July 27, 2009

Jaclynne Drummond
Division of Waste Management - Solid Waste Section
401 Oberlin Road, Suite 150
Raleigh, NC 27605

Re: Methane Monitoring Status Report
Lee County Landfill - Sanford, NC
NCDWM-Solid Waste Section Permit # 53-01
Terraquest Project No. 02296

Dear Ms. Drummond:

Terraquest Environmental Consultants, P.C. is hereby reporting the status of methane monitoring at the Lee County Landfill. In accordance with the approved plan, the entire methane well network was monitored on July 23, 2009. The monitoring included collection of LEL as methane, O2, H_2S, and CO readings from each well and then measuring the presence of groundwater in the well to determine the screen interval open to the investigated area. Air measurements were collected with a Q-RAE multigas monitor and the depth to water was measured with a Durham Geo Slope Indicator.

The site location, vicinity, and layout are displayed on the attached Figures 1, 2, and 3, respectively. Figure 4 provides a closer view of an area previously identified to have LEL violations at the property boundary. Methane monitoring results are provided on the attached Table 1, and an NCDWM-SW Environmental Monitoring Reporting Form is also attached.

The information presented on Table 1 reveals results similar to historical conditions with LEL violations in wells M2, M8, M9, M10, M29, M37, and M28. Note that 100% LEL readings were absent from the wells located closest to the property boundary.

Please call or e-mail me any questions you may have. Thanks.

Sincerely,

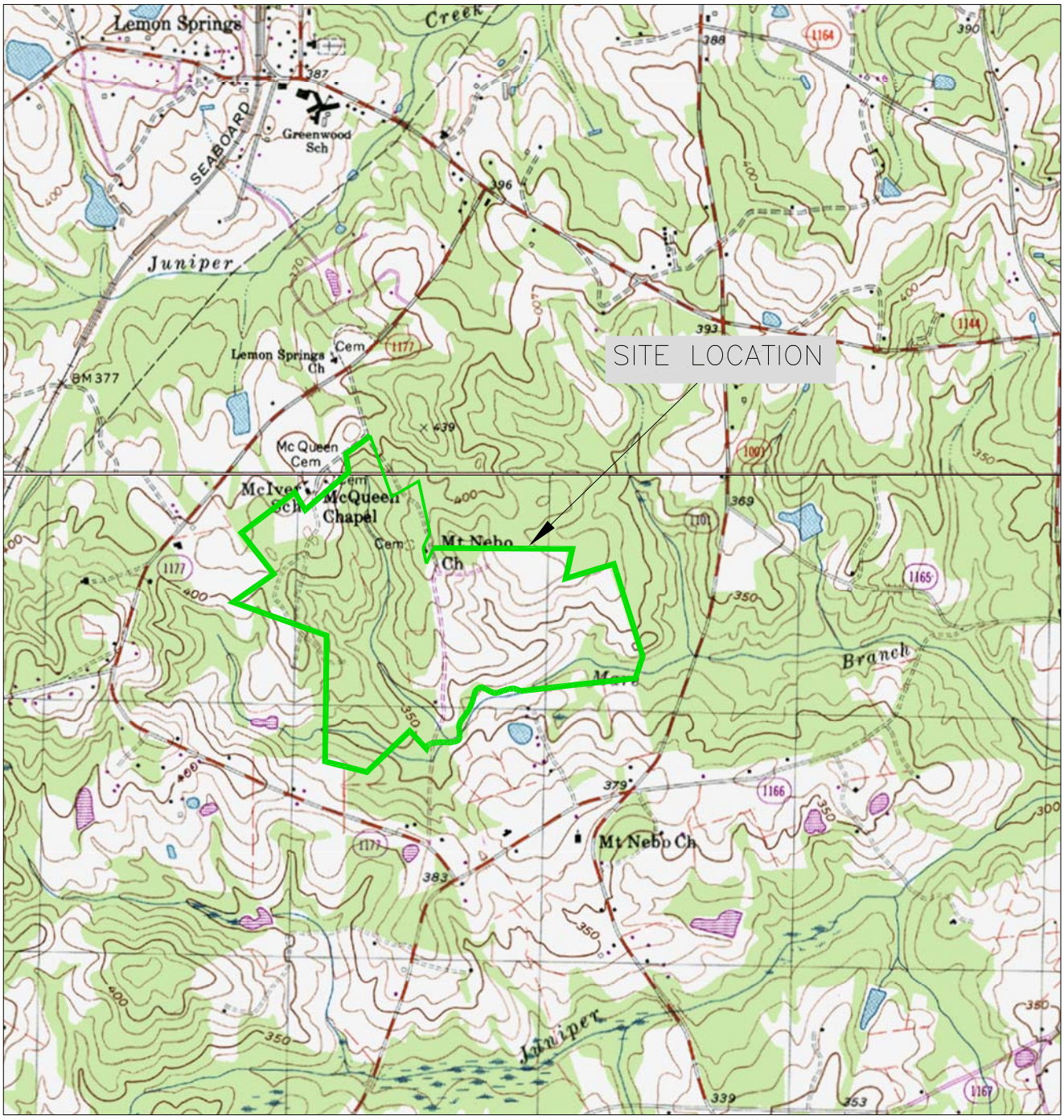
TERRAQUEST ENVIRONMENTAL CONSULTANTS, P.C.

Ryan D. Kerins
Project Manager

Attachments: Figure 1 – Site Location Map, Figure 2 – Site Vicinity Map, Figure 3 – Site Layout Map, Figure 4 – LEL Violation Area
Table 1 – Methane Monitoring
NCDWM-SW Environmental Monitoring Reporting Form

cc: Joe Cherry – Lee County Public Works Department

100 East Ruffin Street, Mebane, North Carolina 27302
Telephone (919) 563-9091 ·Facsimile (919) 563-9095
www.terraquestpc.com



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MAP SOURCE: USGS 7.5 MINUTE TOPOGRAPHICS – SANFORD AND MURCHISONTOWN, NC

GRAPHIC SCALE

0' 2000' 4000'

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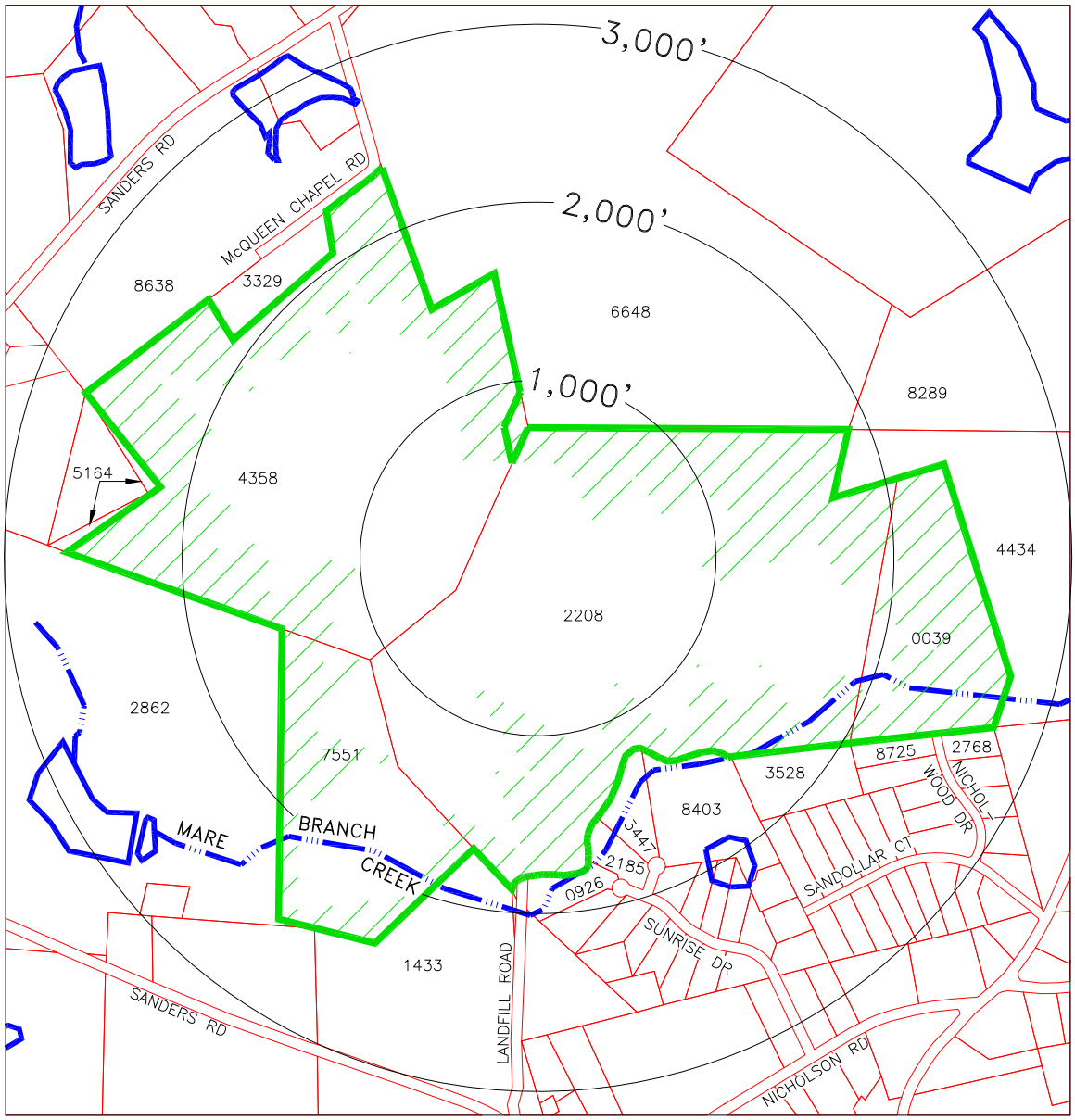
SITE LOCATION MAP
LEE COUNTY LANDFILL
331 LANDFILL ROAD
LEE COUNTY, NORTH CAROLINA

LEE COUNTY PUBLIC WORKS SANFORD, NC

PROJECT NO.	02296	DRAWN BY:	RDK	DATE:	7/27/09
SCALE:	1" = 2000'	CHECKED BY:	JRG/MJB	FIGURE NO.	1



LEGEND

LANDFILL PROPERTY BOUNDARY

PARCEL BOUNDARIES

DISTANCE FROM LANDFILL CENTER

SURFACE WATER BODY

2106 TAX PARCEL ID (SEE TABLE 1)

GRAPHIC SCALE (1" = 1,000')

0' 500' 1,000' 2,000'

(NOTE: MAP ADAPTED FROM INFORMATION PROVIDED BY THE LEE COUNTY DEPARTMENT OF STRATEGIC SERVICES)

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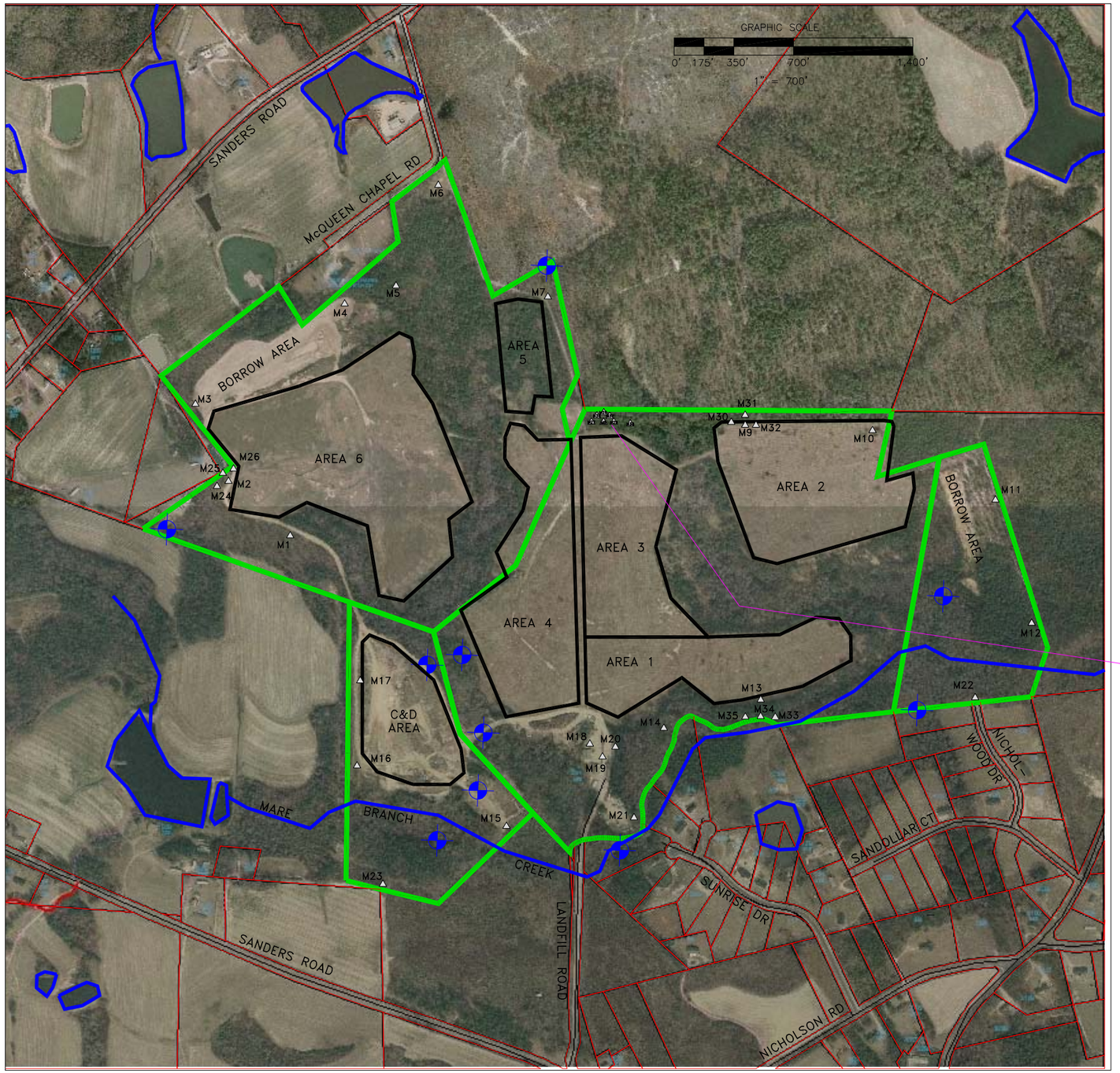
ENVIRONMENTAL CONSULTANTS, P.C.

SITE VICINITY MAP

LEE COUNTY LANDFILL
331 LANDFILL ROAD
SANFORD, LEE COUNTY, NC 27332

LKEE COUNTY PUBLIC WORKS — SANFORD, NC

PROJECT NO.	02296	DRAWN BY:	RDK	DATE:	7/27/09
SCALE:	1" = 1,000'	CHECKED BY:	MJB	FIGURE NO.	2

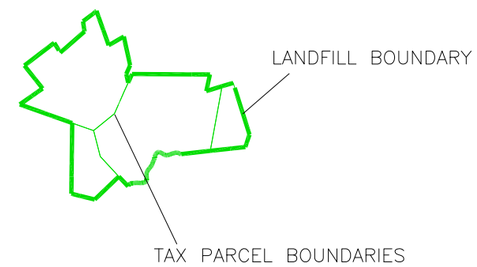


LEGEND

△ METHANE MONITORING WELL

AREAS 1 – 6 CLOSED MSW

C&D AREA STILL ACTIVE



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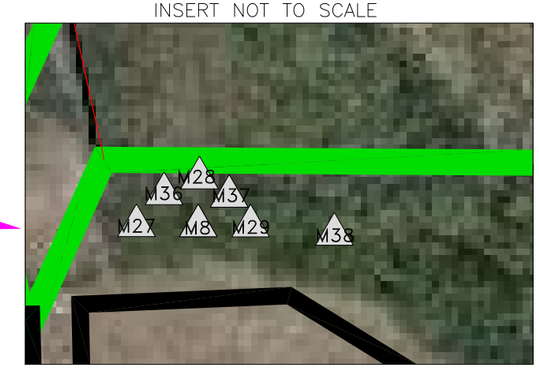

(NOTE: MAP ADAPTED FROM INFORMATION PROVIDED BY THE LEE COUNTY DEPARTMENT OF STRATEGIC SERVICES)

SITE LAYOUT MAP – AERIAL VIEW

LEE COUNTY LANDFILL

SANFORD, LEE COUNTY, NC

LEE COUNTY PUBLIC WORKS

SANFORD, NC

PROJECT NO: 02296	CHECKED BY: MJB	FIGURE NO.	3
SCALE: 1" = 700'	DRAWN BY: RDK	DATE:	7/27/09

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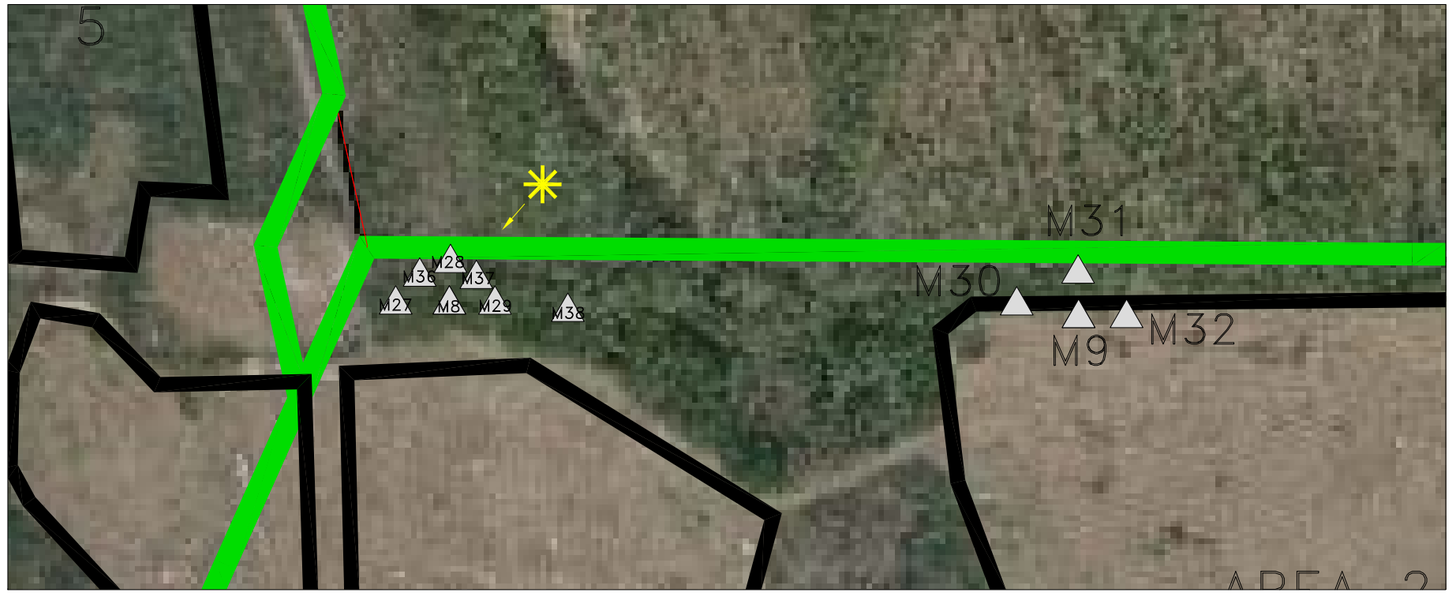
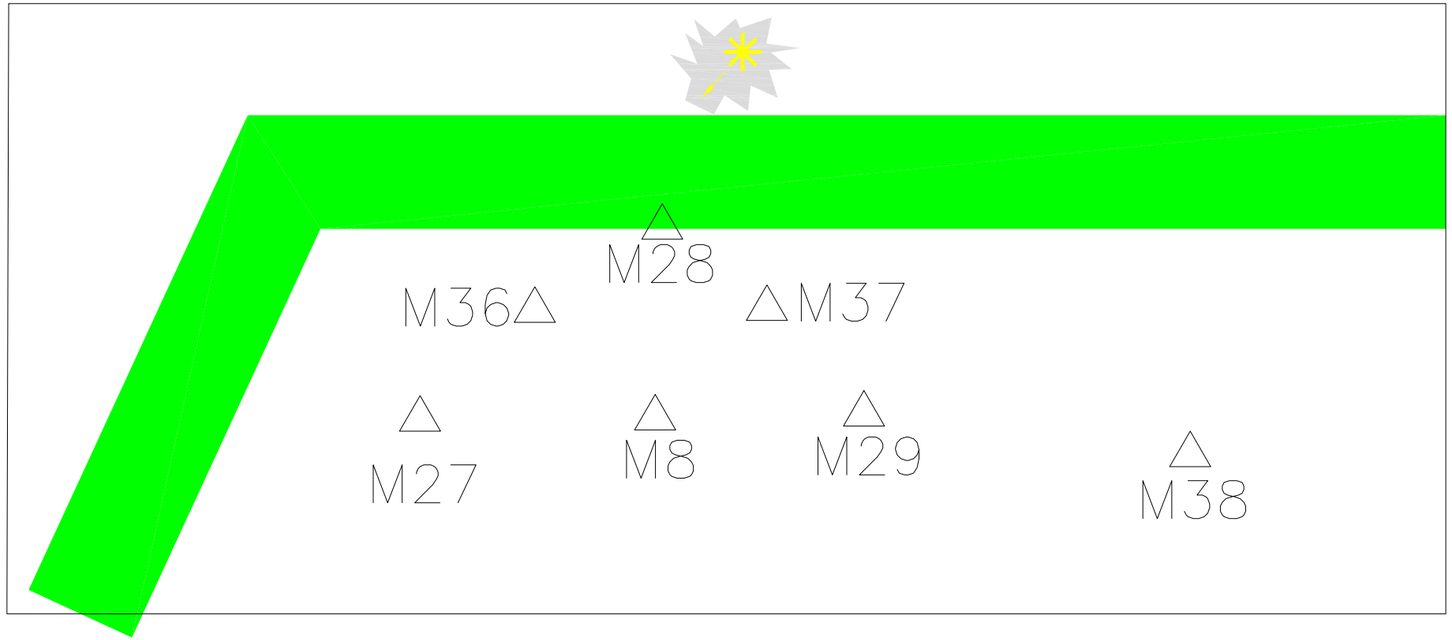
ENVIRONMENTAL CONSULTANTS, P.C.

SCALE: 1" = 200'

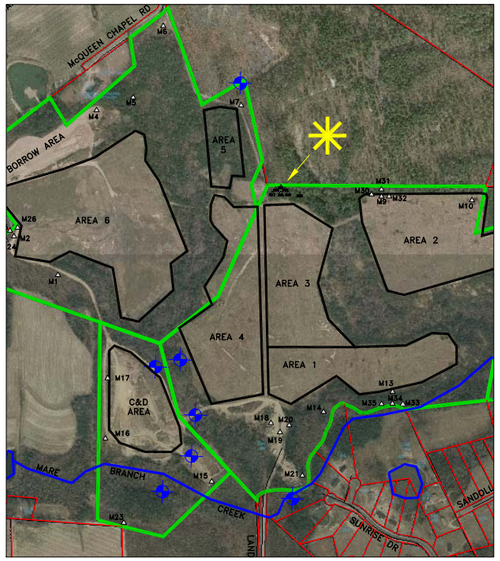


SCALE: 1" = 50'



LEGEND

△ METHANE MONITORING WELL



SCALE: 1" = 1,250'

(NOTE: MAP ADAPTED FROM INFORMATION PROVIDED BY THE LEE COUNTY DEPARTMENT OF STRATEGIC SERVICES)

LEE COUNTY PUBLIC WORKS

LEL VIOLATION AREA
LEE COUNTY LANDFILL
SANFORD, LEE COUNTY, NC

SANFORD, NC

PROJECT NO: 02296	CHECKED BY: MJB	FIGURE NO. 4	
SCALE: AS SHOWN	DRAWN BY: RDK	DATE: 7/27/09	

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ENVIRONMENTAL CONSULTANTS, P.C.

Table 1 METHANE MONITORING
Date: 7/27/09 Facility Name: Lee County Landfill

FACILITY PERMIT	WELL ID	CAS Number	SWS ID	PARAMETER	RESULT	UNITS	COLLECT DATE
53-01	SITE	SW325	325	ambient temperature	84.2	°F	7/23/09 @ 11:40am
53-01	SITE			barometric pressure	29.96	"Hg	7/23/09 @ 11:40am
53-01	M1			carbon monoxide	0	ppm	7/23/09
53-01	M1			methane gas	0	%LEL	7/23/09
53-01	M1	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M1			oxygen	20.9	%	7/23/09
53-01	M1	SW318	318	Depth To Water	8.53	feet	7/23/09
53-01	M2			carbon monoxide	24	ppm	7/23/09
53-01	M2			methane gas	100	%LEL	7/23/09
53-01	M2	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M2			oxygen	18.4	%	7/23/09
53-01	M2	SW318	318	Depth To Water	9.99	feet	7/23/09
53-01	M3			carbon monoxide	0	ppm	7/23/09
53-01	M3			methane gas	0	%LEL	7/23/09
53-01	M3	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M3			oxygen	20.9	%	7/23/09
53-01	M3	SW318	318	Depth To Water	8.54	feet	7/23/09
53-01	M4			carbon monoxide	0	ppm	7/23/09
53-01	M4			methane gas	0	%LEL	7/23/09
53-01	M4	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M4			oxygen	20.9	%	7/23/09
53-01	M4	SW318	318	Depth To Water	2.99	feet	7/23/09
53-01	M5			carbon monoxide	0	ppm	7/23/09
53-01	M5			methane gas	0	%LEL	7/23/09
53-01	M5	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M5			oxygen	20.9	%	7/23/09
53-01	M5	SW318	318	Depth To Water	8.97	feet	7/23/09
53-01	M6			carbon monoxide	0	ppm	7/23/09
53-01	M6			methane gas	0	%LEL	7/23/09
53-01	M6	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M6			oxygen	20.9	%	7/23/09
53-01	M6	SW318	318	Depth To Water	10.38	feet	7/23/09
53-01	M7			carbon monoxide	0	ppm	7/23/09
53-01	M7			methane gas	0	%LEL	7/23/09
53-01	M7	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M7			oxygen	20.9	%	7/23/09
53-01	M7	SW318	318	Depth To Water	Dry	feet	7/23/09
53-01	M8			carbon monoxide	21.0	ppm	7/23/09
53-01	M8			methane gas	100	%LEL	7/23/09
53-01	M8	SW338	338	hydrogen sulfide	117.0	ppm	7/23/09
53-01	M8			oxygen	14.4	%	7/23/09
53-01	M8	SW318	318	Depth To Water	-	feet	7/23/09
53-01	M9			carbon monoxide	2.0	ppm	7/23/09
53-01	M9			methane gas	100	%LEL	7/23/09
53-01	M9	SW338	338	hydrogen sulfide	100	ppm	7/23/09
53-01	M9			oxygen	17.7	%	7/23/09
53-01	M9	SW318	318	Depth To Water	4.72	feet	7/23/09
53-01	M10			carbon monoxide	3.0	ppm	7/23/09
53-01	M10			methane gas	100	%LEL	7/23/09
53-01	M10	SW338	338	hydrogen sulfide	0.0	ppm	7/23/09
53-01	M10			oxygen	16.2	%	7/23/09
53-01	M10	SW318	318	Depth To Water	6.50	feet	7/23/09
53-01	M11			carbon monoxide	0	ppm	7/23/09
53-01	M11			methane gas	0	%LEL	7/23/09
53-01	M11	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M11			oxygen	20.9	%	7/23/09
53-01	M11	SW318	318	Depth To Water	Dry	feet	7/23/09
53-01	M12			carbon monoxide	0	ppm	7/23/09
53-01	M12			methane gas	0	%LEL	7/23/09
53-01	M12	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M12			oxygen	20.9	%	7/23/09
53-01	M12	SW318	318	Depth To Water	12.03	feet	7/23/09
53-01	M13			carbon monoxide	4.0	ppm	7/23/09
53-01	M13			methane gas	**29.0**	%LEL	7/23/09
53-01	M13	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M13			oxygen	20.2	%	7/23/09
53-01	M13	SW318	318	Depth To Water	8.94	feet	7/23/09
53-01	M14			carbon monoxide	0	ppm	7/23/09
53-01	M14			methane gas	0	%LEL	7/23/09
53-01	M14	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M14			oxygen	20.9	%	7/23/09
53-01	M14	SW318	318	Depth To Water	12.43	feet	7/23/09
53-01	M15			carbon monoxide	0	ppm	7/23/09
53-01	M15			methane gas	0	%LEL	7/23/09
53-01	M15	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M15			oxygen	20.9	%	7/23/09
53-01	M15	SW318	318	Depth To Water	12.0	feet	7/23/09

Table 1-cont.			METHANE MONITORING				
Date: 7/27/09			Facility Name: Lee County Landfill				
53-01	M16			carbon monoxide	0	ppm	7/23/09
53-01	M16			methane gas	0	%LEL	7/23/09
53-01	M16	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M16			oxygen	20.9	%	7/23/09
53-01	M16	SW318	318	Depth To Water	4.22	feet	7/23/09
53-01	M17			carbon monoxide	0	ppm	7/23/09
53-01	M17			methane gas	0	%LEL	7/23/09
53-01	M17	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M17			oxygen	20.9	%	7/23/09
53-01	M17	SW318	318	Depth To Water	5.62	feet	7/23/09
53-01	M18			carbon monoxide	0	ppm	7/23/09
53-01	M18			methane gas	0	%LEL	7/23/09
53-01	M18	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M18			oxygen	20.9	%	7/23/09
53-01	M18	SW318	318	Depth To Water	7.99	feet	7/23/09
53-01	M19			carbon monoxide	21.0	ppm	7/23/09
53-01	M19			methane gas	0	%LEL	7/23/09
53-01	M19	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M19			oxygen	18.2	%	7/23/09
53-01	M19	SW318	318	Depth To Water	9.35	feet	7/23/09
53-01	M20			carbon monoxide	21.0	ppm	7/23/09
53-01	M20			methane gas	0	%LEL	7/23/09
53-01	M20	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M20			oxygen	19.3	%	7/23/09
53-01	M20	SW318	318	Depth To Water	10.97	feet	7/23/09
53-01	M21			carbon monoxide	0	ppm	7/23/09
53-01	M21			methane gas	0	%LEL	7/23/09
53-01	M21	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M21			oxygen	20.9	%	7/23/09
53-01	M21	SW318	318	Depth To Water	8.66	feet	7/23/09
53-01	M22			carbon monoxide	0	ppm	7/23/09
53-01	M22			methane gas	0	%LEL	7/23/09
53-01	M22	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M22			oxygen	20.9	%	7/23/09
53-01	M22	SW318	318	Depth To Water	5.13	feet	7/23/09
53-01	M23			carbon monoxide	0	ppm	7/23/09
53-01	M23			methane gas	0	%LEL	7/23/09
53-01	M23	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M23			oxygen	20.9	%	7/23/09
53-01	M23	SW318	318	Depth To Water	6.04	feet	7/23/09
53-01	M24			carbon monoxide	0	ppm	7/23/09
53-01	M24			methane gas	0	%LEL	7/23/09
53-01	M24	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M24			oxygen	20.9	%	7/23/09
53-01	M24	SW318	318	Depth To Water	Dry	feet	7/23/09
53-01	M25			carbon monoxide	0	ppm	7/23/09
53-01	M25			methane gas	0	%LEL	7/23/09
53-01	M25	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M25			oxygen	20.9	%	7/23/09
53-01	M25	SW318	318	Depth To Water	9.83	feet	7/23/09
53-01	M26			carbon monoxide	0	ppm	7/23/09
53-01	M26			methane gas	0	%LEL	7/23/09
53-01	M26	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M26			oxygen	20.9	%	7/23/09
53-01	M26	SW318	318	Depth To Water	8.75	feet	7/23/09
53-01	M27			carbon monoxide	19.0	ppm	7/23/09
53-01	M27			methane gas	**15.0**	%LEL	7/23/09
53-01	M27	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M27			oxygen	19.3	%	7/23/09
53-01	M27	SW318	318	Depth To Water	Dry	feet	7/23/09
53-01	M28			carbon monoxide	0	ppm	7/23/09
53-01	M28			methane gas	0	%LEL	7/23/09
53-01	M28	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M28			oxygen	20.9	%	7/23/09
53-01	M28	SW318	318	Depth To Water	10.40	feet	7/23/09
53-01	M29			carbon monoxide	19.0	ppm	7/23/09
53-01	M29			methane gas	**100**	%LEL	7/23/09
53-01	M29	SW338	338	hydrogen sulfide	21.0	ppm	7/23/09
53-01	M29			oxygen	12.4	%	7/23/09
53-01	M29	SW318	318	Depth To Water	8.04	feet	7/23/09
53-01	M30			carbon monoxide	0	ppm	7/23/09
53-01	M30			methane gas	0	%LEL	7/23/09
53-01	M30	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M30			oxygen	20.9	%	7/23/09
53-01	M30	SW318	318	Depth To Water	Dry	feet	7/23/09
53-01	M31			carbon monoxide	0	ppm	7/23/09
53-01	M31			methane gas	0	%LEL	7/23/09
53-01	M31	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M31			oxygen	20.6	%	7/23/09
53-01	M31	SW318	318	Depth To Water	Dry	feet	7/23/09

Table 1-cont.				METHANE MONITORING			
Date: 7/27/09				Facility Name: Lee County Landfill			
53-01	M32			carbon monoxide	0	ppm	7/23/09
53-01	M32			methane gas	0	%LEL	7/23/09
53-01	M32	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M32			oxygen	20.6	%	7/23/09
53-01	M32	SW318	318	Depth To Water	Dry	feet	7/23/09
53-01	M33			carbon monoxide	0	ppm	7/23/09
53-01	M33			methane gas	0	%LEL	7/23/09
53-01	M33	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M33			oxygen	20.9	%	7/23/09
53-01	M33	SW318	318	Depth To Water	6.87	feet	7/23/09
53-01	M34			carbon monoxide	0	ppm	7/23/09
53-01	M34			methane gas	0	%LEL	7/23/09
53-01	M34	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M34			oxygen	20.9	%	7/23/09
53-01	M34	SW318	318	Depth To Water	6.64	feet	7/23/09
53-01	M35			carbon monoxide	0	ppm	7/23/09
53-01	M35			methane gas	0	%LEL	7/23/09
53-01	M35	SW338	338	hydrogen sulfide	0	ppm	7/23/09
53-01	M35			oxygen	20.9	%	7/23/09
53-01	M35	SW318	318	Depth To Water	8.99	feet	7/23/09
53-01	M36			carbon monoxide	19	ppm	7/23/09
53-01	M36			methane gas	**46**	%LEL	7/23/09
53-01	M36	SW338	338	hydrogen sulfide	2.0	ppm	7/23/09
53-01	M36			oxygen	19.3	%	7/23/09
53-01	M36	SW318	318	Depth To Water	10.51	feet	7/23/09
53-01	M37			carbon monoxide	19	ppm	7/23/09
53-01	M37			methane gas	100	%LEL	7/23/09
53-01	M37	SW338	338	hydrogen sulfide	2	ppm	7/23/09
53-01	M37			oxygen	15.1	%	7/23/09
53-01	M37	SW318	318	Depth To Water	Dry	feet	7/23/09
53-01	M38			carbon monoxide	19	ppm	7/23/09
53-01	M38			methane gas	100	%LEL	7/23/09
53-01	M38	SW338	338	hydrogen sulfide	113	ppm	7/23/09
53-01	M38			oxygen	12.4	%	7/23/09
53-01	M38	SW318	318	Depth To Water	9.54	feet	7/23/09

DENR USE ONLY: ☐ Paper Report ☐ Electronic Data - Email CD (data loaded: Yes / No) Doc/Event #:

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

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).
- In accordance with NC General Statutes Chapter 89C and 89E and NC Solid Waste Management Rules 15A NCAC 13B, be sure to affix a seal to the bottom of this page, when applicable.
- 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):

TerraQuest Environmental Consultants, P.C.

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

Name: Ryan Kerins Phone: (919) 563-9091

E-mail: rdkerins@terraquestpc.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Lee County Landfill	331 Landfill Rd, Sanford, NC 27332	53-01	.1600	July 23, 2009

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.

Ryan Kerins — Project Manager — (919) 563-9091

Facility Representative Name (Print) — Title — (Area Code) Telephone Number

Signature — 7/27/09 Date

Affix NC Licensed/ Professional Geologist/Engineer Seal here:

NORTH CAROLINA LICENSED SEAL 1185 GEOLOGIST MICHAEL J. BROWN

Revised 01/2007