



August 3, 2011

North Carolina Department of Environment and Natural Resources (NCDENR)  
Division of Waste Management – Solid Waste Section  
610 East Center Avenue  
Mooresville, North Carolina 28115

Attention: Charles T. Gerstell  
Environmental Senior Specialist

**Reference: June 2011 Methane Monitoring Report**  
Lincoln County Landfill (Permit No. 55-03)  
Crouse, North Carolina  
S&ME Project No. 1356-10-044

Dear Mr. Gerstell:

S&ME, Inc. (S&ME), on behalf of Lincoln County, is submitting this letter report summarizing the methane gas monitoring data collected on June 28, 2011 at the Lincoln County Landfill in Crouse, North Carolina. Please find attached to this letter report:

- Completed Environmental Monitoring Report Form;
- Field Form for Monitoring Event;
- Figure 1 – Methane Monitoring Locations; and
- Table 1 – Methane Gas Measurements.

The attached data includes landfill gas measurements from Methane Monitoring Wells (MMW-01 through MMW-08) that are currently part of the approved monitoring regime and monitored structures (lift station, scale house, and shop area).

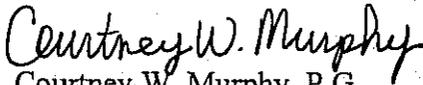
Methane measurements were collected by Lincoln County personnel using a GEM 2000 combustible gas meter that was field calibrated prior to data collection. Measurements indicate that methane concentrations did not exceed the lower explosive limit (LEL) for methane (5% CH<sub>4</sub>) during the June 2011 monitoring event, except in Methane Well MMW-6.

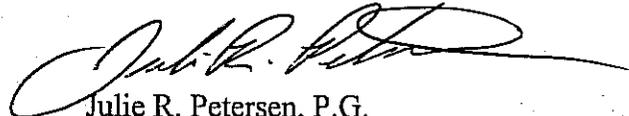
Please note that Methane Monitoring Well MMW-6 is located to the southwest of the closed, unlined landfill identified as Area "E". The methane gas concentrations measured in MMW-6 is most likely from the adjacent unlined landfill. Area "E" is bounded to the west by an unnamed tributary to Indian Creek which acts as a natural hydraulic barrier to methane gas migration off property. Gas migration off the property towards the west from Area "E" is unlikely, since the unnamed tributary will likely act as a hydraulic barrier along the western property line and corrective action is not recommended at this time.

Please call us at (704) 523-4726 if you have any questions or comments, or if we can be of further assistance.

Sincerely,

**S&ME, Inc.**

  
Courtney W. Murphy, P.G.  
Project Geologist

  
Julie R. Petersen, P.G.  
Project Manager/Senior Geologist

Senior reviewed by: Jason S. Reeves, P.E., Senior Project Engineer

cc: David Bivins - Lincoln County Interim Solid Waste Manager  
Jackie Drummond - NCDENR Division of Waste Management, Solid Waste Section

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):

S&ME, Inc (Consultant)

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

Name: Julie Petersen, P.G., Project Manager

Phone: 704-523-4726

E-mail: jpetersen@smeinc.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Lincoln County Landfill	5291 Crouse Road, Crouse, NC 28033	55-03		June 28, 2011

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 or explosive methane gas limits 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.

Julie Petersen

Project Manager

704-523-4726

Facility Representative Name (Print)

Title

(Area Code) Telephone Number

*Julie R. Petersen*  
Signature

8/3/11  
Date

Affix NC Licensed/ Professional Geologist/Engineer Seal here:



**Crouse Landfill Gas Monitoring Form  
Lincoln County Landfill Permit # 55-03**

Date: 6/28/2011					
Field Personnel: Jimmy Wise, Matt Jewell					
Ambient Outside Temperature: 91°F					
Ambient Barometric Pressure: 29.96" mercury					
General Weather Conditions: Clear					
Meter Name and Model Number: Landtec GEM 2000					
Meter Calibration Date: 6/28/2011					
<b>Field Measurements:</b>					
Well	Time of	Measurements			
Identification	Measurement	% LEL	% CH4	% CO2	% O2
MMW-01	1:16 PM	0	0	8.7	17.8
MMW-02	1:27 PM	0	0	2.6	17.2
MMW-03	1:32 PM	0	0	3	16.3
MMW-04	1:40 PM	0	0	0.2	18.7
MMW-05	1:54 PM	0	0	6.3	18.8
MMW-06	2:10 PM	>100	5.4	16.1	1
MMW-07	2:12 PM	0	0	8.5	10.1
MMW-08	2:26 PM	20	1	15.7	0.2
*added 10/07/03 SCALEHOUSE	2:32 PM	0	0	0.1	19.4
*added 10/07/03 LANDFILL SHOP	2:36 PM	0	0	0	19.5
*added 1/30/09 LIFT STATION	1:50 PM	0	0	0.3	18.8

## Table 1 - Methane Gas Measurements

Data Tracking for the Years of 2008 to 2011

Lincoln County Landfill (Permit #55-03)

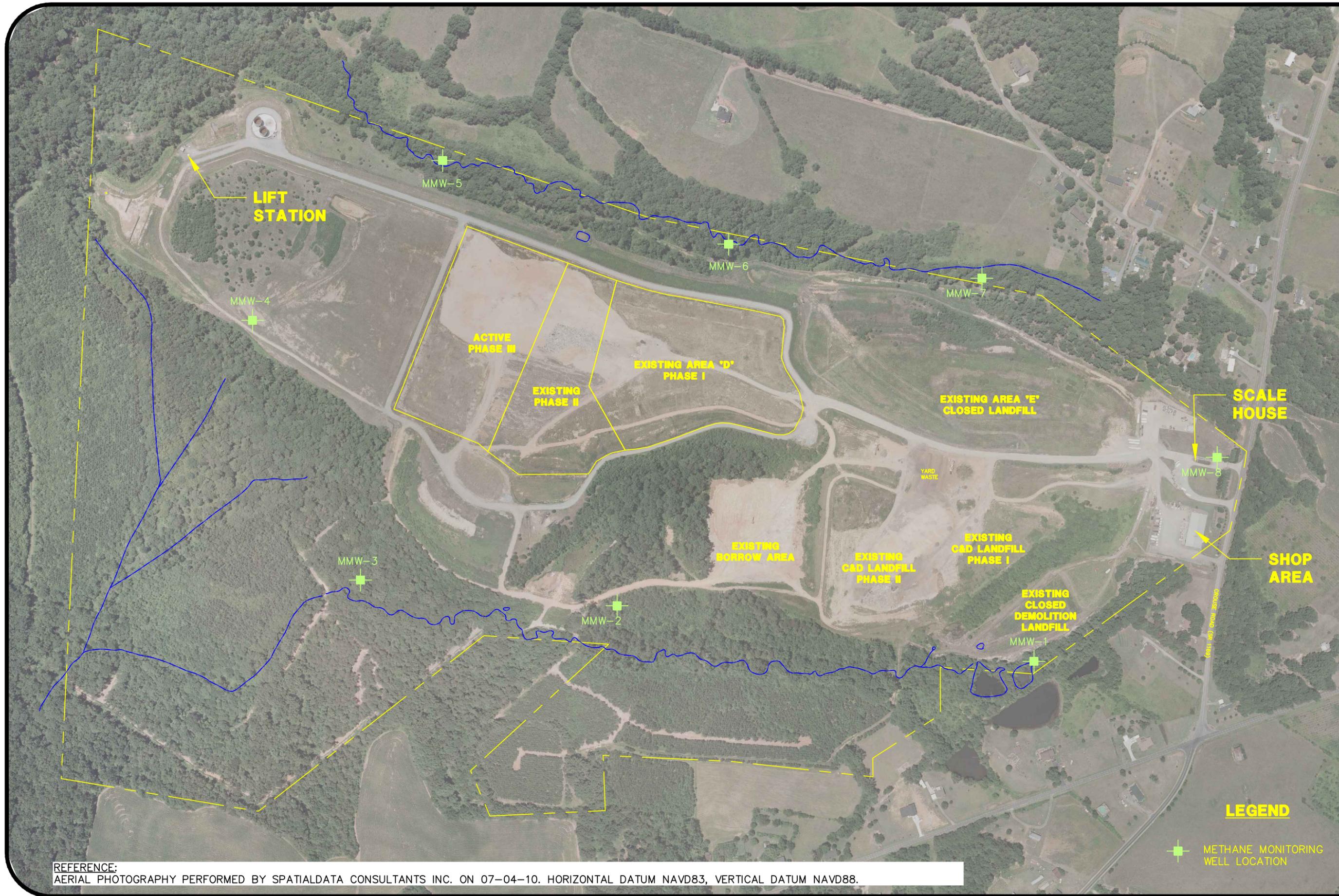


### Percent Methane Gas by Date

Date	Well Identification								Monitored Structure		
	MMW-1	MMW-2	MMW-3	MMW-4	MMW-5	MMW-6	MMW-7	MMW-8	Scale House	Shop Area	Lift Station
Feb-08	0	0	0	0	0	0	0	0.006	0	0	N/A
Apr-08	0	0	0	0	0	0	0	0	0	0	N/A
Sep-08	0	0	0	0	0	0	0	0.7	0	0	N/A
Feb-09	0	0	0	0	0	0	0	2.5	0	0	0
Apr-09	0	0	0	0	0	4.3	0	0	0	0	0
Jul-09	0	0	0	0	0	2.1	0	0	0	0	0
Nov-09	0	0	0	0	0	0	0	1.5	0	0	0
Feb-10	0	0	0	0	0	18.4	8.4	0	0	0	0
Jun-10	0	0	0	0	0	14.8	2	2.3	0	0	0
Aug-10	0	0	0	0	0	23	0	0.03	0	0	0
Dec-10	0	0	0	0	0	0	0	0	0	0	0
Mar-11	0	0	0	0	0	3.9	0	0	0	0	0
Jun-11	0	0	0	0	0	5.4	0	1	0	0	0

Notes:

- (1) Recorded measurements are in percent methane.
- (2) Highlighted data are above 100 percent of the lower explosive limit.
- (3) Lower explosive limit for methane is 5 percent.
- (4) Upper explosive limit for methane is 15 percent.
- (5) N/A = Not Available
- (6) Methane measurements collected by Lincoln County personnel.
- (7) Lift Station monitoring was added in January 2009.



REFERENCE:  
 AERIAL PHOTOGRAPHY PERFORMED BY SPATIALDATA CONSULTANTS INC. ON 07-04-10. HORIZONTAL DATUM NAVD83, VERTICAL DATUM NAVD88.

**LEGEND**

 METHANE MONITORING WELL LOCATION

**METHANE MONITORING LOCATIONS**

LINCOLN COUNTY LANDFILL  
 CROUSE, NORTH CAROLINA

FIGURE NO.

**1**



SCALE: 1" = 400'	DATE: 10-4-10
PROJECT NO. 1356-03-255B	DRAWN BY: CLD
	CHECKED BY: