



2211 W. Meadowview Road, Suite 101  
Greensboro, NC 27407  
tel: 336/ 323-0092  
fax: 336/ 323-0093  
[www.JoyceEngineering.com](http://www.JoyceEngineering.com)

October 27, 2014

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

**RE: Landfill Gas Monitoring Report  
LFG Monitoring - October 2014  
Town of Kernersville Closed Landfill, Permit No. 34-04  
JOYCE Project No. 838.1501.12, Task No. 03**

Dear Ms. Drummond:

Please find the attached Environmental Monitoring Reporting Form (EMRF) and Landfill Gas Monitoring Log for the monthly monitoring event that occurred on October 16, 2014 at the Closed Town of Kernersville Landfill (Permit number 34-04). Methane monitoring for this event was conducted by Joyce Engineering (JOYCE) on behalf of the Town of Kernersville in accordance with the approved *Landfill Gas Monitoring Plan* dated July 17, 2012. Methane was detected in gas monitoring wells GW-1, GW-2R, and GW-8 above the Lower Explosive Limit (LEL) during this monitoring event.

During this event three probes belonging to the adjacent Waste Management Piedmont landfill GP-9, GP-10, and GP-11 were also monitored for methane gas. Methane was detected in GP-10 above the LEL.

Additional monthly monitoring will provide additional data to demonstrate whether the methane migration is being reduced by the three passive vents installed on the Kernersville Landfill in November 2013. A map has been included with this report to illustrate the proximity of the two landfills and the locations of the gas probes. If you have any further questions, please contact me at (336) 323-0092. Thank you.

Sincerely,  
**JOYCE ENGINEERING**

A handwritten signature in blue ink that reads "Daniel S. Girdner".

Daniel Girdner  
Field Consultant

Attachments: EMRF  
Landfill Gas Monitoring Log  
Site Map

Copy: Thad Buck, Town of Kernersville

NC DENR **Environmental Monitoring Reporting Form**  
 Division of Waste Management - Solid Waste

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):  
 Joyce Engineering, Inc.

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:  
 Name: Daniel Girdner Phone: (336)-323-0092  
 E-mail: dgirdner@joyceengineering.com

| Facility name:                | Facility Address:                      | Facility Permit # | NC Landfill Rule:<br>(.0500 or .1600) | Actual sampling dates (e.g.,<br>October 20-24, 2006) |
|-------------------------------|--|-------------------|---------------------------------------|--|
| Town of Kernersville Landfill | Freeman Road<br>Kernersville, NC 27284 | 34-04             | .0500                                 | October 16, 2014                                     |

**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 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.

Hannu Kemppinen, P.G. Sr. Technical Consultant (336)-323-0092

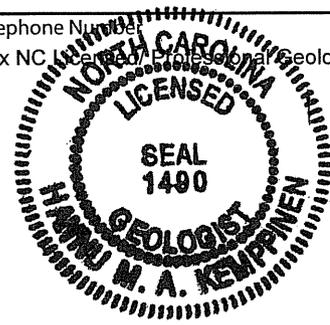
Facility Representative Name (Print) Title (Area Code) Telephone Number  
 Signature Date Affix NC Certified Professional Geologist Seal

2211 W. Meadowview Rd. Ste. 101, Greensboro, NC 27407

Facility Representative Address

C-0782

NC PE Firm License Number (if applicable effective May 1, 2009)



## Landfill Gas Monitoring Data Form

Facility Name Town of Kernersville Landfill - Closed

Date of Sampling: October 16, 2014

Gas Monitor Type & Serial Number: GEM 2000 SN.5194

Field Calibration Date & Time: 10/16/14 1:01 PM

Field Calibration Gas Type: 15% CH<sub>4</sub>, 15% CO<sub>2</sub>

General Weather Conditions: Sunny, 70's° F

Permit Number: 34-04

Personnel: D. Girdner

Calibration Date April 28, 2014

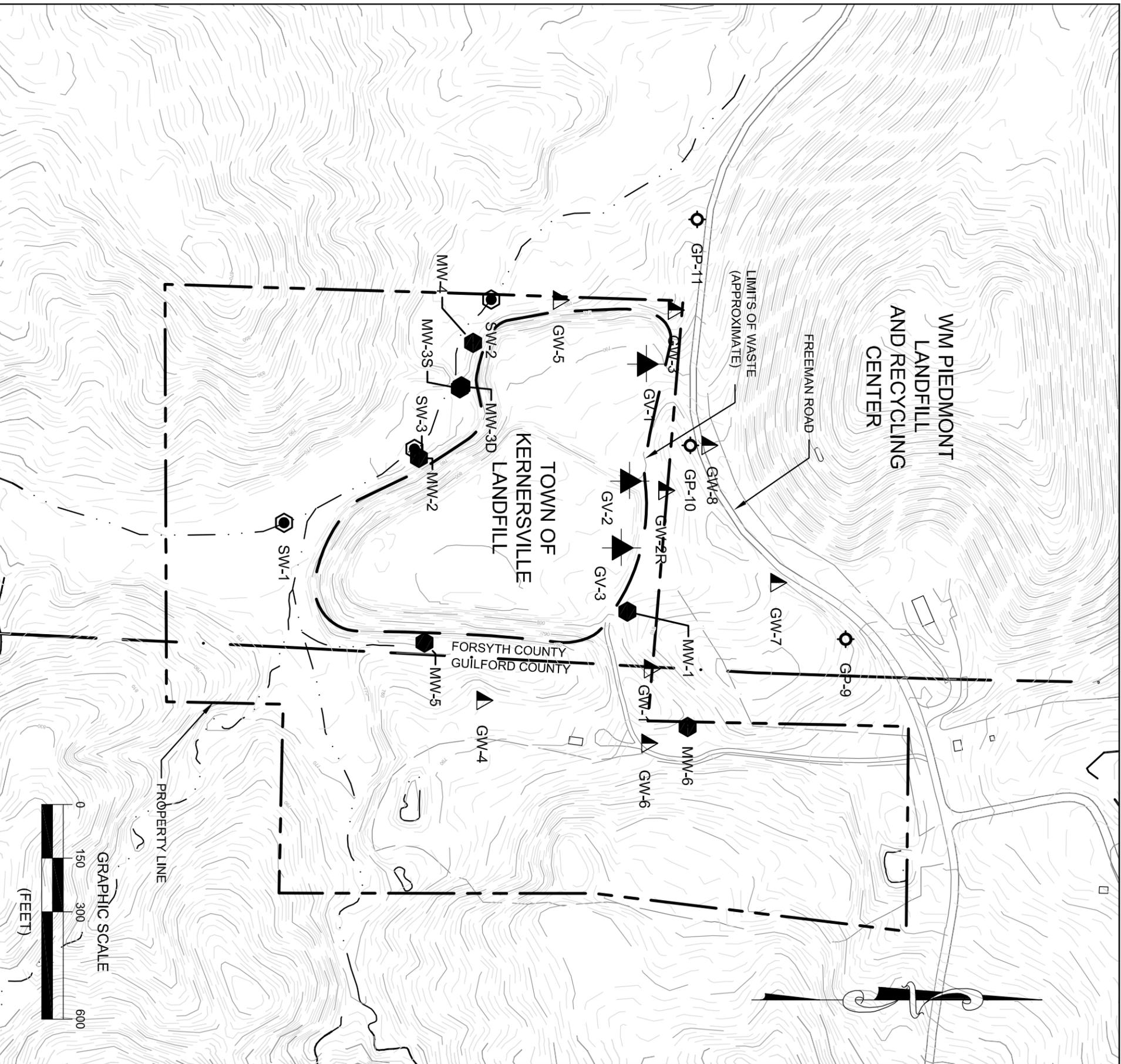
Cal. Gas Lot: Landtec 43553-09, exp. 9-16

Barometer : 28.95 In-Hg

| Location or ID | Time  | Probe Pressure (In-Wg) | Instr. sample tube | Time Pumped (sec.) | CH <sub>4</sub> (%LEL) | CH <sub>4</sub> (% Vol) | Notes    |
|----------------|-------|------------------------|--------------------|--------------------|------------------------|-------------------------|----------|
| GW-1           | 15:24 | 0.00                   | Y                  | 60                 | 186                    | 9.3                     | Over LEL |
| GW-2R          | 15:27 | 0.00                   | Y                  | 60                 | 1148                   | 57.4                    | Over LEL |
| GW-3           | 16:11 | -0.01                  | Y                  | 60                 | 0                      | 0.0                     |          |
| GW-4           | 15:36 | 0.02                   | Y                  | 60                 | 0                      | 0.0                     |          |
| GW-5           | 15:32 | 0.00                   | Y                  | 60                 | 0                      | 0.0                     |          |
| GW-6           | 15:17 | 0.06                   | Y                  | 60                 | 0                      | 0.0                     |          |
| GW-7           | 15:57 | 0.01                   | Y                  | 60                 | 0                      | 0.0                     |          |
| GW-8           | 16:22 | -0.01                  | Y                  | 60                 | 974                    | 48.7                    | Over LEL |
| GP-9           | 15:53 | -0.20                  | Y                  | 60                 | 0                      | 0.0                     |          |
| GP-10          | 16:02 | 0.10                   | Y                  | 60                 | 778                    | 38.9                    | Over LEL |
| GP-11          | 15:46 | -0.10                  | Y                  | 60                 | 0                      | 0.0                     |          |

Notes: GW = Gas Well- Town of Kernersville LFG monitoring location.

GP = Gas Probe- LFG monitoring location shared with WM Piedmont site.



**LEGEND**

|      |  |
|------|--|
| 1130 | EXISTING 10' TOPOGRAPHIC CONTOUR                                     |
| ---  | EXISTING 2' TOPOGRAPHIC CONTOUR                                      |
| ---  | PROPERTY LINE  |
| ---  | EXISTING ROAD  |
| ---  | APPROXIMATE LIMITS OF WASTE  |
| ---  | CENTERLINE OF STREAM   |
| ○    | APPROXIMATE SURFACE WATER SAMPLING POINT LOCATION AND IDENTIFICATION |
| ●    | MONITORING WELL IDENTIFICATION                                       |
| ▲    | GW- 1 LANDFILL GAS WELL - TOWN OF KERNERSVILLE                       |
| ○    | GP- 1 LANDFILL GAS PROBE - WM PIEDMONT                               |
| ▲    | GV-1 LANDFILL PASSIVE GAS VENT                                       |

- NOTES:**
1. SURVEY DATA FOR GUILFORD COUNTY DATED SEPTEMBER 2009, AND MARCH 2010.
  2. SURVEY DATA FOR FORSYTH COUNTY DATED OCTOBER, 2010.
  3. ALL SURVEY DATA OBTAINED FROM COUNTY GIS FILES.
  4. LIMITS OF WASTE ARE APPROXIMATE.

|   |   |   |  |   |
|---|---|---|--|---|
| PROJECT NO.<br>838.1301.12<br>SCALE<br>AS SHOWN<br>DRAWING NO.<br>1 | TOWN OF KERNERSVILLE LANDFILL<br>FORSYTH COUNTY, NORTH CAROLINA | 2211 W. MEADOWVIEW ROAD<br>GREENSBORO, NC 27407<br>PHONE: (336) 323-0092<br>NO CORP LIC: C-0782 | DESIGNED _____<br>DRAWN CADD/<br>CHECKED _____<br>APPROVED _____<br>DATE _____ | DATE _____<br>REVISIONS AND RECORD OF ISSUE<br>NO BY CK APP |
|   | LANDFILL GAS MONITORING PLAN                                    |   | © 2014 Joyce Engineering, Inc.<br>All rights reserved.                         |   |