200.7	03/29/2016 11:36	JJMACKE
Zinc (Zn)	< 0.005	mg/L		0.005	1	EPA 200.7	03/29/2016 11:36	JJMACKE
<u>TOTAL RECOVERABLE METALS BY ICP-MS</u>								
Arsenic (As)	< 1	ug/L		1	1	EPA 200.8	03/30/2016 13:07	JAHERMA
Cadmium (Cd)	< 1	ug/L		1	1	EPA 200.8	03/30/2016 13:07	JAHERMA
Lead (Pb)	< 1	ug/L		1	1	EPA 200.8	03/30/2016 13:07	JAHERMA
Selenium (Se)	< 1	ug/L		1	1	EPA 200.8	03/30/2016 13:07	JAHERMA

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Order # J16020401

Level II QC Summary

Q16030443 Dionex INORGANIC IONS BY IC

IS # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>Qualifier</u>
Chloride	6.59	6.59	mg/L	1	5	106	80	120	-
Fluoride	5.32	5.32	mg/L	1	5	103	80	120	-
Nitrate	5.64	5.64	mg/L	1	5	102	80	120	-
Sulfate	5.31	5.31	mg/L	1	5	103	80	120	-

ISD # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>RPD</u>	<u>Qualifier</u>
Chloride	6.59	6.59	mg/L	1	5	106	80	120	0.0471	-
Fluoride	5.32	5.32	mg/L	1	5	103	80	120	0.0929	-
Nitrate	5.63	5.63	mg/L	1	5	102	80	120	0.106	-
Sulfate	5.3	5.3	mg/L	1	5	103	80	120	0.155	-

IS # 2

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>Qualifier</u>
Chloride	7.03	7.03	mg/L	1	5	109	80	120	-
Fluoride	5.38	5.38	mg/L	1	5	103	80	120	-
Nitrate	6.11	6.11	mg/L	1	5	103	80	120	-
Sulfate	5.71	5.71	mg/L	1	5	104	80	120	-

ISD # 2

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>RPD</u>	<u>Qualifier</u>
Chloride	7.07	7.07	mg/L	1	5	109	80	120	0.851	-
Fluoride	5.41	5.41	mg/L	1	5	104	80	120	0.662	-
Nitrate	6.12	6.12	mg/L	1	5	104	80	120	0.22	-
Sulfate	5.73	5.73	mg/L	1	5	104	80	120	0.393	-

LCS # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>Qualifier</u>
Chloride	5.07	5.07	mg/L	1	5	101	80	120	-
Fluoride	5.19	5.19	mg/L	1	5	104	80	120	-
Nitrate	5.05	5.05	mg/L	1	5	101	80	120	-
Sulfate	5.02	5.02	mg/L	1	5	100	80	120	-

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Order # J16020401

Level II QC Summary

Q16030523 HG 245.1 MERCURY (COLD VAPOR) IN WATER

Blank # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>RDL</u>	<u>Relative Concentration</u>	<u>Qualifier</u>
Mercury (Hg)	-0.003	-0.003	ug/L	1	0.05	< 1/2 RDL	-

IS # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>Qualifier</u>
Mercury (Hg)	0.894	17.9	ug/L	20	20	90.4	70	130	-

ISD # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>RPD</u>	<u>Qualifier</u>
Mercury (Hg)	0.873	17.4	ug/L	20	20	88.2	70	130	2.46	-

IS # 2

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>Qualifier</u>
Mercury (Hg)	0.905	18.1	ug/L	20	20	89.9	70	130	-

ISD # 2

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>RPD</u>	<u>Qualifier</u>
Mercury (Hg)	0.91	18.2	ug/L	20	20	90.4	70	130	0.555	-

IS # 3

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>Qualifier</u>
Mercury (Hg)	0.982	98.2	ug/L	100	100	98.7	70	130	-

LCS # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>Qualifier</u>
Mercury (Hg)	2.04	2.04	ug/L	1	2	102	85	115	-

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Order # J16020401

Level II QC Summary

Q16030512 ICP_TRM TOTAL RECOVERABLE METALS BY ICP

Blank # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>RDL</u>	<u>Relative Concentration</u>	<u>Qualifier</u>
Barium (Ba)	-0.000122	-0.000122	mg/L	1	0.005	< 1/2 RDL	-
Boron (B)	0.000218	0.000218	mg/L	1	0.05	< 1/2 RDL	-
Chromium (Cr)	-0.000763	-0.000763	mg/L	1	0.005	< 1/2 RDL	-
Copper (Cu)	0.000212	0.000212	mg/L	1	0.005	< 1/2 RDL	-
Iron (Fe)	-0.000613	-0.000613	mg/L	1	0.01	< 1/2 RDL	-
Manganese (Mn)	-0.000225	-0.000225	mg/L	1	0.005	< 1/2 RDL	-
Nickel (Ni)	-0.000491	-0.000491	mg/L	1	0.005	< 1/2 RDL	-
Silver (Ag)	-0.000061	-0.000061	mg/L	1	0.005	< 1/2 RDL	-
Zinc (Zn)	0.00226	0.00226	mg/L	1	0.005	< 1/2 RDL	-

LCS # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>Qualifier</u>
Barium (Ba)	5.08	5.08	mg/L	1	5	102	85	115	-
Boron (B)	4.95	4.95	mg/L	1	5	99.1	85	115	-
Chromium (Cr)	4.91	4.91	mg/L	1	5	98.2	85	115	-
Copper (Cu)	4.98	4.98	mg/L	1	5	99.6	85	115	-
Iron (Fe)	4.89	4.89	mg/L	1	5	97.8	85	115	-
Manganese (Mn)	5.09	5.09	mg/L	1	5	102	85	115	-
Nickel (Ni)	4.91	4.91	mg/L	1	5	98.3	85	115	-
Silver (Ag)	0.503	0.503	mg/L	1	0.5	101	85	115	-
Zinc (Zn)	4.98	4.98	mg/L	1	5	99.6	85	115	-

LCSD # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>RPD</u>	<u>Qualifier</u>
Barium (Ba)	5.2	5.2	mg/L	1	5	104	85	115	2.43	-
Boron (B)	5.05	5.05	mg/L	1	5	101	85	115	1.9	-
Chromium (Cr)	5.03	5.03	mg/L	1	5	101	85	115	2.43	-
Copper (Cu)	5.08	5.08	mg/L	1	5	102	85	115	2.07	-
Iron (Fe)	4.99	4.99	mg/L	1	5	99.8	85	115	1.98	-
Manganese (Mn)	5.19	5.19	mg/L	1	5	104	85	115	2.06	-
Nickel (Ni)	5.01	5.01	mg/L	1	5	100	85	115	1.87	-
Silver (Ag)	0.514	0.514	mg/L	1	0.5	103	85	115	2.11	-
Zinc (Zn)	5.11	5.11	mg/L	1	5	102	85	115	2.46	-

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Order # J16020401

Level II QC Summary

Q16030513 IMS_TRM TOTAL RECOVERABLE METALS BY ICP-MS

Blank # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>RDL</u>	<u>Relative Concentration</u>	<u>Qualifier</u>
Arsenic (As)	-0.0033	-0.0033	ug/L	1	1	< 1/2 RDL	-
Cadmium (Cd)	0.004	0.004	ug/L	1	1	< 1/2 RDL	-
Lead (Pb)	0.0012	0.0012	ug/L	1	1	< 1/2 RDL	-
Selenium (Se)	0.0353	0.0353	ug/L	1	1	< 1/2 RDL	-

LCS # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>Qualifier</u>
Arsenic (As)	52.7	52.7	ug/L	1	50	105	85	115	-
Cadmium (Cd)	50.8	50.8	ug/L	1	50	102	85	115	-
Lead (Pb)	50.4	50.4	ug/L	1	50	101	85	115	-
Selenium (Se)	50.6	50.6	ug/L	1	50	101	85	115	-

LCSD # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>RPD</u>	<u>Qualifier</u>
Arsenic (As)	52.6	52.6	ug/L	1	50	105	85	115	0.148	-
Cadmium (Cd)	50.5	50.5	ug/L	1	50	101	85	115	0.469	-
Lead (Pb)	50.3	50.3	ug/L	1	50	101	85	115	0.317	-
Selenium (Se)	50.2	50.2	ug/L	1	50	100	85	115	0.8	-

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Order # J16020401

Level II QC Summary

Q16030465 TDS TOTAL DISSOLVED SOLIDS

Blank # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>RDL</u>	<u>Relative Concentration</u>	<u>Qualifier</u>
TDS		0	mg/L	1	25	< 1/2 RDL	-

Duplicate # 1

Parent Sample: J16030154 -- 2016006327

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>RPD</u>	<u>Qualifier</u>
TDS		116	mg/L	1	2.55	-

Duplicate # 2

Parent Sample: J16030471 -- 2016007764

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>RPD</u>	<u>Qualifier</u>
TDS		20	mg/L	1	9.52	-

LCS # 1

<u>Parameter</u>	<u>Measured</u>	<u>Final</u>	<u>Units:</u>	<u>Dil</u>	<u>Spike</u>	<u>% Recovery</u>	<u>LCL</u>	<u>UCL</u>	<u>Qualifier</u>
TDS		100	mg/L	1	100	100	90	110	-

Attachment 2

Allen Retired Ash Basin (RAB) Ash Landfill

Semi-Annual Monitoring Event

Leachate Field Results

March 22, 2016

FIELD SAMPLING CALIBRATION FORM

STUDY: ALLEN STEAM STATION - LEACHATE COLLECTION SYSTEM

DATE (s): March 22, 2016 **SURFACE UNIT READER:** LDC

COLLECTORS: LDC **SURFACE UNIT SERIAL #:** 0662

ANALYZER MODEL#: HL4 **ANALYZER SERIAL #:** 400437

OTHER EQUIPMENT: TURBIDIMETER NO.2 - 3260-GW **WEATHER CONDITIONS:** Clear, calm, 40 deg F

PROCEDURE #: HYDROLAB 3210.5 **VALIDATED BY:** VJC 3/22/16

Calibration Date / Time		DATE:	22-Mar-16	TIME:	530	DATE:	22-Mar-16	TIME:	1040
		CALIBRATION BP (mmHg)			748.3	CALIBRATION BP (mmHg)			750.6
Parameter	Calibration Standard	Instrument Value		Standard Value	Calibration Results	Instrument Value		Standard Value	Calibration Results
SPEC. COND. (uS/cm)	SS	0.0	→	0.0	Instrument Zeroed	0.0	→	0.0	Zero Pass
	SS	1408.4	→	1410	Calibration Accepted	1402.4	→	1410	Calibration Pass
	SS	720.9	→	720	Calibration Accepted	721.6	→	720	Calibration Pass
<i>Specific conductance checkpoint (used if sampled well is outside of initial calibration range).</i>									
SPEC. COND. CHECK (uS/cm)	SS	→				→			
pH (units)	B (7.00)	7.10	→	7.02	Calibration Accepted	7.09	→	7.02	Calibration Pass
	B (4.00)	4.10	→	4.00	Calibration Accepted	4.02	→	4.00	Calibration Pass
	B (10.00)	10.12	→	10.06	Calibration Accepted	10.20	→	10.06	Calibration Pass
		Buffer Temp. 20.10				Buffer Temp. 20.05			
pH Check Time:	B (7.00)	→							
		Buffer Temp.							
<input checked="" type="checkbox"/> ORP (mV)	SS (7.00)	436	→	440	Calibration Accepted	442	→	440	Calibration Pass
Zobell's	SS (4.00)	N/A	→	470		N/A	→	470	
		ORP Temp. 20.23				ORP Temp. 20.24			
<input checked="" type="checkbox"/> DO (mg/L)	W	8.90				9.00			
	W	9.00				9.00			
	AW	8.95	→	8.95	Calibration Accepted	9.02	→	9.00	Calibration Pass
<input checked="" type="checkbox"/> TURB (ntu)	SS	54.8	→	56.0	Calibration Accepted	55.7	→	56.0	Calibration Accepted
Temp Cert Device #									
TEMP (deg C)	NIST	N/A	→	N/A	Adjustment Not Available	N/A	→	N/A	Adjustment Not Available

INSTRUMENT MAINTENANCE		DATE / TIME	
Conductance Subsystem		pH Subsystem	
<input type="checkbox"/>	Cleaned Electrodes	<input type="checkbox"/>	Cleaned Electrodes
<input type="checkbox"/>	Tested - OK	<input type="checkbox"/>	Replaced ref Electrode KCL
<input type="checkbox"/>	See Notes	<input type="checkbox"/>	Replaced Ref. Electrode Tip
		<input type="checkbox"/>	Tested - OK <input type="checkbox"/> See Notes
Oxidation Reduction Subsystem		Temperature Subsystem	
<input type="checkbox"/>	Cleaned Electrode	<input type="checkbox"/>	Cleaned Electrode
<input type="checkbox"/>	Tested - OK <input type="checkbox"/> See Notes	<input type="checkbox"/>	Tested - OK <input type="checkbox"/> See Notes
Dissolved Oxygen Subsystem			
<input type="checkbox"/>	Replaced Teflon Membrane	<input type="checkbox"/>	Cleaned Electrode
<input type="checkbox"/>	Replaced DO electrolyte	<input type="checkbox"/>	See Notes

Field Barometric Pressure			
Beginning BP	752.0	(mmHg)	Ending BP 752.0 (mmHg)

KEY: B = Buffer W = Winkler → = Adjusted To N/A = Not Applicable
 SS = Standard solution AW = Average Winkler → = Not Adjusted To

NOTES:



DUKE ENERGY

GROUNDWATER MONITORING DATA SHEET

FOR NO PURGE SAMPLING

PROCEDURE NO	3175.2
--------------	--------

SITE NAME	ALLEN STEAM STATION	PERMIT #	N/A	SITE ID	N/A
PROJECT NAME	LEACHATE COLLECTION SYSTEM	FIELD CREW	LDC		
SAMPLING DATE(s)	<input checked="" type="checkbox"/> 22-Mar-2016	WELL/LOCATION NAME		LCS - CELL 1	

MONITORING WELL INFORMATION					
WELL DIAMETER (in)		TOC ELEV (ft msl)		MIDDLE OF WETTED SCREEN (ft toc)	
WELL DEPTH (ft TOC)		GS ELEV (ft msl)		PUMP INTAKE DEPTH (ft TOC)	
SCREEN LENGTH (ft)		ELEV REF		SCREEN INTERVAL (ft TOC)	0.00 TO 0.00

EQUIPMENT INFORMATION					
LEVEL METER SERIAL#	N/A	SAMPLING EQUIPMENT	GRAB	PURGE METHOD	
		TUBING DIAMETER (in)		No Purge	
PUMP CONTROLLER SETTINGS					
PRESSURE	(psi)	RECHARGE	(sec)	DISCHARGE	(sec)

SAMPLING INFORMATION					
INITIAL DEPTH TO WATER (ft TOC)	N/A	WATER COLUMN (ft)	N/A	<i>Well Volume = water column X conversion factor</i> (Conversion factor dependent on well diameter and selected well volume units)	
WATER ELEVATION (ft msl)	N/A	WELL VOLUME (gal)	N/A		
DETECTED ODOR	None	CONVERSION FACTOR	N/A		
APPEARANCE	Normal				

HYDRASLEEVE LENGTH (inches)	DEPLOYED DEPTH (top) (ft TOC)	DATE DEPLOYED	<input type="checkbox"/> TEMP (deg C)	<input type="checkbox"/> SPECIFIC COND. (umho/cm)	<input type="checkbox"/> pH (SU)	<input type="checkbox"/> TURBIDITY (NTU)	<input type="checkbox"/> ORP (mV-NHE)	<input type="checkbox"/> DISSOLVED OXYGEN (mg/L)	<input type="checkbox"/>
N/A	N/A	N/A	19.36	5715	4.03	3.3	582	3.63	N/A

Deployed Top Weight	Water Column In Screen Above Top Of Hydrasleeve	NO PURGE SAMPLE				CHLORINE (mg/l)
	(ft) = (in)	SAMPLE COLLECTED BY	DATE	TIME		
		LDC	3/22/2016	@ 0840	N/A	

QC By: LDC 3/22/16

Sample preservation verified to pH (units) < 2.0

WELL CONDITION	ADDITIONAL WELL CONDITION NOTES
PROTECTIVE CASING	
WELL PAD	
WELL CASING	
WELL TAG	

SAMPLING NOTES

Allow system to flush for several minutes prior to sampling - watch for low level alarm during pumping.



DUKE ENERGY

GROUNDWATER MONITORING DATA SHEET

FOR NO PURGE SAMPLING

PROCEDURE NO	3175.2
--------------	--------

SITE NAME	ALLEN STEAM STATION	PERMIT #	N/A	SITE ID	N/A
PROJECT NAME	LEACHATE COLLECTION SYSTEM	FIELD CREW	LDC		
SAMPLING DATE(s)	<input checked="" type="checkbox"/> 22-Mar-2016	WELL/LOCATION NAME		LCS - CELL 2	

MONITORING WELL INFORMATION					
WELL DIAMETER (in)		TOC ELEV (ft msl)		MIDDLE OF WETTED SCREEN (ft toc)	
WELL DEPTH (ft TOC)		GS ELEV (ft msl)		PUMP INTAKE DEPTH (ft TOC)	
SCREEN LENGTH (ft)		ELEV REF		SCREEN INTERVAL (ft TOC)	0.00 TO 0.00

EQUIPMENT INFORMATION					
LEVEL METER SERIAL#	N/A	SAMPLING EQUIPMENT	GRAB	PURGE METHOD	
		TUBING DIAMETER (in)		No Purge	
PUMP CONTROLLER SETTINGS					
PRESSURE	(psi)	RECHARGE	(sec)	DISCHARGE	(sec)

SAMPLING INFORMATION					
INITIAL DEPTH TO WATER (ft TOC)	N/A	WATER COLUMN (ft)	N/A	<i>Well Volume = water column X conversion factor</i> (Conversion factor dependent on well diameter and selected well volume units)	
WATER ELEVATION (ft msl)	N/A	WELL VOLUME (gal)	N/A		
DETECTED ODOR	None	CONVERSION FACTOR	N/A		
APPEARANCE	Normal				

HYDRASLEEVE LENGTH (inches)	DEPLOYED DEPTH (top) (ft TOC)	DATE DEPLOYED	<input type="checkbox"/> TEMP (deg C)	<input type="checkbox"/> SPECIFIC COND. (umho/cm)	<input type="checkbox"/> pH (SU)	<input type="checkbox"/> TURBIDITY (NTU)	<input type="checkbox"/> ORP (mV-NHE)	<input type="checkbox"/> DISSOLVED OXYGEN (mg/L)	<input type="checkbox"/>
N/A	N/A	N/A	19.05	6284	4.20	3.4	565	5.78	N/A

Deployed Top Weight	Water Column In Screen Above Top Of Hydrasleeve	NO PURGE SAMPLE				CHLORINE (mg/l)
	(ft) = (in)	SAMPLE COLLECTED BY	DATE	TIME		
		LDC	3/22/2016	@ 0900	N/A	

QC By: uc 3/22/16

Sample preservation verified to pH (units) < 2.0

WELL CONDITION	ADDITIONAL WELL CONDITION NOTES
PROTECTIVE CASING	
WELL PAD	
WELL CASING	
WELL TAG	

SAMPLING NOTES

Allow system to flush for several minutes prior to sampling - watch for low level alarm during pumping.

**ALLEN STEAM STATION
LEACHATE COLLECTION SYSTEM
GROUNDWATER MONITORING FIELD DATA
PERMIT # N/A**

DATE	WELL NO.	WELL DEPTH (feet-toc)	DEPTH TO WATER (feet-toc)	WATER ELEV. (feet)	APPEARANCE	ODOR	Purge Method	AVG * PMP RATE (ml/min)	WELL VOL (gal)	EVAC VOL (gal)	EVAC (yes/no)	TEMP (deg C)	SPECIFIC CONDUCTANCE (umho/cm)	pH (units)	TURBIDITY (NTU)	ORP (mV-NHE)	DO (mg/l)
3/22/2016	LCS - CELL 1	N/A	N/A	N/A	Normal	None	NP	N/A	N/A	N/A	N/A	19.36	5715	4.0	3.3	582	3.63
3/22/2016	LCS - CELL 2	N/A	N/A	N/A	Normal	None	NP	N/A	N/A	N/A	N/A	19.05	6284	4.2	3.4	565	5.78

Purge Methods

LF = Low Flow
 LF(M) = Low Flow (Mod.)
 C = Conventional
 NP = No Purge
 EOP = Equip. Only Purge
 LO = Level Only

* = Applicable to LF & LF(M) Purging Only