SMITH+GARDNER
ENGINEERS

ADDRESS 14 N. Boylan Avenue, Raleigh NC 27603 TEL 919.828.0577 WEB www.smithgardnerinc.com

July 31, 2013

Ms. Christine Ritter
NCDENR DWM Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

RE: Landfill Gas Monitoring
Caswell County Closed MSW Landfill
Yanceyville, North Carolina

Dear Ms. Ritter:

As you know, Smith Gardner, Inc. (S+G) was contracted by Caswell County to install landfill gas monitoring wells at the Caswell County Closed MSW Landfill, and conduct two months of landfill gas monitoring at these locations. Two landfill gas monitoring wells were installed April 22, 2013 and an installation report was submitted to the Solid Waste Section (SWS), May 24, 2013. A map showing the landfill gas monitoring well locations is included as **Figure 1**.

LFG monitoring was conducted in May and June 2013. S+G previously submitted monitoring results from both monitoring events, that indicated the newly installed landfill gas monitoring wells, as well as on-site groundwater monitoring well (MW-1) had no detectable LFG concentrations. The data are **attached** for your review.

Reportedly groundwater monitoring well MW-1 has had low water levels with the screened interval open above the water table. Groundwater was measured at 18.25ft below the top of well casing during the June 11, 2013 LFG monitoring event. MW-1 is approximately 24.5 feet deep (below the measurement point). S+G has be unable to locate a well construction record for this well. Assuming the well was constructed with a minimum 10 foot of screened pipe, this well would leave approximately 6.25 feet of open screened interval above the water table. Therefore this well was included in June 2013 LFG monitoring event.

If you have any questions or require any additional information, please contact us at 919-828-0577 or by e-mail (below).

Sincerely,
SMITH GARDNER, INC.

Madeline M. German, P.G.
Project Geologist
madeline@smithgardnerinc.com

Joan A. Smyth, P.G.
Senior Hydrogeologist
joan@smithgardnerinc.com

Attachments: Figure 1 – LFG Monitoring Well Location Map
LFG monitoring logs 5/16/13 & 6/11/13

Cc: Kevin Howard, Caswell County
Tim Smith, Caswell County

0 250 500 750 1,000 Feet

NOTE: LFG WELL LOCATIONS ARE APPROXIMATE.

LANDFILL GAS MONITORING LOCATIONS
CASWELL COUNTY LANDFILL
YANCEYVILLE, NORTH CAROLINA

NC LIC. NO. C-0828 (ENGINEERING)

SMITH+GARDNER

14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

DRAWN:	APPROVED:	SCALE:	DATE:	PROJECT NO.:	FIGURE NO.:
C.T.J.	J.A.S.	AS SHOWN	May. 2013	CASWELL 13-1	1

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NC Division of Waste Management - Solid Waste Section

Landfill Gas Monitoring Data 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).

Facility Name: Caswell County Closed Landfill Permit Number: 17-01

Date of Sampling: 5-16-13 NC Landfill Rule (.0500 or .1600): .0500

Name and Position of Sample Collector: Don Misenheimer

Type and Serial Number of Gas Meter: GEM 2000/GM070002 Calibration Date of Gas Meter: Nov. 2012

Date and Time of Field Calibration: 5-16-13 11:00AM

Type of Field Calibration Gas (15/15 or 35/50): 15/15 Expiration Date of Field Calibration Gas Canister: 01/2016

Pump Rate of Gas Meter: 0.5 L/Min

Ambient Air Temperature: 75 deg F. Barometric Pressure: 29.35 General Weather Conditions: Sunny

Instructions: Under "Location or LFG Well" identify the monitoring wells or describe the location for other tests (e.g., inside buildings). A drawing showing the location of test must be attached. Report methane readings in both % LEL and % methane by volume. A reading in percent methane by volume can be converted to % LEL as follows: % methane by volume = % LEL/20

Location or LFG Well ID	Sample Tube Purge	Time	Time Pumped (s)	Initial %LEL	Stabilized %LEL	%CH4 by Volume	%O2	%CO2	Notes
LFG-1	>60s	11:45	>60s	0	0	0	11.7	8	
LFG-2	>60s	11:55	>60s	0	0	0	13.5	4	
MW-1	>60s	12:20	>60s	0	0	0	20.0	0.1	Dry GW Monitoring Well

If your facility has more gas monitoring locations than there is room on this form, please attach additional sheets listing the same information as contained on this form.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

_____ Project Scientist

SIGNATURE TITLE

NC Division of Waste Management - Solid Waste Section

Landfill Gas Monitoring Data 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).

Facility Name: Caswell County Closed Landfill Permit Number: 17-01

Date of Sampling: 6·11·13 NC Landfill Rule (.0500 or .1600): .0500

Name and Position of Sample Collector: DON MISENHEIMER (S+G)

Type and Serial Number of Gas Meter: GEM 2000 / 07002 Calibration Date of Gas Meter: 2·1·13

Date and Time of Field Calibration: 6·11·13 1:20p

Type of Field Calibration Gas (15/15 or 35/50): 15/15 Expiration Date of Field Calibration Gas Canister: 2014

Pump Rate of Gas Meter: 0.5 L/min

Ambient Air Temperature: 85° Barometric Pressure: 29.36 General Weather Conditions: Sunny

Instructions: Under "Location or LFG Well" identify the monitoring wells or describe the location for other tests (e.g., inside buildings). A drawing showing the location of test must be attached. Report methane readings in both % LEL and % methane by volume. A reading in percent methane by volume can be converted to % LEL as follows: % methane by volume = % LEL/20

Location or LFG Well ID	Sample Tube Purge	Time	Time Pumped (s)	Initial %LEL	Stabilized %LEL	%CH4 by Volume	%O2	%CO2	Notes
LFG-1	>60s	1:29p	>60s	0	0	0	10.0	11.2	
LFG-2	>60s	1:40p	>60s	0	0	0	12.9	4.3	
MW-1	>60s	1:51p	>60s	0	0	0	19.6	0.7	

If your facility has more gas monitoring locations than there is room on this form, please attach additional sheets listing the same information as contained on this form.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

Don M (S+G)
SIGNATURE

PROJECT SCIENTIST
TITLE