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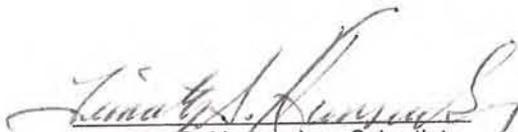
March 10, 2009

Solid Waste Section
Asheville Regional Office

**MCGUIRE NUCLEAR STATION
LANDFILL #2, PERMIT NUMBER 60-04
GROUNDWATER MONITORING PROGRAM
SAMPLING AND ANALYSIS PLAN**

Prepared By:
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Environment Health and Safety
February 24, 2009




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1.0 PROGRAM DESCRIPTION

1.1 SCOPE OF WORK

McGuire Landfill #2 is located in north- western Mecklenburg County (Figure 1).

This Groundwater Monitoring Program, Sampling and Analysis Plan (SAP) is designed to address the Duke Energy (DE) permit requirement for groundwater monitoring around synthetically lined Landfill #2, permit number 60-04 at McGuire Nuclear Station. The plan has been prepared according to the guidelines set forth by the North Carolina Water Quality Guidance Document for Solid Waste Facilities (SW-1001-87), by the EPA, Region IV, in "Environmental Investigations, Standard Operating Procedures and Quality Assurance Manual", and documents the methodologies of field sampling, record-keeping protocols, data quality objectives, and data validation procedures that will be used in this program.

1.2 WELL LOCATION AND INSTALLATION

The landfill will be monitored through a series of 11 monitoring wells installed to determine groundwater quality in the vicinity of the landfill. Monitoring wells designated with an "A" are deep wells. Monitoring wells MW-5 and MW-5A are located up-gradient of the landfill area and wells, MW-6, MW-6A, MW-7, MW7-A, MW-8 MW-8A, MW-9, MW-9A and MW-10A are located down-gradient or cross-gradient of the landfill (Figure 2). In addition, leachate is sampled from the end of the in-flow pipe to the leachate collection pond and surface water is monitored at locations SW1 and SW2. Well elevations and North Carolina State Plane Coordinates are shown in Table 1.

Each of the shallow wells is screened to intercept the water table. These wells are constructed of two-inch diameter PVC well screen and casing. Shallow wells are screened to intercept the water table and deep wells are screened to the top of bedrock. All wells are Type II monitoring wells installed by a North Carolina registered driller in accordance with applicable NCDENR regulations. All wells are equipped with dedicated pump systems.

1.3 PARAMETERS AND FREQUENCY

The monitoring wells are sampled semi-annually in June and December for the parameters listed in Table 2. Sampling results will be submitted to the State within 60 days of sampling.

1.4 DATA QUALITY OBJECTIVES

The overall quality assurance (QA) objective is to ensure that data of known and acceptable quality are provided. All measurements will be made so as to yield results that are representative of the groundwater. All data will be calculated and reported in units consistent with those of other agencies and organizations to allow comparability of databases.

The QA objectives for precision, accuracy, and completeness have been established by the laboratory(s) in accordance with EPA or other accepted agencies for each measurement variable (where possible). The objectives are outlined in the Duke Energy Laboratory Services Procedures Manual and are available upon request.

Detection limits for the water analyses presented in Table 3 are generally specified by the analytical methods. As stated above, appropriate methods have been selected to meet applicable standards for groundwater quality or the requirements of applicable permits. Instances may occur, however, in which the condition of the sample will not allow detection of the desired limits for various parameters either because of matrix interferences or high analyte concentrations

requiring sample dilution. The laboratory(s) will provide sufficient information with each data package to allow reviewers of the data to be aware of encountered sample problems.

2.0 SAMPLING PROCEDURES

2.1 SAMPLING EQUIPMENT

Development, purging and sampling equipment are chosen to ensure the materials making up the equipment are compatible with the sample parameters and also comply with state and federal regulatory requirements for sampling. Positive-gas-displacement fluorocarbon resin bladder pumps are installed in each of the monitoring wells as dedicated purging and sampling systems.

2.1.1 Equipment Cleaning Procedures

Dedicated sampling equipment is installed in each monitoring well. Non-dedicated equipment which is used (reusable water level meters, development pumps, purging and sampling equipment), shall be cleaned between wells in accordance with standard EPA approved cleaning procedures for field equipment.

2.2 GROUNDWATER SAMPLING

2.2.1 Groundwater Level and Total Depth Measurements

Water-level measurements are required to confirm the groundwater flow direction and to calculate the volume of standing water in the well. All monitoring wells have been surveyed by a registered surveyor to determine the elevation of the top of each well casing. All depth and water-level measurements are referenced to the top of the well casing and recorded to the nearest one-hundredth of a foot.

Water-level measurements are made with the use of an electronic measuring device which consists of a spool of dual conductor wire, a probe attached to the end, and an indicator. When the probe comes in contact with water, the circuit is closed and a meter light and/or buzzer attached to the spool signal the contact. The probe is lowered farther until it rests on the bottom of the well to determine the depth of the well. The depth and water level are used to determine that the well has not filled with silt and to calculate the volume of standing well water. The volume of well water (in gallons) is calculated using the following equation:

$$V = h \times \pi r^2 \times (7.480 \text{ gal/ft}^3)$$

where V = volume of standing water (gallons)

h = height of standing water (feet) = casing depth - water level

r = radius of well casing (feet)

In dedicated systems, an accurate well depth is determined, as indicated above, after development of the well and prior to installation of the dedicated pump. This well depth is utilized until repair or replacement of the dedicated pump is necessary. The total depth, water-level measurements, and calculated well volume are recorded on a Groundwater Monitoring Data Sheet (Figure 3).

2.2.2 Well Purging and Sampling

A multi-parameter water quality monitoring instrument will be used to measure indicator parameters for establishing representative groundwater. These instruments are calibrated with reference standards prior to and after each sampling day. The pH meter will be calibrated with two different pH standards (pH 7.0 and 4.0) which usually bracket the expected groundwater pH.

The conductivity subsystem will be calibrated standards nearest the expected groundwater conductivity. Calibration results will be recorded on a Field Sampling Calibration Form (Figure 4).

Prior to sample collection, the well is purged to remove the standing water which may not be representative of formation water. Purging is accomplished by pumping. Dedicated bladder pump intakes are set approximately 1 foot above the bottom of the well.

Wells will be purged and sampled by conventional sampling methods. Conventional sampling entails removing one equivalent well volume and measuring the indicator parameters temperature, pH and conductivity. When indicator parameters have stabilized within ± 0.2 pH units and $\pm 10\%$ for temperature and conductivity over 3 to 5 well volumes, representative groundwater has been achieved for sampling. Removed well volumes, indicator parameters and pertinent notations are documented on the Groundwater Monitoring Data Sheet.

Under normal rates of recovery, monitoring wells should be sampled within eight hours of purging in accordance with EPA guidelines. In low-yield wells (wells that are incapable of yielding three to five standing water volumes), water is purged so that it is removed from the bottom of the screened interval. Low-yield wells are evacuated to dryness once and then sampled.

2.2.3 Sample Collection

Groundwater samples are collected after representative groundwater has been determined by purging and stabilizing the indicator parameters.

Surface water samples are "grab" samples collected to the extent possible at mid-depth in the middle of the stream, in an area that exhibits the greatest degree of cross-sectional homogeneity.

Leachate will be collected from the end of the in-flow pipe to the leachate collection basin.

Sampling personnel wear clean, disposable, non-powdered nitrile gloves at each location. Samples are collected in the order of the volatilization sensitivity of the parameters:

- Radiological
- Metals
- Sulfate, Chloride
- Volatile Organic Compounds and TPH

2.2.4 Sample Containers, Volume, Preservative, and Holding Time

All sample containers supplied by the laboratory for the collection of groundwater, surface water and leachate samples are new, pre-cleaned and/or pre-baked as approved by EPA procedures appropriate for the parameters of interest. Table 2 summarizes the sample containers, sample volume, preservation procedures and holding times required for each type of sample and parameter. Sample containers are kept closed until used.

3.0 SAMPLE TRACKING

The chain of custody program allows for the tracing of possession and handling of individual samples from the time of field collection through laboratory analysis and report preparation. Samples are pre-logged prior to sample collection. This process assigns a unique tracking number for each sample and generates corresponding labels.

3.1 SAMPLE LABELING

Sample containers are labeled and organized prior to field activities as part of the pre-sampling staging process. As samples are actually collected, sampling personnel write the following information directly on the label: sampling date and time, and initials of sample collector. This information is also recorded on the Groundwater Monitoring Data Form and the Chain of Custody Record.

3.2 FIELD DOCUMENTATION

Field documentation from each sampling event is recorded on the Groundwater Monitoring Data Sheets, the Field Sampling Calibration Form and the Chain of Custody Record. These sheets are arranged in sequential order and filed by project and date. Additionally, a Groundwater Sampling Site Checklist will be completed to document monitoring well and general site conditions that require attention. Field notations made during the course of the field work will document the following information:

- Identification of well
- Well depth
- Static water level depth and measurement technique
- Presence of immiscible layers and detection method
- Well yield - high or low
- Purge volume or pumping rate
- Sample identification numbers
- Well evacuation procedure/equipment
- Sample withdrawal procedure/equipment
- Date and time of collection
- Types of sample containers used
- Identification of replicates or blind samples
- Preservative(s) used
- Parameters requested for analysis
- Field analysis data and methods
- Sample distribution and transporter
- Field observations on sampling event
- Name of collector(s)
- Climatic conditions including estimate of air temperature

All recorded entries are made in indelible ink. Errors are corrected by drawing a line through the error, initialing and dating the correction, and starting a new entry on the next line (if necessary).

3.3 CHAIN-OF-CUSTODY RECORD (COC)

The COC Form accompanies the sample(s), traces sample possession from time of collection to delivery to the laboratory(s), and clearly identifies which sample containers have been designated for each requested parameter. The record includes the following types of information:

- Sample identification number
- Signature of collector
- Date and time of collection
- Sample type (e.g., groundwater, immiscible layer)
- Identification of well
- Number of containers
- Parameters requested for analysis
- Preservative used
- Signature of persons involved in the chain of possession
- Inclusive dates of possession

3.4 SAMPLE CUSTODY, SHIPMENT AND LABORATORY RECEIPT

For the purpose of these procedures, a sample is considered in custody if it is:

- In actual possession of the responsible person;
- In view, after being in physical possession;
- Locked in a secure area so that no one can tamper with it, after having been in physical custody; or in a secured area, restricted to authorized personnel. All samples are maintained in the custody of the sampling crew during the sampling event. At the end of each sampling day and prior to the transfer of the samples off-site, chain-of-custody entries are completed on the COC for all samples. Upon transfer of custody, the chain-of-custody form is signed by a sampling crew member, including the date and time. If outside vendor laboratories are utilized, samples are delivered to these facilities by DE personnel or by courier.

All chain-of-custody forms received by the laboratory(s) are signed and dated by the respective Supervising Scientist(s) or their designee (at the DE lab), or the laboratory sample custodian (at vendor labs) immediately following receipt by the laboratory.

The analysts at the laboratory(s) maintain a sample-tracking record that will follow each sample through all stages of laboratory processing. The sample tracking records show the date of sample extraction or preparation, and analysis. These records are used to determine compliance with holding time limits during lab audits and data validation.

Custody procedures followed by DE laboratory personnel are described in detail in the Duke Energy Laboratory Services Procedures Manual.

4.0 ANALYTICAL PROCEDURES

The main analytical laboratory used in this program is the Duke Energy Laboratory Services Laboratory: N.C. Drinking Water (NC37804) and Wastewater (#248) Certifications. The organizational structure and staff qualifications of the laboratory are discussed in its generic Quality Assurance Program (QAP). The QAP and the Analytical Laboratory Procedures Manual are available for review upon request.

Vendor laboratories that meet EPA and NC certification requirements may be used for analyses which cannot be performed in-house.

The analytical procedures used for this Groundwater Monitoring Program listed in Table 3. Conductivity, pH, and/or turbidity are measured in the field according to the Duke Energy Groundwater Monitoring and Sample Collection Procedure or the instrument manufacturer instructions.

5.0 INTERNAL QUALITY CONTROL CHECKS

Internal laboratory control checks used by the laboratories are described in their generic QAP and procedures manual. The laboratories demonstrate the ability to produce acceptable results using the methods specified.

Internal quality control checks for sampling procedures and laboratory analyses will be conducted with each sampling event. These checks will consist, where appropriate, of the preparation and submittal of field blanks, trip (travel) blanks, and/or field replicates for analysis of all parameters at frequencies described in the laboratory(s) procedures manuals.

The above field QC blanks and replicates included as internal QC checks are described as follows:

- **Field Blanks:** A field blank consists of sample containers filled in the field with organic-free, deionized or distilled water prepared and preserved in the same manner as the samples. The field blank is transported to the laboratory with the samples and analyzed along with the field samples for the constituents of interest to check for contamination imparted to the samples by the sample container, preservative, or other exogenous sources.
- **Trip Blanks:** A trip (travel) blank is a sample container filled with organic-free water in the laboratory that travels unopened with the sample bottles. It is returned to the laboratory with the field samples, and analyzed along with the field samples for parameters of interest.
- **Field Replicates:** A field replicate is a duplicate sample prepared at the sampling locations from equal portions of all sample aliquots combined to make the sample. Both the field replicate and the sample are collected at the same time, in the same container type, preserved in the same way, and analyzed by the same laboratory as a measure of sampling and analytical precision.

6.0 VALIDATION OF FIELD DATA PACKAGE

The field data package includes all of the field records and measurements developed by the sampling team personnel. The field data package validation procedure consist of:

- Review of field data contained on the Groundwater Monitoring Data Sheets for completeness.
- Verification that equipment blanks, field blanks, and trip blanks were properly prepared, identified, and analyzed.
- Check of the Field Sampling Calibration Form for equipment calibration and instrument condition.
- Review of the Chain-Of-Custody Record and Analysis Request Form for proper completion:
 - Signatures of field personnel and the laboratory sample custodian.
 - Dates and times of sample collection and custody transfer.
 - Verification that the correct analyses were specified.

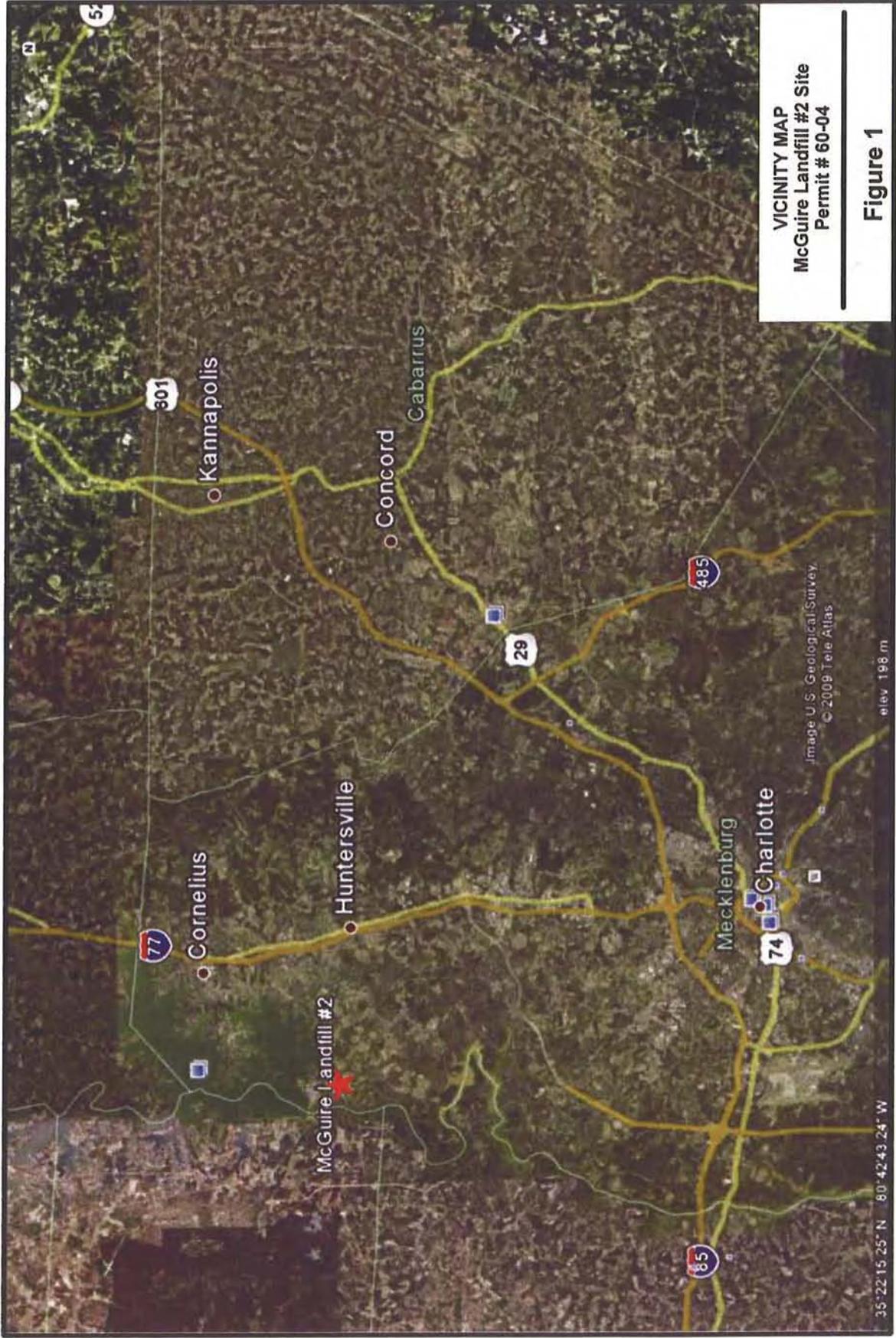
7.0 REPORT SUBMITTAL

A report of monitoring results will be submitted to NCDENR Division of Waste Management (DWM) within 60 days following the date of sampling. The report submittal will consist of the following:

- Environmental Monitoring Data Form as a cover sheet.
- Copy of original laboratory results.
- Table of detections and discussion of 2L exceedances.
- Updated groundwater elevation contour map.
- Electronic Data Deliverable (EDD) in Excel format.

The DWM will be notified in the event that lab analyses have not been completed within a time frame to meet submittal deadlines. All Groundwater Monitoring Data Sheets, Field Calibration Forms, Chain-of-Custody Record, Laboratory(s) QA data, and Data Validation Checklists are kept on file and will be made available to NCDENR upon request.

FIGURES



VICINITY MAP
McGuire Landfill #2 Site
Permit # 60-04

Figure 1

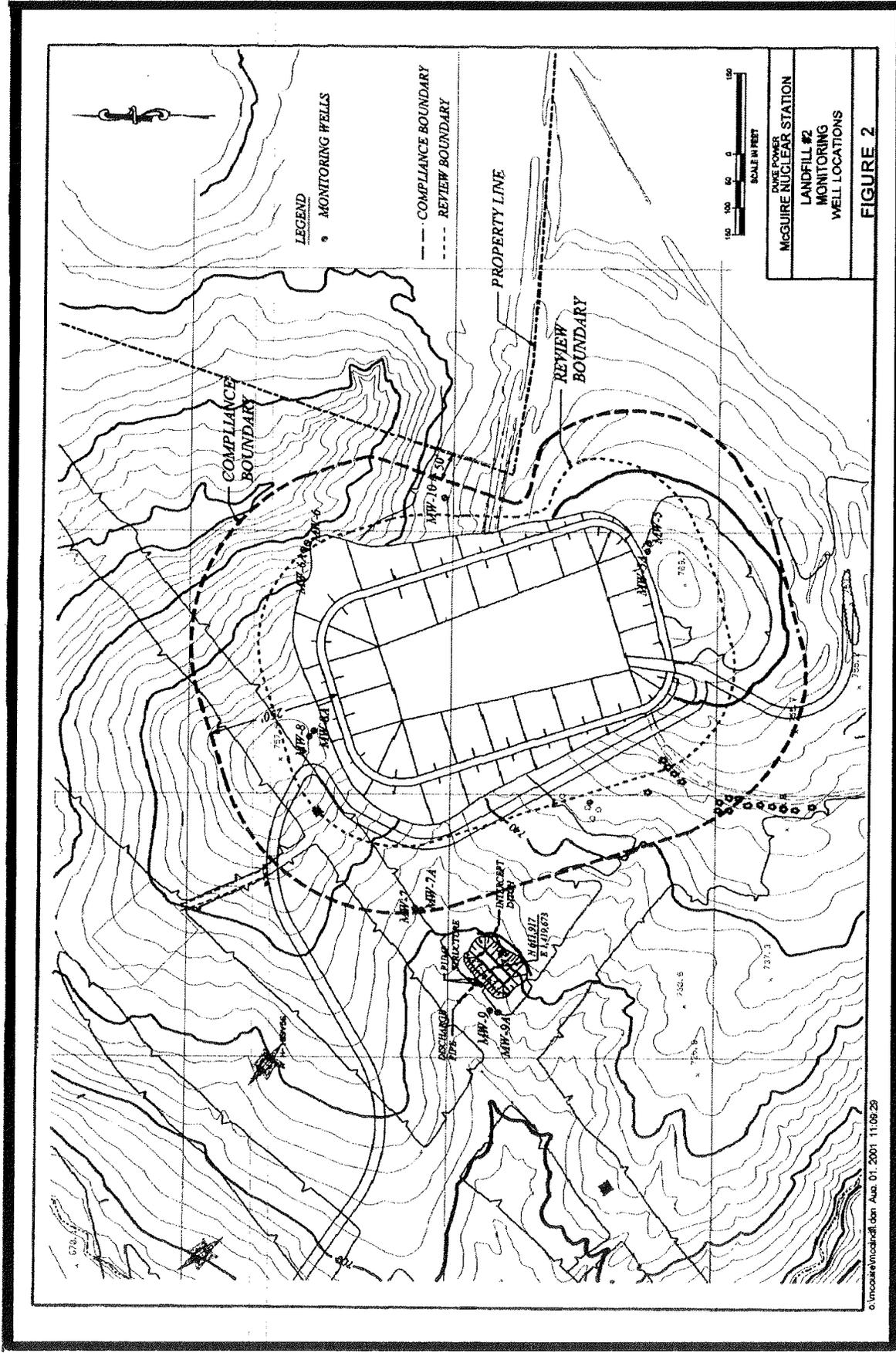


FIGURE 2
 DUKES POWER
 MCGUIRE NUCLEAR STATION
 LANDFILL #2
 MONITORING
 WELL LOCATIONS

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DUKE ENERGY
GROUNDWATER MONITORING DATA SHEET
FOR CONVENTIONAL SAMPLING

LOCATION:	McGUIRE NUCLEAR STATION	PROCEDURE NO:	3175.0
PROJECT NAME:	LANDFILL 2 GROUNDWATER MONITORING	WATER LEVEL METER SERIAL #:	47054
SAMPLING DATE(s):	29-Dec-2008 <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	PRODUCT LEVEL METER SERIAL #:	N/A

MONITORING WELL NUMBER:	MW-5A	FIELD CREW:	LDC, RLW
TOC Elev.:	768.42		

WELL DIAMETER (in)	WELL DEPTH (ft)	—	DEPTH TO WATER (ft)	=	WATER COLUMN (ft)	X	CONVERSION FACTOR	=	WELL VOLUME (gal)
2	96.00	—	65.48	=	30.52	X	0.1631	=	4.98

SCREEN Length (ft)	14	MIDDLE OF WETTED SCREEN (FT TOC)	89.0
FROM	82.00	TO	96.00
		PUMP INTAKE DEPTH (FT TOC)	95.0

SAMPLING EQUIPMENT	QED PUMP	PURGE METHOD	Conventional
--------------------	----------	--------------	--------------

VOLUME (gal)	CUMULATIVE VOLUME (gal)	COMPLETE EVACUATION (YES/NO)	TEMP (deg C)	SPECIFIC COND. (umho/cm)	pH (SU)	TURBIDITY (NTU)	ORP (mV-NHE)	DISSOLVED OXYGEN (mg/L)
4.98		<input checked="" type="checkbox"/>						
5.00	5.00	NO	16.05	56	5.89	1.7	N/A	N/A
5.00	10.00	NO	15.76	58	6.15	1.6		
5.00	15.00	NO	15.65	58	6.21	1.6		
5.00	20.00	NO	15.68	59	6.24	1.2		

COLLECT SAMPLE	SAMPLE COLLECTED BY	DATE / TIME	Chlorine
	LDC	12/29/08 at 0815 hrs	0 (mg/L)
Sampling Criteria Satisfied			

DETECTED ODORS	NA	NA	PID READING (ppm)	NA
----------------	----	----	-------------------	----

FREE PRODUCT MEASUREMENT	DEPTH TO PRODUCT	DEPTH TO WATER	PRODUCT THICKNESS
	N/A (ft)	N/A (ft)	N/A (ft)
If Product Thickness Is ≥ 0.1 ft, -- DO NOT SAMPLE --			

WELL CONDITION		NOTES
PROTECTIVE CASING	Good Condition	Pressure (psi): 50 Cycle: 10 & 10
WELL PAD	Good Condition	QC for DRO collected
WELL CASING	Good Condition	
WELL TAG	Good Tag	

Figure 3: Example Groundwater Monitoring Data Sheet

FIELD SAMPLING CALIBRATION FORM

STUDY: McGUIRE NUCLEAR STATION - LANDFILL 2 GROUNDWATER MONITORING

DATE (s): December 29, 2008 SURFACE UNIT READER: LDC

COLLECTORS: LDC, RLW SURFACE UNIT SERIAL #: S0205

ANALYZER MODEL#: MS5 ANALYZER SERIAL #: 46364

OTHER EQUIPMENT: TURBIDIMETER NO.1 - 3260.0 WEATHER CONDITIONS: Cloudy to clear, calm, 55 to 65 deg F

PROCEDURE #: HYDROLAB 3210.3 VALIDATED BY: LDC 12/29/08

Calibration Date / Time		DATE:	29-Dec-08	TIME:	535	DATE:	29-Dec-08	TIME:	1410
		BP (mmHg)			744.1	BP (mmHg)			743.2
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	227.4	→	227	Calibration Accepted	224.8	→	227	Calibration Pass
	SS	76.9	↔	75	Calibration Accepted	73.6	↔	75	Calibration Pass
pH (units)	B	7.12	→	7.00	Calibration Accepted	7.15	→	7.00	Calibration Pass
	B	3.95	→	4.00	Calibration Accepted	4.18	→	4.00	Calibration Pass
	B	9.92	↔	10.01	Calibration Accepted	10.08	↔	10.01	Calibration Pass
		Buffer Temp		24.39		Buffer Temp		23.94	
<input type="checkbox"/> ORP (mV)	SS (7.00) SS (4.00)	N/A N/A	↔ ↔	N/A N/A		N/A N/A	↔ ↔	N/A N/A	
<input type="checkbox"/> DO (mg/L)	W W AW	N/A	↔	N/A		N/A	↔	N/A	
<input checked="" type="checkbox"/> TURB (ntu)	SS	54.4	↔	53.9	Calibration Accepted	54.9	↔	53.9	Calibration Accepted
Temp Cert Device #									
TEMP (deg C)	NIST	N/A	↔	N/A	Adjustment Not Available	N/A	↔	N/A	Adjustment Not Available
AMMONIUM (mg/L)	SS	N/A	↔	N/A		N/A	↔	N/A	
	SS	N/A	↔	N/A		N/A	↔	N/A	

INSTRUMENT MAINTENANCE		DATE / TIME	
<i>Conductance Subsystem</i>		<i>pH Subsystem</i>	
<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
<i>Dissolved Oxygen Subsystem</i>		<i>Ammonium Subsystem</i>	
<input type="checkbox"/>	Replaced Teflon Membrane	<input type="checkbox"/>	Cleaned Electrode Tip
<input type="checkbox"/>	Replaced DO electrolyte	<input type="checkbox"/>	Installed New Electrode
<input type="checkbox"/>	Cleaned Electrode	<input type="checkbox"/>	Removed Electrode / Installed Plug
<input type="checkbox"/>	See Notes	<input type="checkbox"/>	Tested - OK <input type="checkbox"/> See Notes
<i>Oxidation Reduction Subsystem</i>		<i>Turbidity Subsystem</i>	
<input type="checkbox"/>	Cleaned Electrode	<input type="checkbox"/>	Cleaned Electrode & Wiper
<input type="checkbox"/>	Tested - OK <input type="checkbox"/> See Notes	<input type="checkbox"/>	Tested - OK <input type="checkbox"/> See Notes
<i>Temperature Subsystem</i>		<i>Depth Subsystem</i>	
<input type="checkbox"/>	Cleaned Electrode	<input type="checkbox"/>	Reset / Calibrated
<input type="checkbox"/>	Tested - OK <input type="checkbox"/> See Notes	<input type="checkbox"/>	Tested - OK <input type="checkbox"/> See Notes

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

NOTES:

Figure 4: Example Field Sampling Calibration Form

TABLES

Table 1. Monitoring Well Information

Well ID	Coordinates		Ground Elevation ft-msl	Top of Caing Elevation ft-msl	Total Depth ft	Bottom Elevation ft-msl
	North	East				
MW-5	611642.3	1420461	766.42	768.3	63.9	704.4
MW-5A	611644.3	1420446	766.45	768.4	96	672.4
MW-6	612271.4	1420458	726.79	728.5	37.2	691.3
MW-6A	612278.3	1420445	727.54	729	47.9	681.1
MW-7	612063.4	1419782	723.72	725.9	71.5	654.4
MW-7A	612051.3	1419778	722.74	724.7	84.4	640.3
MW-8	612263.7	1420098	757.3	759.6	37.3	722.3
MW-8A	612254.6	1420109	757.61	759.7	59.4	700.3
MW-9	611923.7	1419593	710.27	711.9	30.8	681.1
MW-9A	611908.9	1419590	710.3	712.1	47.8	664.3
MW-10A	611971.7	1420622	753.78	755.78	59.23	696.55

Table 2. Sample Containers, Volumes, Preservatives and Holding Times.

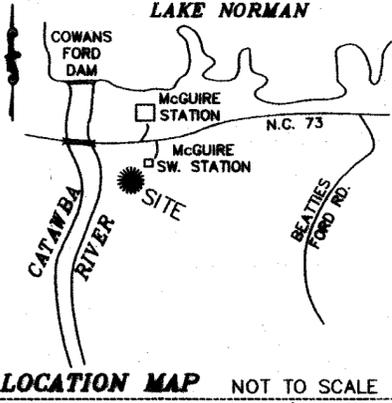
PARAMETER	CONTAINERS	PRESERVATIVES	HOLDING TIMES
<i>In situ Parameters</i>			
Field pH	Insitu	None: analyze immediately	NA
Specific Conductance	Insitu	None: analyze immediately	NA
Temperature	Insitu	None: analyze immediately	NA
<i>Laboratory Analyses</i>			
Arsenic	500 ml HDPE	pH<2 HNO ₃	6 months
Barium	500 ml HDPE	pH<2 HNO ₃	6 months
Cadmium	500 ml HDPE	pH<2 HNO ₃	6 months
Chromium	500 ml HDPE	pH<2 HNO ₃	6 months
Lead	500 ml HDPE	pH<2 HNO ₃	6 months
Mercury	500 ml HDPE	pH<2 HNO ₃	6 months
Selenium	500 ml HDPE	pH<2 HNO ₃	6 months
Silver	500 ml HDPE	pH<2 HNO ₃	6 months
Sulfate	500 ml HDPE	Cool 4°C	28 days
Chloride	500 ml HDPE	Cool 4°C	28 Days
Volatile Organic Compounds	40 ml Glass	HCL;Cool 4°C	14 days
TPH (DRO)	1000 ml Glass	H ₂ SO ₄ ,Cool 4°C	7 days (Extraction)
Gross Alpha & Beta	4l cubitainer	10 ml 50%HNO ₃	NA
Tritium	50 ml polybottle	None	NA

Notes:

NE = Not Established

Table 3. Sample Parameters, Analytical Methods and Detection Limits

PARAMETER	UNITS	ANALYTICAL METHOD	NC SOLID WASTE SECTION LIMITS (SWSLs)
<i>In situ Parameters</i>			
Field pH	pH Units	Hydrolab	NE
Specific Conductance	umhos/cm	Hydrolab	NE
Temperature	oC	Hydrolab	NE
Water Levels	ft	Water Level Meter	0.010 ft
<i>Laboratory Analyses</i>			
Arsenic	mg/l	SM3030C/EPA 206.2	0.01
Barium	mg/l	SM3030C/EPA 200.7	0.1
Cadmium	mg/l	SM3030C/EPA 213.2	0.001
Chromium	mg/l	SM3030C/EPA 218.2	0.01
Lead	mg/l	SM3030C/EPA 239.2	0.01
Mercury	mg/l	SM3030C/EPA 245.1	0.0002
Selenium	mg/l	SM3030C/EPA 270.2	0.01
Silver	mg/l	SM3030C/EPA 272.2	0.01
Sulfate	mg/l	EPA 375.4	250
Chloride	mg/l	EPA325.2	250
Volatile Organics	ug/l	EPA 8260	Varies
TPH (DRO)	ug/l	EPA8015/3520	NE
Gross Alpha	pCi/l	EPA 900/SM7110B	NE
Gross Beta	pCi/l	EPA 900/SM7110B	NE
Tritium	pCi/l	EPA 906.0 Modified	NE



LOCATION MAP NOT TO SCALE

CERTIFIED LANDFILL PERMIT 60-40
 RECORDED: D.B. 16064, PG. 87 - 97
 DATED: 9-05-03

FILED FOR
 REGISTRATION
 SEP 10 2003
 AT 02:22 PM
 JUDITH A. GIBSON
 MECKLENBURG COUNTY, N. C.
 REGISTER OF DEEDS

DUKE ENERGY CORPORATION
 LMI-18E
 D.B. 312, PG. 248
 TAX PARCEL 01315102

NCGS MON. M010
 N. 618,227.762 FT
 E. 1,421,760.194 FT
 (GRID COORDINATES)
 ELEV. 798.19
 (NAD 83)



CERTIFIED TO BE A TRUE AND CORRECT
 COPY OF THE ORIGINAL MAP RECORDED
 IN BOOK 40 PAGE 141
 DATE: September 10, 2003
 JUDITH A. GIBSON, REGISTER OF DEEDS
 BY: [Signature] DEPUTY

NOTE:
 1. THIS PLAT IS OF A SURVEY OF AN EXISTING PARCEL OR PARCELS OF LAND AND DOES NOT
 CREATE A NEW STREET OR CHANGE AN EXISTING STREET;
 X 2. THAT THE SURVEY IS OF AN EXISTING BUILDING OR OTHER STRUCTURE, OR NATURAL
 FEATURE, SUCH AS A WATERCOURSE, OR
 3. THAT THE SURVEY IS A CONTROL SURVEY.

STATE OF NORTH CAROLINA
 MECKLENBURG COUNTY

I, JAY A. HALLMAN, certify that this plat was drawn under my supervision from an actual survey made
 under my supervision (and description recorded in Book AS, page 54881, etc.) (other); that the boundaries not
 surveyed are clearly indicated as drawn from information found in Book AS, page 54881; that the ratio
 of precision as calculated is 1:10,000; that this plat was prepared in accordance with G.S. 47-38 as amended.
 Witness my original signature, license number and seal this 10th day of SEPTEMBER, A.D., 2003.



[Signature]
 9-10-2003

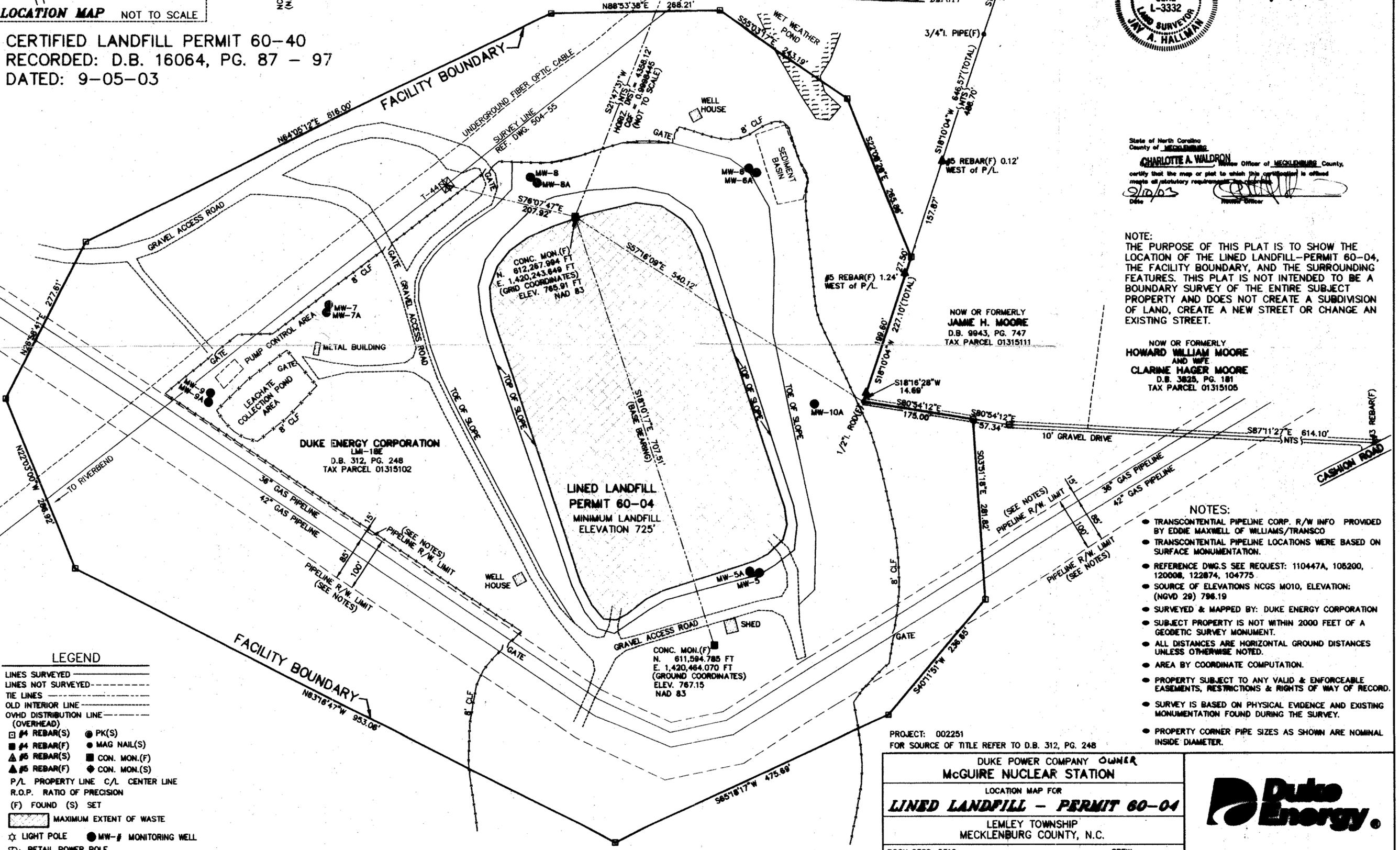
State of North Carolina
 County of MECKLENBURG
 CHARLOTTE A. WALDRON
 Clerk of the Superior Court
 certify that the map or plat to which this certification is affixed
 meets all statutory requirements.
 9/10/03
 Date

NOTE:
 THE PURPOSE OF THIS PLAT IS TO SHOW THE
 LOCATION OF THE LINED LANDFILL—PERMIT 60-04,
 THE FACILITY BOUNDARY, AND THE SURROUNDING
 FEATURES. THIS PLAT IS NOT INTENDED TO BE A
 BOUNDARY SURVEY OF THE ENTIRE SUBJECT
 PROPERTY AND DOES NOT CREATE A SUBDIVISION
 OF LAND, CREATE A NEW STREET OR CHANGE AN
 EXISTING STREET.

NOW OR FORMERLY
 JAMIE H. MOORE
 D.B. 9943, PG. 747
 TAX PARCEL 01315111

NOW OR FORMERLY
 HOWARD WILLIAM MOORE
 AND WIFE
 CLARINE HAGER MOORE
 D.B. 3825, PG. 181
 TAX PARCEL 01315105

- NOTES:
- TRANSCONTINENTAL PIPELINE CORP. R/W INFO PROVIDED BY EDDIE MAXWELL OF WILLIAMS/TRANSCO
 - TRANSCONTINENTAL PIPELINE LOCATIONS WERE BASED ON SURFACE MONUMENTATION.
 - REFERENCE DWG.S SEE REQUEST: 110447A, 105200, 120008, 122874, 104775.
 - SOURCE OF ELEVATIONS NCGS M010, ELEVATION: (NGVD 29) 798.19
 - SURVEYED & MAPPED BY: DUKE ENERGY CORPORATION
 - SUBJECT PROPERTY IS NOT WITHIN 2000 FEET OF A GEODETIC SURVEY MONUMENT.
 - ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES UNLESS OTHERWISE NOTED.
 - AREA BY COORDINATE COMPUTATION.
 - PROPERTY SUBJECT TO ANY VALID & ENFORCEABLE EASEMENTS, RESTRICTIONS & RIGHTS OF WAY OF RECORD.
 - SURVEY IS BASED ON PHYSICAL EVIDENCE AND EXISTING MONUMENTATION FOUND DURING THE SURVEY.
 - PROPERTY CORNER PIPE SIZES AS SHOWN ARE NOMINAL INSIDE DIAMETER.



- LEGEND
- LINES SURVEYED
 - - - LINES NOT SURVEYED
 - - - TIE LINES
 - - - OLD INTERIOR LINE
 - - - OVHD DISTRIBUTION LINE (OVERHEAD)
 - #4 REBAR(S)
 - #4 REBAR(F)
 - ▲ #5 REBAR(S)
 - ▲ #5 REBAR(F)
 - P/L PROPERTY LINE C/L CENTER LINE
 - R.O.P. RATIO OF PRECISION
 - (F) FOUND (S) SET
 - MAXIMUM EXTENT OF WASTE
 - ☆ LIGHT POLE ● MW-# MONITORING WELL
 - RETAIL POWER POLE
 - (NTS)— NOT TO SCALE
 - oPt POINT NOT SET
 - CLF— CHAIN LINK FENCE

AREA WITHIN FACILITY BOUNDARY = 31.227 ACRES

PROJECT: 002251
 FOR SOURCE OF TITLE REFER TO D.B. 312, PG. 248

DUKE POWER COMPANY OWNER
 MCGUIRE NUCLEAR STATION

LOCATION MAP FOR
LINED LANDFILL - PERMIT 60-04

LEMLEY TOWNSHIP
 MECKLENBURG COUNTY, N.C.

BOOK: 2388, 2319 50 0 50 100 150 CREW:
 DATE: 8-06-03 DRAWN BY: DLH
 SCALE: 1"= 100' SCALE IN FEET R.O.P.= 1':10,000'+
 LAND UNIT: MAP: 002251-123379

400 S. TRYON STREET
 PO BOX 1007
 CHARLOTTE, N.C. 28201-1007
 TELEPHONE NO. (704)382-8888