

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):

S&ME, Inc. (Consultant)

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

Name: John Whitehead Phone: 864.574.2360
 E-mail: jwhitehead@smeinc.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Duke Energy McGuire Nuclear Station Landfill #2	13339 Hagers Ferry Road Huntersville, NC 28078	60-04	.0500	June 2, 2010

Environmental Status: (Check all that apply)

- Initial/Background Monitoring
 Detection Monitoring
 Assessment Monitoring
 Corrective Action

Type of data submitted: (Check all that apply)

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

Notification attached?

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

Certification

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

Stanford Lummus, P.E. Senior Engineer 864.574.2360
 Facility Representative Name (Print) Title (Area Code) Telephone Number
 Signature Date August 26, 2010 Affix NC Licensed/ Professional Geologist Seal

301 Zima Park Drive Spartanburg, South Carolina 29301
 Facility Representative Address
 F-0176
 NC PE Firm License Number (if applicable effective May 1, 2009)



SEMI-ANNUAL
GROUNDWATER MONITORING REPORT
JUNE 2010 SAMPLING EVENT
DUKE ENERGY MCGUIRE NUCLEAR STATION
LANDFILL #2 PERMIT #60-04
S&ME Project No. 1411-09-047

Prepared For:



Prepared By:



S&ME, Inc.
301 Zima Park Drive
Spartanburg, South Carolina 29301

August 26, 2010



August 26, 2010

Ms. Jackie Drummond
North Carolina Department of Environment and Natural Resources
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, N.C. 27699-1646

**Reference: Semi-Annual Groundwater Monitoring Report
June 2010 Sampling Event**
Duke Energy McGuire Nuclear Station
Landfill #2 (Permit # 60-04)
S&ME Project No. 1411-09-047

Dear Ms. Drummond:

This report presents the semi-annual groundwater monitoring for the McGuire Nuclear Station Landfill #2 (Permit #60-04). The landfill is located at Duke Energy's McGuire Nuclear Station near Huntersville, NC, in Mecklenburg County. Groundwater sampling for the landfill was performed on June 2, 2010. S&ME is submitting this report on the behalf of Duke Energy.

This report includes a brief discussion of the landfill and groundwater monitoring activities, a figure showing groundwater contours at the site, a summary of the analytical results, and preliminary evaluation of values in excess of the NCAC 2L groundwater standards. Also attached is the Environmental Monitoring Reporting Form. An EXCEL file containing the laboratory results in the Electronic Data Deliverable format will be sent to you by e-mail.

If you have questions or require additional information, please contact us at 864.574.2360.

Sincerely,

S&ME, Inc.


John Whitehead
Senior Geologist


Stanford Lummus, P.E.
Senior Engineer



North Carolina Professional Engineering Firm License No. F-0176

S:\ENVIRON\2009\1411 Projects\1411-09-047 Duke Landfill GW Reports\MNS LF #2\August 2010 Report (June 2010 Data)\MNS LF #2 -Report Final (June 2010 data).doc

cc:

Duke Energy
PO Box 1006
Charlotte, NC 28201-1006
Attn: Mr. Andy Tinsley - Mail Code EC13K

Duke Energy
McGuire Nuclear Station
13339 Hagers Ferry Rd.
Huntersville, NC, 28078
Attn: Mr. Robert Sapp

Mr. Dale Dusenbury
NCDENR Radiation Protection Section
1645 Mail Service Center
Raleigh, NC 27699-1645

Joseph S. Hack, QEP
Solid Waste Management
Mecklenburg County
700 N. Tryon Street
Charlotte, NC 28202

TABLE OF CONTENTS

	<u>Page</u>
1.0 BACKGROUND	1
2.0 SCOPE OF WORK	2
3.0 RESULTS	2
3.1 Site Groundwater Flow	2
3.2 Analytical Results	3

TABLES

Table 1:	Field Data Parameters
Table 2:	Summary of Field and Analytical Results
Table 3:	Radiological Analytical Results

FIGURES

Figure 1:	Site Map
Figure 2:	Groundwater Surface Contours June 2010

Chain of Custody Form

1.0 BACKGROUND

The McGuire Nuclear Station Landfill #2 is located at the Duke Energy McGuire Nuclear Station, in Mecklenburg County, NC. The landfill is permitted to accept specified waste from McGuire Nuclear Station and non-hazardous waste from petroleum spills. The landfill was constructed with an HDPE synthetic liner and with a leachate collection and removal system. Leachate and contact stormwater are collected in a lined leachate collection basin and pumped to the McGuire Nuclear Station wastewater treatment system. The landfill is permitted under NCDENR Solid Waste Permit #60-04.

The landfill and nearby area is portrayed on **Figure 1**. The landfill is located south of North Carolina Highway 73, north of Cashion Road, and to the west of Linderman Road. Cashion Road runs along a surface water divide, with surface flow draining to the northwest and to the southeast. A surface water drainage feature is located to the northeast of the landfill. This feature drains to the northwest, to a perennial, unnamed stream. Surface water sample location SW-1 is located in this unnamed stream, north of the landfill. The unnamed stream drains to the west, to the Catawba River. Surface water sample location SW-2 is located in this unnamed stream, west of the landfill. A second surface water drainage feature is located the southwest of the landfill, draining to the northwest into the unnamed stream.

The monitoring system at the landfill consists of eleven groundwater monitoring wells and two surface water sample locations, as listed below.

Monitoring Wells:	MW-5
	MW-5A
	MW-6
	MW-6A
	MW-7
	MW-7A
	MW-8
	MW-8A
	MW-9
	MW-9A
	MW-10A
Surface Water	SW-1
Sample Locations	SW-2

The locations of the wells and the surface water sample locations are shown on Figure 1.

With the exception of well MW-10A, the wells are installed as well pairs with one shallow well and one deeper well adjacent to each other. The well with the "A" designation is the deepest of the pair of wells. Well pair MW-9 and MW-9A are installed adjacent to and downgradient from the Leachate Collection Basin. The remaining wells are installed adjacent to the landfill.

2.0 SCOPE OF WORK

To complete the scope of work, S&ME completed the following tasks:

- Received field sampling information provided by Duke (performed by Duke) for monitoring wells MW-5, MW-5A, MW-6, MW-6A, MW-7, MW-7A, MW-8, MW-8A, MW-9, MW-9A, and MW-10A. Surface water sample locations SW-1, and SW-2 were also sampled. A leachate sample was collected at the outfall of the pipe conveying leachate from the landfill to the Leachate Collection Basin. The samples were collected on June 2, 2010.
- Reviewed the laboratory analytical results for samples. These results were provided in both a paper format and in an EXCEL file. The EXCEL file was adapted to conform to the format requirements of the NCDENR Electronic Data Deliverable template.
- Developed a groundwater flow contour map using map data and groundwater elevation data supplied by Duke.
- Provided a preliminary evaluation of the cause and significance of values exceeding the NC 2L groundwater standards.
- Prepared and submitted this Semi-Annual Groundwater Monitoring Report to Duke and to NCDENR.

3.0 RESULTS

3.1 Site Groundwater Flow

Groundwater flow contours for the site are shown on **Figure 2**. These contours were developed using the groundwater elevations measured on June 2, 2010.

Cashion Road is located along a surface water divide at elevations ranging from approximately 748 feet to 740 feet. The unnamed stream where surface water sample locations SW-1 and SW-2 are located ranges in elevation from approximately 691 feet near SW-1 to approximately 650 feet near SW-2.

Groundwater flow beneath the landfill is generally from the south end of the landfill towards the surface water drainage features described above. Groundwater flow on the east side of the landfill is towards the surface water drainage feature located to the northeast of MW-6, MW-6A, and MW-10A.

3.2 Analytical Results

Water samples were collected from the following locations:

Monitoring Wells:	MW-5A, MW-6, MW-6A, MW-7A, MW-8, MW-8A, MW-9, MW-9A, MW-10A
Surface Water Sample Locations	SW-1, SW-2
Leachate	Outlet end of pipe conveying leachate from the landfill into the Leachate Collection Basin

Samples were analyzed for the compounds listed in the *McGuire Nuclear Station Landfill #2 Permit Number 60-04 Groundwater Monitoring Program Sampling and Analysis Plan, February 24, 2009*. A summary of the field data is presented in **Table 1**.

The results of the laboratory analyses for non-radiological samples are summarized in **Table 2**.

Results from the monitoring wells met the corresponding NCAC 2L groundwater quality standards with the exceptions noted below:

- pH – pH values equal to or below 6.5 were measured wells MW-5, MW-5A, MW-6, MW-6A, MW-7, MW-8, MW-9, MW-9A, MW-10A and at SW-1. The measured pH values below 6.5 ranged from 4.8 (Standard Units) in MW-9 to 6.4 in MW-8. The pH value at SW-1 was 6.5.

The pH values measured at these locations are consistent with historic readings at the site.

TPH-DRO compounds were detected in monitoring wells MW-5, MW-5A, MW-6, MW-6A, MW-7, MW-7A, and MW-8A at concentrations ranging from 70 µg/L at MW-7 to 360 µg/L at MW-6. These values were estimated between the adjusted method detection limit and the adjusted reporting limit. In addition, TPH-DRO compounds were also detected at SW-2 and the Leachate sample at concentrations of 110 µg/L and 4000 µg/L, respectively. The value for SW-2 is also estimated between the adjusted method detection limit and the adjusted reporting limit. No 2L standards are established for TPH-DRO compounds.

No volatile organic compounds (VOCs) were detected in the monitoring wells equal to or above the NCAC 2L or SWSL standards. An estimated concentration of toluene (0.67 µg/L) was reported for MW-5.

Estimated concentrations of acetone (3.2 µg/L) and toluene (0.51 µg/L) were reported for the Leachate sample. An estimated concentration of toluene (0.44 µg/L) was reported for the surface water sample SW-1.

Table 3 presents the results of analysis for radiological constituents. These results were provided by Duke Energy. A copy of this report is submitted to the NCDENR Radiation Protection Section.

TABLES



**TABLE 1 - FIELD DATA PARAMETERS
DUKE ENERGY McGUIRE NUCLEAR STATION
LANDFILL #2 - PERMIT #60-04
GROUNDWATER MONITORING REPORT
S&ME PROJECT 1411-09-047**

August 26, 2010

DATE	WELL NO.	WELL DEPTH (feet)	DEPTH TO WATER (feet)	WATER ELEV. (feet)	DEPTH TO PRODUCT (feet)	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)
12/7/2009	MW-5	63.90	59.07	709.24	N/A	NA	CP	N/A	0.79	1.25	YES	17.7	16	5.4	8.3	N/A	N/A
12/7/2009	MW-5A	96.00	59.13	709.29	N/A	NA	CP	N/A	6.01	21.00	NO	16.9	59	6.4	3.5	N/A	N/A
12/7/2009	MW-6	37.20	27.75	700.70	N/A	NA	CP	N/A	1.54	4.50	NO	16.7	111	5.8	1.6	N/A	N/A
12/7/2009	MW-6A	47.90	27.02	701.96	N/A	NA	CP	N/A	3.41	10.50	NO	17.1	52	5.4	1.0	N/A	N/A
12/7/2009	MW-7	37.30	30.41	695.45	N/A	NA	CP	N/A	1.12	1.75	YES	18.8	39	5.9	1.7	N/A	N/A
12/7/2009	MW-7A	59.40	29.35	695.31	N/A	NA	CP	N/A	4.90	15.00	NO	17.5	111	6.7	5.9	N/A	N/A
12/7/2009	MW-8	71.50	59.96	699.64	N/A	NA	CP	N/A	1.88	1.00	YES	18.9	130	6.4	8.8	N/A	N/A
12/7/2009	MW-8A	84.40	59.88	699.80	N/A	NA	CP	N/A	4.00	12.00	NO	19.1	87	6.6	0.5	N/A	N/A
12/7/2009	MW-9	30.80	21.35	690.52	N/A	NA	CP	N/A	1.54	4.50	NO	18.6	33	4.8	0.6	N/A	N/A
12/7/2009	MW-9A	47.80	21.74	690.39	N/A	NA	CP	N/A	4.25	12.75	NO	18.9	100	6.1	0.7	N/A	N/A
12/7/2009	MW-10A	59.23	48.54	707.24	N/A	NA	CP	N/A	1.74	5.25	NO	17.0	25	5.3	5.3	N/A	N/A
12/7/2009	SW-1	N/A	N/A	NA	N/A	NA	NP	NA	NA	NA	NA	21.8	87	6.5	69.4	NA	NA
12/7/2009	SW-2	N/A	N/A	NA	N/A	NA	NP	NA	NA	NA	NA	21.3	89	7.2	34.6	NA	NA
12/7/2009	LEACHATE POND	N/A	N/A	NA	N/A	NA	NP	NA	NA	NA	NA	20.2	680	7.6	7.4	NA	NA

Sampling Performed by Duke Energy

Purge Methods

LF = Low Flow

CP = Coventional Purge (3 to 5 well vol)

BP = No Purge (HydraSleeve)

*** = Not measured / water level below pump

**TABLE 2 - FIELD AND ANALYTICAL RESULTS
DUKE ENERGY McGUIRE NUCLEAR STATION
LANDFILL #2 - PERMIT #60-04
GROUNDWATER MONITORING REPORT
S&ME PROJECT 1411-09-047**

August 26, 2010

Page 1 of 2

Facility: McGuire Nuclear Station - Synthetically Lined Solid Waste Landfill No.2 - Permit #60-04													
Sample Date: June 2, 2010 (Field and Geochemistry Data)													
Field sampling performed by Duke Energy													
Laboratory Certificate Codes: Duke Power Field #5193 Pace Lab #12 Pace Lab #40													
Parameter	SW ID	Units	Certificate Code	Monitoring Well Identification								SWSL	15A NCAC 2L*
				6004-MW-5	6004-MW-5A	6004-MW-6	6004-MW-6A	6004-MW-7	6004-MW-7A	6004-MW-8			
Field pH	320	Std. Units	5193	5.4	6.4	5.8	5.4	5.9	6.7	6.4		6.5-8.5	
Field Spec. Cond.	323	umho/cm	5193	16	59	111	52	39	111	130			
Temperature	325	°C	5193	17.7	16.9	16.7	17.1	18.8	17.5	18.9			
Top Casing	328	m sl-feet		768.31	768.42	728.45	728.98	725.86	724.66	759.60			
Depth to Water	318	feet		59.07	59.13	27.75	27.02	30.41	29.35	59.96			
Water Elevation	319	m sl-feet		709.24	709.29	700.70	701.96	695.45	695.31	699.64			
Well Depth	41	feet		63.90	96.00	37.20	47.90	37.30	59.40	71.50			
Arsenic	14	ug/L	40	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	2.7 U	10	10	
Barium	15	ug/L	40	12.8 J	26.2 J	53.6 J	50.5 J	30.6 J	4.2 J	38.1 J	100	700	
Cadmium	34	ug/L	40	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1	2	
Chloride	301	ug/L	40	5000 U	5000 U	12000 U	5680 U	5000 U	5000 U	5000 U	NE	250000	
Chromium	51	ug/L	40	0.4 U	0.59 J	2.7 J	0.74 J	0.4 U	0.81 J	1.4 J	10	10	
Lead	131	ug/L	40	4 U	4 U	4 U	4 U	4 U	4 U	4 U	10	15	
Mercury	132	ug/L	40	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.20	1	
Selenium	183	ug/L	40	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	10	20	
Silver	184	ug/L	40	0.17 J	0.21 J	0.1 U	0.1 U	0.1 U	0.14 J	0.21 J	10	20	
Sulfate	315	ug/L	40	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	5000 U	250000	250000	
TPH(DRO)		ug/L	12	250	240	360	140	70	260	62 U	NE	NE	
VOCs **													
Acetone	3	ug/L	12	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	2.2 U	100	6000	
2-Butanone (MEK)	141	ug/L	12	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	100	4000	
Chloromethane	137	ug/L	12	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	1	3	
Toluene	196	ug/L	12	0.67 J	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	0.26 U	1	600	

Notes:

15A NCAC 2L = 15A NCAC 2L .0200, Groundwater Quality Standards for Class GA groundwater

NC SWSL = North Carolina Solid Waste Section Limit

BOLD VALUES indicate values that attain or exceed the 15A NCAC 2L MCL.

NE = Not established

Values in gray cells indicate values that equal or exceed the SWSL.

J = Parameters are values greater than Method Detection Limit (MDL) but less than the SWSL

U = Not detected above the MDL, for reporting purposes concentrations have been set equal to the MDL.

TPH (DRO) = Diesel Range Organics

MEK = Methyl ethyl ketone

* **Maximum Contaminant Level (MCL)**

** **All EPA method 8260 compounds not specifically listed were less than laboratory method detection limits for all samples.**

Analytical results provided by Duke Energy and are found in

Pace Lab Report 9270736, dated June 18, 2010.

**TABLE 2 - FIELD AND ANALYTICAL RESULTS
DUKE ENERGY McGUIRE NUCLEAR STATION
LANDFILL #2 - PERMIT #60-04
GROUNDWATER MONITORING REPORT
S&ME PROJECT 1411-09-047**

August 26, 2010

Page 2 of 2

Facility: McGuire Nuclear Station - Synthetically Lined Solid Waste Landfill No.2 - Permit #60-04															
Sample Date: June 2, 2010 (Field and Geochemistry Data)											Laboratory Certificate Codes: Duke Power Field #5193 Pace Lab #12 Pace Lab #40				
Field sampling performed by Duke Energy															
Parameter	SW ID	Units	Certificate Code	Monitoring Well Identification							TRIP BLANK	FIELD BLANK	SWSL	15A NCAC 2L*	
				6004-MW-8A	6004-MW-9	6004-MW-9A	6004-MW-10A	6004-Leachate	6004-SW-1	6004-SW-2					
Field pH	320	Std. Units	5193	6.6	4.8	6.1	5.3	7.6	6.5	7.2				6.5-8.5	
Field Spec. Cond.	323	umho/cm	5193	87	33	100	25	680	87	89					
Temperature	325	°C	5193	19.1	18.6	18.9	17.0	20.2	21.8	21.3					
Top Casing	328	msl-feet		759.68	711.87	712.13	755.78								
Depth to Water	318	feet		59.88	21.35	21.74	48.54								
Water Elevation	319	msl-feet		699.80	690.52	690.39	707.24								
Well Depth	41	feet		84.40	30.80	47.80	59.23								
Arsenic	14	ug/l	40	2.7 U	2.7 U	2.7 U	2.7 U	3.3 J	2.7 U	2.7 U		2.7 U	10	10	
Barium	15	ug/l	40	21.7 J	27.9 J	8.4 J	15 J	73.5 J	43.6 J	24 J		0.94 J	100	700	
Cadmium	34	ug/l	40	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U		0.5 U	1	2	
Chloride	301	ug/l	40	6250	5000 U	5000 U	5000 U	44800	5000 U	5000 U		5000 U	NE	250000	
Chromium	51	ug/l	40	0.78 J	0.52 J	1.5 J	0.4 U	0.4 U	0.76 J	0.59 J		0.4 U	10	10	
Lead	131	ug/l	40	4 U	4 U	4 U	4 U	4 U	4 U	4 U		4 U	10	15	
Mercury	132	ug/l	40	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U		0.07 U	0.20	1	
Selenium	183	ug/l	40	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U	3.8 U		3.8 U	10	20	
Silver	184	ug/l	40	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U		0.1 U	10	20	
Sulfate	315	ug/l	40	5000 U	5000 U	5000 U	5000 U	63000 J	5000 U	5000 U		5000 U	250000	250000	
TPH(DRO)		ug/l	12	170	62 U	62 U	62 U	4000	79 U	110		79	NE	NE	
VOCs **															
Acetone	3	ug/L	12	2.2 U	2.2 U	2.2 U	2.2 U	3.2 J	2.2 U	2.2 U		2.2 U	6.6 J	100	6000
2-Butanone (MEK)	141	ug/L	12	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U	0.96 U		0.96 U	0.96 U	100	4000
Chloromethane	137	ug/L	12	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U		0.11 U	0.11 U	1	3
Toluene	196	ug/L	12	0.26 U	0.26 U	0.26 U	0.26 U	0.51 J	0.44 J	0.26 U		0.26 U	0.26 U	1	600

Notes:

15A NCAC 2L = 15A NCAC 2L .0200, Groundwater Quality Standards for Class GA groundwater

BOLD VALUES indicate values that attain or exceed the 15A NCAC 2L MCL.

Values in gray cells indicate values that equal or exceed the SWSL.

J = Parameters are values greater than Method Detection Limit (MDL) but less than the SWSL

U = Not detected above the MDL, for reporting purposes concentrations have been set equal to the MDL.

TPH (DRO) = Diesel Range Organics

MEK = Methyl ethyl ketone

* Maximum Contaminant Level (MCL)

** All EPA method 8260 compounds not specifically listed were less than laboratory method detection limits for all samples.

Analytical results provided by Duke Energy and are found in

Pace Lab Report 9270736, dated June 18, 2010.

NC SWSL = North Carolina Solid Waste Section Limit

NE = Not established

**TABLE 3 - RADIOLOGICAL ANALYTICAL RESULTS
DUKE ENERGY MCGUIRE NUCLEAR STATION
LANDFILL #2 - PERMIT #60-04
GROUNDWATER MONITORING REPORT
S&ME PROJECT 1411-09-047**

August 26, 2010

Facility: McGuire Nuclear Station - Synthetically Lined Solid Waste Landfill No.2 - Permit #60-04

Laboratory Certificate Codes:

Sample Date: June 2, 2010 (Radiological Data)

Duke Power Field #248

Field sampling performed by Duke Energy

Parameter	Units	Certificate Code	Monitoring Well Identification											Leachate Pond	Surface Water 1	Surface Water 2
			MW-5	MW-5A	MW-6	MW-6A	MW-7	MW-7A	MW-8	MW-8A	MW-9	MW-9A	MW-10A			
ALPHA	pCi/l	248	<0.120	0.2720	0.3550	0.5220	0.2150	0.4740	0.3290	0.2920	<0.120	0.4530	0.2830	0.4080	<0.0910	0.4390
BALA140	pCi/l	248	<6.108	<6.693	<5.755	<6.417	<6.082	<6.168	<4.829	<5.929	<7.930	<4.245	<6.893	<7.918	<6.366	<5.449
BE7	pCi/l	248	<43.05	<28.59	<28.93	<34.19	<34.21	<26.65	<31.05	<33.39	<39.02	<32.63	<38.93	<36.09	<25.35	<30.40
BETA	pCi/l	248	0.836	<0.480	1.020	<0.170	<0.480	<0.420	1.730	1.030	1.130	<-0.280	<0.470	5.480	2.030	2.200
CO58	pCi/l	248	<5.179	<3.554	<3.524	<4.291	<3.592	<3.846	<3.855	<3.685	<5.833	<3.437	<4.687	<3.704	<3.812	<3.898
CO60	pCi/l	248	<7.227	<4.612	<4.264	<4.314	<3.955	<4.931	<4.145	<4.746	<6.839	<5.096	<3.822	<4.770	<4.265	<3.672
CS134	pCi/l	248	<4.507	<3.370	<2.965	<3.316	<3.711	<4.401	<4.221	<3.025	<4.510	<3.967	<4.665	<3.517	<3.088	<4.203
CS137	pCi/l	248	<4.658	<3.903	<3.601	<3.201	<4.188	<3.999	<4.346	<4.219	<4.364	<4.436	<6.494	<4.014	<4.021	<3.623
FE59	pCi/l	248	<11.19	<8.148	<8.363	<8.458	<7.339	<8.146	<7.908	<7.959	<10.31	<7.868	<9.164	<9.524	<7.413	<7.452
H3	pCi/l	248	<-69.6	<-112	<-30.2	<30.5	<-4.35	<56.3	<-60.9	<8.73	<54.4	<-69.1	<82.8	621.0	<12.4	<-23.0
I131	pCi/l	248	<7.729	<5.502	<4.871	<5.094	<6.932	<6.152	<4.527	<5.859	<6.169	<3.923	<9.466	<7.146	<5.287	<5.681
K40	pCi/l	248	191.2	79.30	111.3	87.51	189.8	<73.97	131.8	83.46	102.0	<84.04	176.2	78.87	68.69	59.23
MN54	pCi/l	248	<4.890	<3.150	<3.820	<3.775	<3.265	<3.340	<3.290	<3.223	<4.897	<3.817	<5.171	<4.717	<3.556	<3.105
NB95	pCi/l	248	<4.787	<4.605	<4.230	<3.771	<3.779	<3.165	<4.423	<4.975	<5.790	<3.659	<5.843	<4.121	<3.717	<4.440
ZN65	pCi/l	248	<6.283	<7.528	<7.863	<8.272	<8.652	<8.685	<7.602	<9.578	<9.263	<9.887	<9.578	<9.113	<9.559	<9.751
ZR95	pCi/l	248	<8.058	<5.640	<6.967	<4.440	<5.654	<7.709	<7.150	<8.025	<10.36	<6.710	<8.245	<8.561	<6.320	<6.870

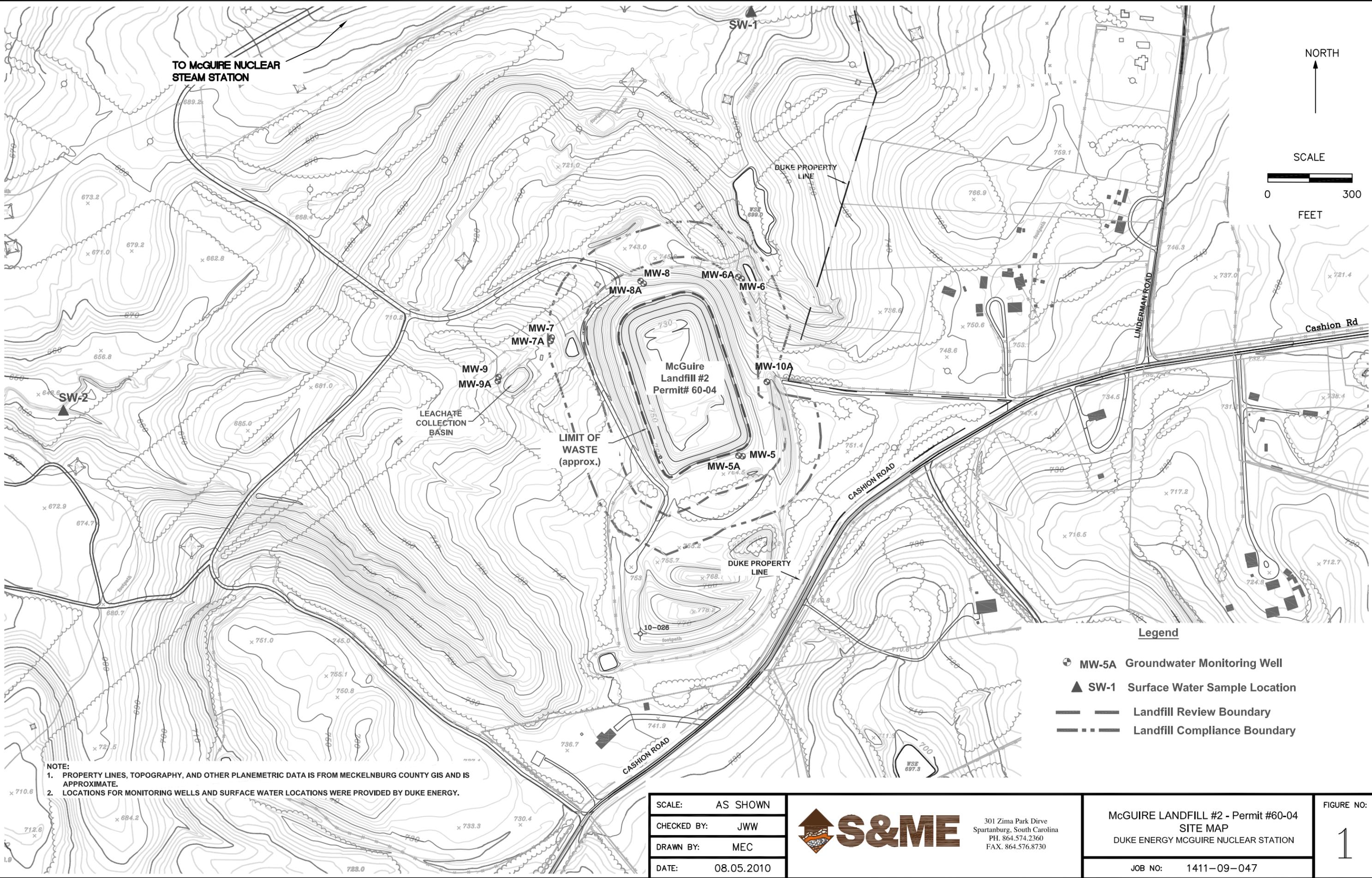
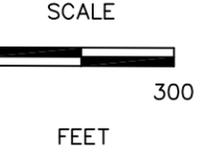
Notes:

Analytical results provided by Duke Energy and are found in Duke Energy Lab Report 1-MAY-0034, dated July 9, 2010.

FIGURES



TO MCGUIRE NUCLEAR STEAM STATION



Legend

- MW-5A Groundwater Monitoring Well
- SW-1 Surface Water Sample Location
- Landfill Review Boundary
- Landfill Compliance Boundary

NOTE:
 1. PROPERTY LINES, TOPOGRAPHY, AND OTHER PLANEMETRIC DATA IS FROM MECKELNBURG COUNTY GIS AND IS APPROXIMATE.
 2. LOCATIONS FOR MONITORING WELLS AND SURFACE WATER LOCATIONS WERE PROVIDED BY DUKE ENERGY.

SCALE:	AS SHOWN
CHECKED BY:	JWW
DRAWN BY:	MEC
DATE:	08.05.2010

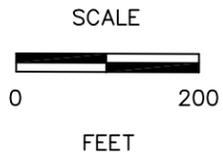
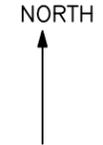
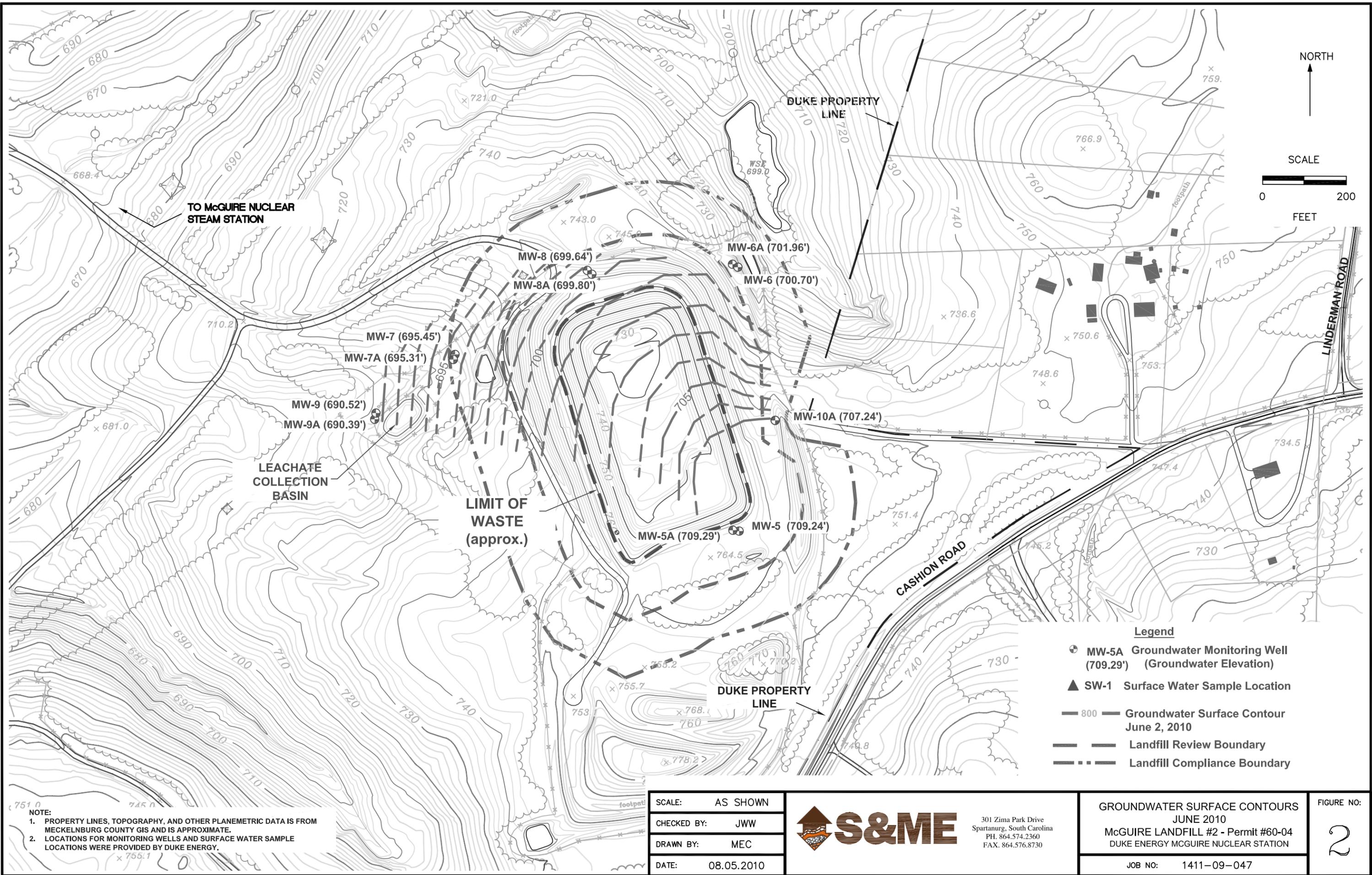


301 Zima Park Drive
 Spartanburg, South Carolina
 PH. 864.574.2360
 FAX. 864.576.8730

McGUIRE LANDFILL #2 - Permit #60-04
SITE MAP
 DUKE ENERGY MCGUIRE NUCLEAR STATION

JOB NO: 1411-09-047

FIGURE NO:
1



- Legend**
- MW-5A Groundwater Monitoring Well (709.29') (Groundwater Elevation)
 - SW-1 Surface Water Sample Location
 - 800 Groundwater Surface Contour June 2, 2010
 - Landfill Review Boundary
 - Landfill Compliance Boundary

NOTE:
 1. PROPERTY LINES, TOPOGRAPHY, AND OTHER PLANIMETRIC DATA IS FROM MECKELNBURG COUNTY GIS AND IS APPROXIMATE.
 2. LOCATIONS FOR MONITORING WELLS AND SURFACE WATER SAMPLE LOCATIONS WERE PROVIDED BY DUKE ENERGY.

SCALE:	AS SHOWN
CHECKED BY:	JWW
DRAWN BY:	MEC
DATE:	08.05.2010



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GROUNDWATER SURFACE CONTOURS
 JUNE 2010
 McGUIRE LANDFILL #2 - Permit #60-04
 DUKE ENERGY MCGUIRE NUCLEAR STATION

FIGURE NO:
 2

JOB NO: 1411-09-047

APPENDIX





For Detailed Instructions, see:
<http://dewwww/essenv/coc/>

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy Analytical Lab Services
 Mail Code MGO3A2 (Building 7405)
 13339 Hagers Ferry Rd
 Huntersville, N. C. 28078
 (704) 875-5245
 Fax: (704) 875-5038

1) Project Name: **MNS LANDFILL 2**
 2) Phone No: 875-5257
 3) Client: **C. Campbell / T Hunsucker**
 4) Fax No: 875-4349
 5) Business Unit: 20036
 6) Process: **BLDFLGN**
 7) Resp. To: **MC00**
 8) Project ID:
 9) Activity ID:
 10) Mail Code: **MGO3A3**

Sample Class: **GWATER**
 Date & Time: **5/14/10 14:09**
 Vendor: **PACE**
 Logged By: **ZBC**
 Cooler Temp (C): **All iced < 3C**
 1) Preserv.: 1=HCl, 2=H₂SO₄, 3=HNO₃, 4=
 4=Lca, 5=Node

Page 1 of 2
 DISTRIBUTION
 ORIGINAL to LAB,
 COPY to CLIENT

LAB USE ONLY 11) Lab ID	12) Chem Desktop No.	13) Sample Description or ID	14) Collection Information		15) Analyses Required	16) Comp	17) Grab	18) VOCs	19) ALK, SO ₄ , Cl	20) Hg	21) METALS - (Ag, As, Ba, Ca, Cd, Cr, K, Mg, Na, Pb, Se)	22) 8015 / 3520 DRO for TPH	23) Chlorine (ppm)	24) Total # of Containers
			Date	Time										
30008100	002	TRIP BLANK	6/2/10	0530	[Signature]	X	X	X	X	X	X	X	n/a	3
30008101	003	MW-5	6/2/10	0715	[Signature]	X	X	X	X	X	X	X	0	7
30008102	004	MW-5A	6/2/10	0806	[Signature]	X	X	X	X	X	X	X	0	7
30008103	005	MW-6	6/2/10	0850	[Signature]	X	X	X	X	X	X	X	0	7
30008104	006	MW-6A	6/2/10	0855	[Signature]	X	X	X	X	X	X	X	0	7
30008105	007	MW-7	6/2/10	0915	[Signature]	X	X	X	X	X	X	X	0	7
30008106	008	MW-7A	6/2/10	0948	[Signature]	X	X	X	X	X	X	X	0	7
30008107	009	MW-8	6/2/10	1000	[Signature]	X	X	X	X	X	X	X	0	7
30008108	010	MW-8A	6/2/10	1015	[Signature]	X	X	X	X	X	X	X	0	7
30008109	011	MW-9	6/2/10	1230	[Signature]	X	X	X	X	X	X	X	0	7
30008110	012	MW-9A	6/2/10	1250	[Signature]	X	X	X	X	X	X	X	0	7
30008111		MW-10A	6/2/10	0730	[Signature]	X	X	X	X	X	X	X	0	7

Customer to sign & date below

21) Requisitioned By: **ESB Gaddy** Date/Time: **6/2/10 1340**
 22) Requisitioned By: **ESB Gaddy** Date/Time: **6/2/10 1340**
 23) Sealed/Locked By: **ESB Gaddy** Date/Time: **6/2/10 1140**
 24) Comments: **ESB Gaddy** Date/Time: **6/2/10 1208**
 25) Sealed/Locked By: **ESB Gaddy** Date/Time: **6/2/10 1424**

Customer, important please indicate desired turnaround

Regulatory Agency: **NCDENR/DWM - SW Section - State EDD Format Required**
 * **Hg/metals not on**
ice



For Detailed Instructions, see:
<http://dewwww/essenv/coc/>

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy Analytical Lab Services

Mall Code MGO3A2 (Building 7405)
 13339 Hagers Ferry Rd
 Huntersville, N. C. 28078
 (704) 971-7941

1) Project Name: **MNS LANDFILL 2**
 2) Phone No: 875-5257
 3) Client: **C. Campbell / T Hunsucker**
 4) Fax No: 875-4349
 5) Business Unit: 20036
 6) Process: **BLDFLGN**
 7) Resp. To: **MC00**
 8) Project ID:
 9) Activity ID:
 10) Mail Code: **MGO3A3**

11) LIMS # **10-MAY-0252**
 12) Sample Class **GWATER**
 13) Date & Time **5/14/10 14:09**
 14) Vendor: **PACE**
 15) Logged By: **EB-C**
 16) Date & Time **5/14/10 14:09**
 17) PO # **ISW01.1942**
 18) MR #

19) Analytical Laboratory Use Only
 20) Samples Originating From: **NC, SC**
 21) Sample Program: **SAMPLE PROGRAM**
 22) Ground Water: **NPDES**
 23) Drinking Water: **LIST**
 24) RCRA Waste:

12 Chem Desktop No.	13 Sample Description or ID	14 Collection Information	15 Analyses Required	16 Grab	17 Comp	18 ALK, SO4, Cl	19 Hg	20 METALS - (Ag, As, Ba, Ca, Cd, Cr, K, Mg, Na, Pb, Se)	21 8015 / 3520 DRO for TPH	22 Chlorine (ppm)	23 Total # of Containers
9220736013	SW-1	6/2/10 12:15	20 CLEM	X	X	3	1	1	1	1	7
004	SW-2	6/2/10 11:55	20 CLEM	X	X	3	1	1	1	1	7
005	LEACHATE POND	6/2/10 15:05	20 CLEM	X	X	3	1	1	1	1	7
007	QC - DAY 1 (WELL # MW-5A)	6/2/10 08:00	20 SLM	X	X	3	1	1	1	1	1
006	QC - DAY 2 (WELL # MW-5A)	6/2/10 13:30	20 CLEM	X	X	3	1	1	1	1	7
	FIELD BLANK										

Customer to complete all appropriate NON-SHADED areas.

14 Collection Information: Date, Time, Signature

15 Analyses Required: 1=HCl, 2=H2SO4, 3=HNO3, 4=La, 5=Node

16 Grab: X

17 Comp: X

18 ALK, SO4, Cl: 3

19 Hg: 1

20 METALS - (Ag, As, Ba, Ca, Cd, Cr, K, Mg, Na, Pb, Se): 1

21 8015 / 3520 DRO for TPH: 1

22 Chlorine (ppm): 1

23 Total # of Containers: 7

24) Relinquished By: **EB-C**
 25) Requested By: **EB-C**
 26) Relinquished By: **EB-C**
 27) Date/Time: **6/2/10 13:40**
 28) Date/Time: **6-3-10 11:40**
 29) Date/Time: **6-2-10 12:00**
 30) Date/Time: **6-2-10 14:24**

Customer to sign & date below

Accepted By: **EB-C Calder** Date/Time: **6/2/10 13:40**

Accepted By: **EB-C Calder** Date/Time: **6/3/10 11:40**

Accepted By: **EB-C Calder** Date/Time: **6/2/10 12:00**

Sealed/Lock Opened By: **EB-C Calder** Date/Time: **6/2/10 14:24**

21) Requested Turnaround: **6-15**

Customer, important please indicate desired turnaround