



WASTE MANAGEMENT
1850 Parkway Place, Suite 600
Marietta, GA 30067
770-590-2936

January 10, 2014

Ms. Jaclyne Drummond
NCDENR DWM – Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646



Re: Piedmont Landfill and Recycling Center, Permit No. 34-06
Kernersville, North Carolina

Dear Ms. Drummond:

The purpose of this letter is to formally request that gas probe GP-10 be excluded from Waste Management's landfill gas migration compliance network for the Piedmont Landfill. Waste Management will continue to monitor GP-10 according to the same schedule as the other probes and will keep records of the results. These results will be available and provided to NCDENR upon request. Waste Management will not, however, report exceedances of the lower explosive limit (LEL) for methane detections in GP-10. Monitoring of GP-10 would be for informational purpose only, not to demonstrate compliance.

The justification for this request is well documented in the attached, previously submitted, letter dated October 8, 2012. Waste Management has provided substantial evidence that the Piedmont Landfill is not the source of the methane detected in GP-10.

We look forward to a timely response regarding this matter.

Sincerely,
Waste Management of Carolinas, Inc.

A handwritten signature in blue ink that reads 'Alexander Lacsamana'.

Alexander Lacsamana, P.E.
District Manager, WM - CSMG

Attachments: October 8, 2012 letter to Mr. Charles Gerstell

C: Steve Joyce, Area Director - CSMG



WASTE MANAGEMENT

1850 Parkway Place, Suite 600
Marietta, GA 30067
770-590-2936

October 8, 2012

Mr. Charles Gerstell
NCDENR DWM – Solid Waste Section
610 E. Center Ave., Suite 301
Mooreville, NC 28115



Re: Response to: Facility Compliance Inspection Report
(Inspection date: September 11, 2012)
Piedmont Landfill and Recycling Center, Permit No. 34-06
Kernersville, North Carolina

Dear Mr. Gerstell:

Waste Management of Carolinas, Inc. received via email the North Carolina Department of Environmental Natural Resources (NCDENR) *Facility Compliance Inspection Report* for Piedmont Landfill on October 1, 2012. The following items listed under the “Additional Comments” section of the report require responses and/or actions. Waste Management’s responses are provided below each item.

Item #4:

A post-closure plan revision which included a gas to energy project was approved by the Solid Waste Section on April 12, 2011. Inspection found construction of the gas to energy system had been completed and was in operation.

- Staff from the Waste Management Renewable Energy Division is on site to monitor and maintain this system during normal business hours.
- A letter approving the Post Closure Plan Revision required that as-built drawing indicating actual construction be submitted upon completion of the construction activities. A review of records found that no as-built drawings have been submitted to the Solid Waste Section as required. Please submit all as-built drawings as required within 30-days of issuance of this inspection report.

Response to Item #4:

An as-built drawing of the constructed energy facility is attached as Attachment A.

Item #7:

Research of Division records found a letter submitted by Mark R. Snyder, P.E. of Waste Management Southern Group on March 25, 2005 entitled “First Quarter 2005 Landfill Gas Monitoring Event.” A copy has been attached to this report.

- This letter referenced a barhole probe study that was completed on July 27, 2000. The study was conducted to determine if the Piedmont Landfill was or was not the source of the methane exceedances recorded at GP-10. Mr. Snyder proposed that GP-10 be exempt from future notification of LEL exceedances due to the conditions documented within the study.
- Our records do not include a copy of the study referenced in Mr. Snyder's 2005 letter and the information submitted in the letter did not provide sufficient information to allow for a determination as to the cause of elevated methane levels above the LEL at GP-10. In addition, please submit a copy of the 2000 study referenced in Mr. Snyder's letter and/or any additional information you may have on the elevated methane levels at GP-10.
- Therefore, within 10 days of receipt of this report, please contact Jaclynne Drummond, Compliance Hydrogeologist at (919) 707-8294 to discuss the elevated methane levels at GP-10. Additional assessment will be required to further investigate methane migration within the area near GP-10. Corrective actions may also be required to address the elevated methane issue near GP-10. Information may be forwarded via email to jaclynne.drummond@ncdenr.gov or via US Mail to: 1646 Mail Service Center, Raleigh NC 27699-1646.

Response to Item #7:

A copy of the July 27, 2000 gas migration study near GP-10 is attached as Attachment B. The July 2000 gas migration study shows that as sample locations approach the old Town of Kernersville Landfill from GP-10 the measured methane concentrations increased, and as sample locations approach the Piedmont Landfill from GP-10 the measured methane concentrations decreased. The trend in the methane readings in the July 2000 methane migration study shows that the methane source is the Kernersville Landfill and not the Piedmont Landfill.

We recently completed a methane migration investigation near GP-10. Attached as Attachment C is an updated historical summary table of boundary probe readings from the years 2000 through 2012; a table showing the results of additional onsite bar-hole probe investigations that were completed in September and October of 2012; and a landfill gas delineation map. The delineation map shows that gas probes for the Kernersville Landfill have had high concentrations of methane detected, and that the City's GP-2, which is closest to Piedmont's GP-10 has the highest methane concentration. From Piedmont's GP-10, the methane concentration increases as we approach the Kernersville Landfill, and methane concentration drops to zero beyond 37 feet from GP-10 and remains zero towards Piedmont Landfill. The recent September/October 2012 gas migration investigation provides very strong evidence to support the idea that the source of the methane in GP-10 is not the Piedmont Landfill, but rather the Kernersville Landfill. Please also keep in mind of the following facts:

- **The Piedmont Landfill is a lined Subtitle D landfill. The High Density Polyethylene (HDPE) geomembrane landfill liner protecting the bottom of Piedmont Landfill provides a barrier to subsurface gas migration.**

- The Kernersville Landfill is an unlined landfill with no barrier to subsurface gas migration.
- The Piedmont Landfill has an active gas collection and control system which applies a vacuum to the landfill. The active gas collection and control system has been installed and operated in accordance with the Federal NSPS and NESHAP requirements for maximum achievable control technology (MACT).
- The Kernersville Landfill does not have an active gas collection and control system, and therefore there is a greater likelihood for gas pressure to build up in the landfill creating a gradient for subsurface migration.
- The Piedmont Landfill has not shown elevated methane readings in any other probe (with the exception of 1 reading from GP-2 in the first quarter of 2002 which appears to be an anomaly).
- GP-10 is closer to the edge of waste for the Kernersville Landfill (~100 feet) than to the edge of waste at the Piedmont Landfill (~140 feet).
- GP-10 is the only one of Piedmont's probes that is near the Kernersville Landfill.
- The Kernersville Landfill has recently installed and monitored gas probes for their facility, and the results show methane exceedances at all probes on the north side of the landfill near the Piedmont Landfill property (see attached map).
- The highest methane concentration (51.4%) on the Kernersville Landfill property is in the probe nearest GP-10.
- Bar-hole probe measurements made in July 2000 and in September and October 2012 show more detections of methane in the near-surface between GP-10 and the Kernersville Landfill than between GP-10 and the Piedmont Landfill (see attached map and table).

We believe that the information submitted in this letter is sufficient to allow for a determination that the Piedmont Landfill is not the source of methane in GP-10. As we have requested previously in the March 25, 2005 letter to NCDENR, we again request that GP-10 be exempt from future notifications of LEL exceedances due to the facts and conditions presented. We are forwarding a copy of this letter and attachments to Jackie Drummond and we will call her in the next few days to discuss this issue.

Item #10:

No permanent edge-of-waste markers were observed on site. Within 60-days of receipt of this report, please provide permanent markers that accurately delineate the limits of waste. (See the attached May 29, 2009 Memo: "Permanent Edge-of-Waste Markers at Construction and Demolition Debris Landfills, Industrial Solid Waste Landfills and Municipal Solid Waste Landfills").

Response to Item#10:

Edge-of-Waste markers will be installed at Piedmont Landfill. Waste Management (WM) has recently extended the HDPE membrane beyond the edge of waste to ensure that stormwater does not infiltrate into the landfill at the toe of the slope. To protect against damaging the HDPE liner, WM intends to install the edge-of-waste markers at an offset

from the actual edge-of-waste. The offset distance will be documented and clearly labeled on the markers.

Sincerely,
Waste Management of Carolinas, Inc.



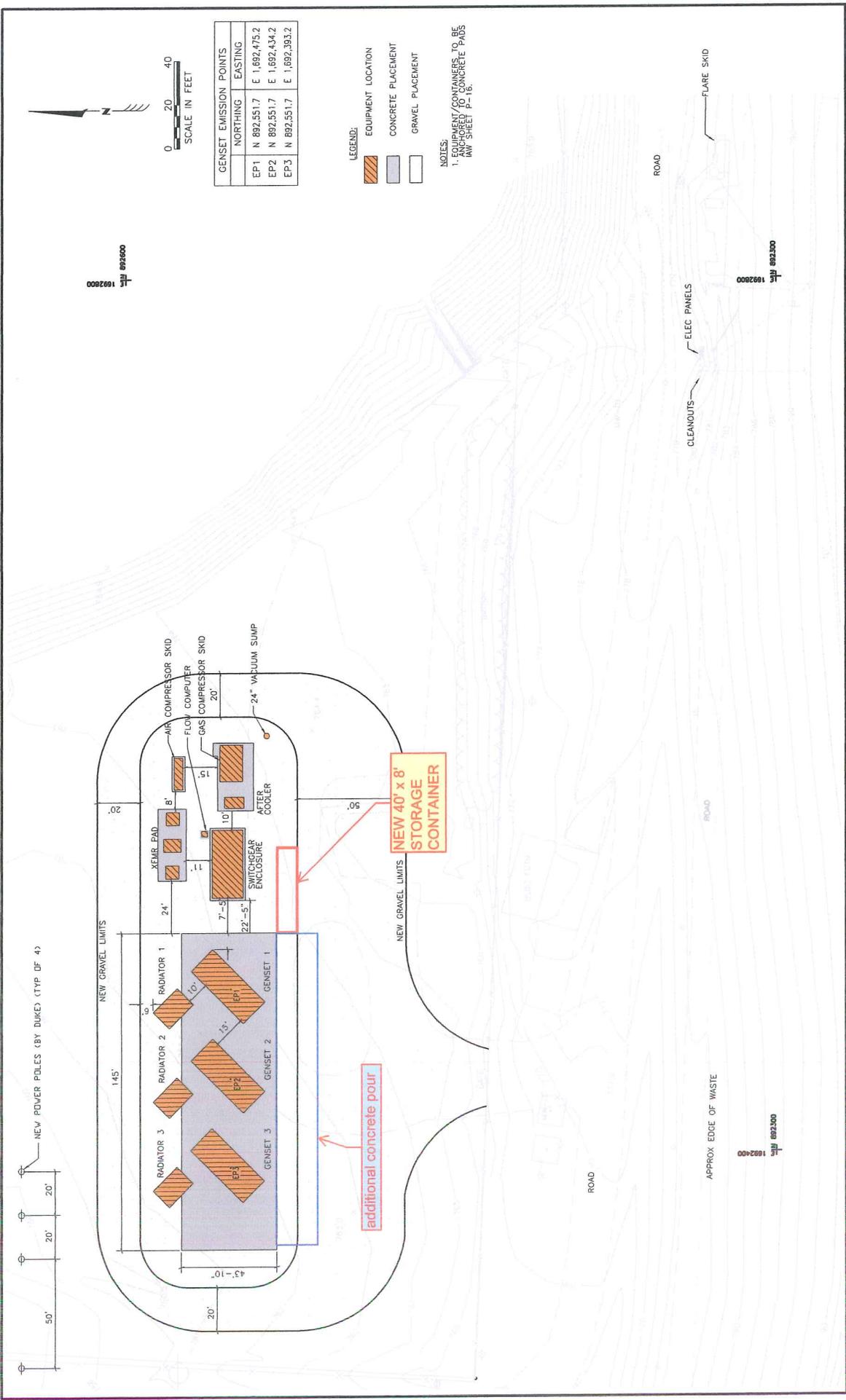
Alexander Lacsamana, P.E.
District Manager, WM - CSMG

Attachments: A – As-Built: Piedmont Landfill Gas-to-Energy Facility
B – July 27, 2000 Gas Migration Study
C – September/October 2012 Gas Migration Investigation

C: Jaclyne Drummond, NCDENR
Steve Joyce, Area Director - CSMG
Steve Cowie, Joyce Engineering

Attachment A

As-Built: Piedmont Landfill Gas-to-Energy Facility

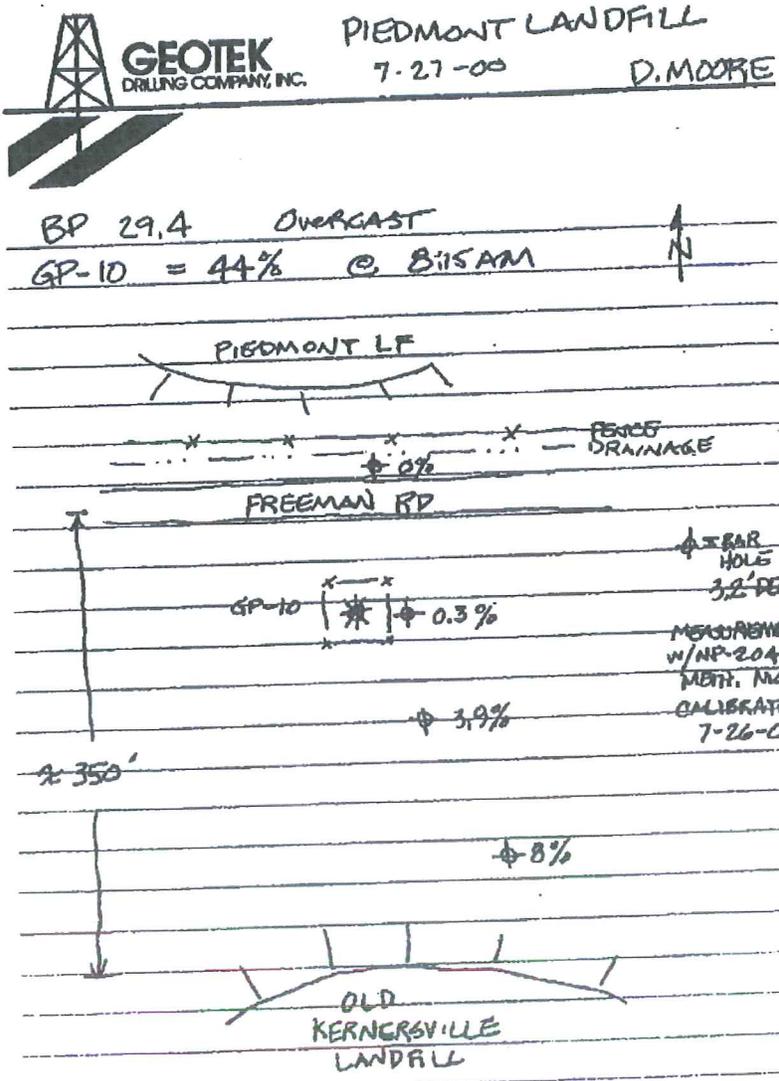


<p>aether dms electrical design build solutions 940 East Duke Rd, Suite 130 Kernersville, NC 27288 www.aetherdms.com</p>		<p>CLIENT: WASTE MANAGEMENT RENEWABLE ENERGY LANDFILL GAS TO ENERGY PROJECT PIEDMONT LANDFILL, KERNERSVILLE, NC</p>	<p>TITLE: AS-BUILT DRAWING</p>	<p>SHEET: P-2</p>																								
<p>SCALE: AS SHOWN</p> <table border="1"> <tr> <th>REV</th> <th>DATE</th> <th>BY</th> <th>DESCRIPTION</th> </tr> <tr> <td>0</td> <td>02-27-10</td> <td>WFC</td> <td>ISSUED FOR CONSTRUCTION</td> </tr> <tr> <td></td> <td></td> <td></td> <td>DESIGNED: EDC</td> </tr> <tr> <td></td> <td></td> <td></td> <td>DRAWN: EDC</td> </tr> <tr> <td></td> <td></td> <td></td> <td>CHECKED: BJA</td> </tr> <tr> <td></td> <td></td> <td></td> <td>APPROVED:</td> </tr> </table>		REV	DATE	BY	DESCRIPTION	0	02-27-10	WFC	ISSUED FOR CONSTRUCTION				DESIGNED: EDC				DRAWN: EDC				CHECKED: BJA				APPROVED:	<p>DATE: 11/30/1004-P2</p>		
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Attachment B

July 27, 2000 Gas Migration Study

JOB PIEDMONT LANDFILL
 JOB NO. 392.03 SHEET NO. 1 OF 1
 CALCULATED BY D. MOORE DATE 7-27-00
 CHECKED BY _____ DATE _____
 SUBJECT METHANE @ GP-10 SCALE NTS

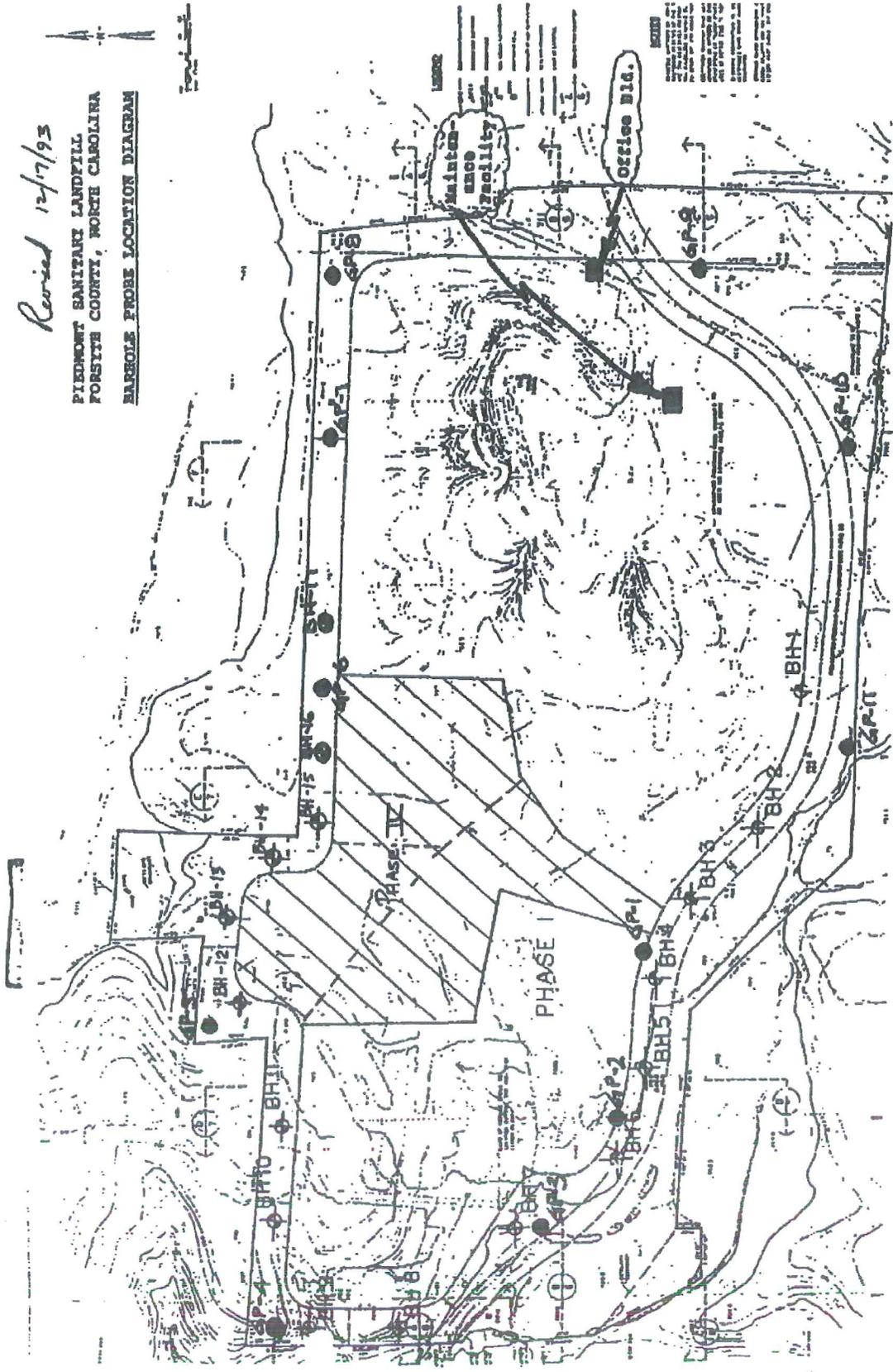


NOTE
 THIS INFORMATION DEMONSTRATES THAT THE HIGH CONCENTRATIONS OF METHANE DETECTED @ GP-10 ARE THE RESULT OF SUBSURFACE MIGRATION COMING FROM THE CLOSED KERNERSVILLE LANDFILL.

- ATLANTA, GA (770) 416-7148
- KNOXVILLE, TN (865) 690-0128
- CHICAGO, IL (800) 950-0260
- CINCINNATI, OH (937) 299-0548
- NASHVILLE, TN (615) 331-2088
- CHARLOTTE, NC (704) 655-8936

Revised 12/17/93

PIEDMONT SANITARIUM LANDFILL
FORSYTH COUNTY, NORTH CAROLINA
MANHOLE PROBE LOCATION DIAGRAM



Closed Kenesville
Landfill

Attachment C

September/October 2012 Gas Migration Investigation

**Barhole LFG Delineations Near GP-10
between the Piedmont Landfill and the Kernersville Landfill
September/October 2012**

PIEDMONT LANDFILL	7/27/00	9/24/12	10-03-12
~140' N (~EOW)			
138' N (Edge of Liner)			CH ₄ = 0%
116' N			CH ₄ = 0%
91' N (Fence)		CH ₄ = 0%	CH ₄ = 0%
80' N (Ditch)			CH ₄ = 0%
64' N (N. edge of Rd.)	CH ₄ = 0%	CH ₄ = 0%	CH ₄ = 0%
37' N (S. edge of Rd.)		CH ₄ = 2.1%	CH ₄ = 4.1%
5' N		CH ₄ = 0%	
GP-10	CH₄ = 44.0%	CH₄ = 32.0%	
5' S	CH ₄ = 0.3%	CH ₄ = 0%	
25' S		CH ₄ = 31.5%	CH ₄ = 3.3%
50' S		CH ₄ = 3.5%	CH ₄ = 10.4%
75' S			CH ₄ = 2.0%
100' S (~EOW)	CH ₄ = 3.9%		CH ₄ = 6.3%
KERNERSVILLE LANDFILL	7/27/00	9/24/12	10-03-12

LFG = Landfill Gas.

CH₄ = Methane Concentraion (% by volume).

EOW = Edge of Waste.

LEL = Lower Explosive Limit for Methane = 5%.

Barhole distances measured North & South from GP-10.

Locations from 7/27/00 are approximate.

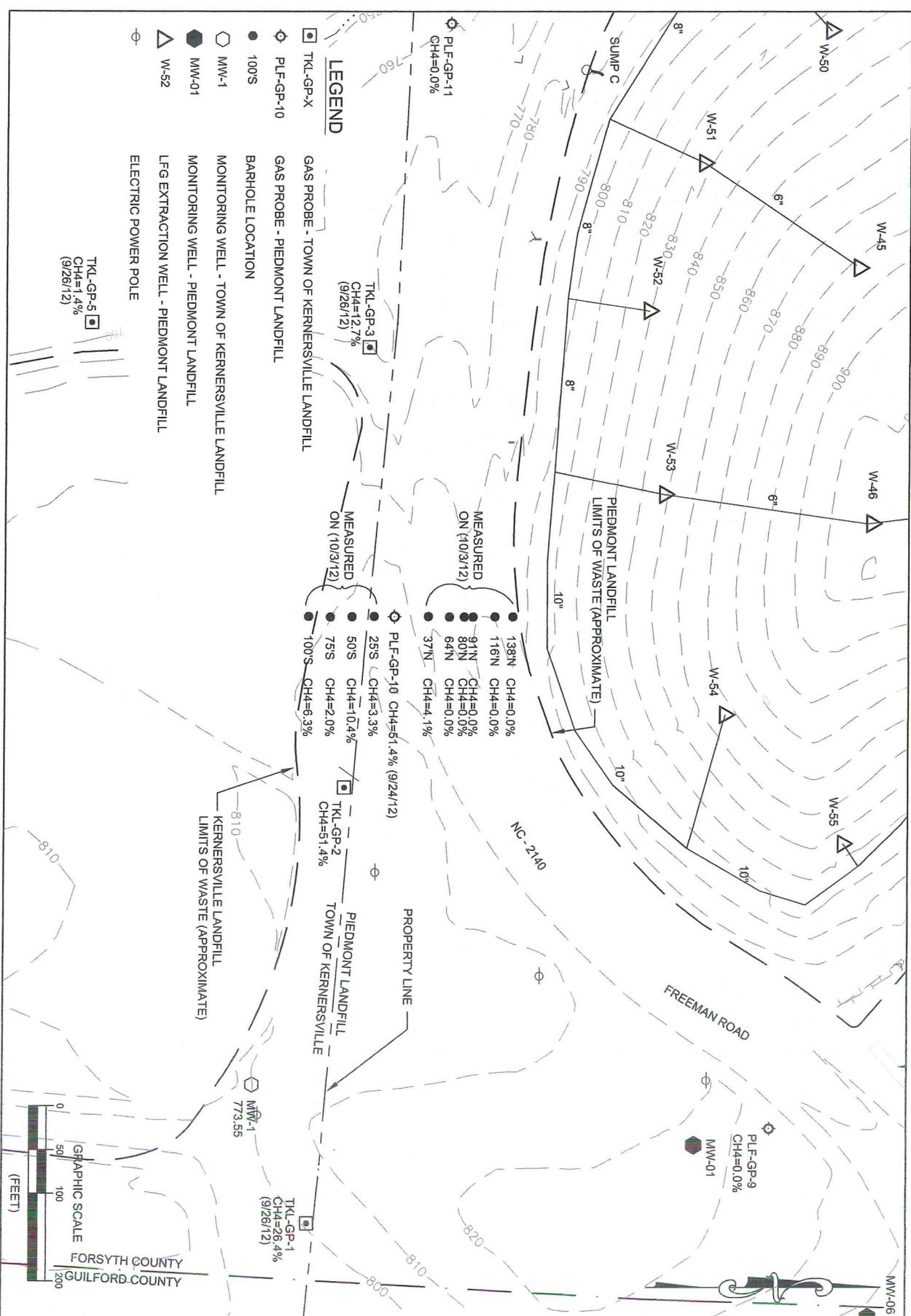
Yellow = Measurements from Gas Probe GP-10.

BARHOLE GAS MEASUREMENTS:

Colorless = Not measured (if blank) or no methane detected.

Blue = Methane detected below the LEL.

Orange = Methane detected above the LEL.



PROJECT NO. 392.1201.12 SCALE AS SHOWN DRAWING NO. 1	PIEDMONT LANDFILL AND RECYCLING CENTER KERNERSVILLE, NORTH CAROLINA	2211 W. MEADOWVIEW ROAD GREENSBORO, NC 27407 PHONE: (336) 323-0092	DESIGNED DRAWN CHECKED APPROVED DATE	© 2012 Joyce Engineering, Inc. All rights reserved.
	LANDFILL GAS DELINEATION INVESTIGATION		DATE REVISIONS AND RECORD OF ISSUE NO BY CK APP	

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