



Henderson County Engineering

Solid Waste Division

100 N. King Street, Suite 210
Hendersonville, North Carolina 28792
(828) 694-6521 | www.hendersoncountync.org



December 23, 2013

Ms. Jaclynne Drummond
Compliance Hydrogeologist
North Carolina Department of Environment and Natural Resources
Division of Waste Management - Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646
Phone: 1-919-707-8294



RE: Methane Monitoring results - fourth quarterly event of 2013
Closed Henderson County Landfill, Permit No. 45-01
Henderson County, North Carolina

Dear Jaclynne,

Attached are the results from the December 18, 2013, fourth quarterly methane monitoring event conducted at the Henderson County Closed Landfill. This is the third methane gas monitoring event taken place since the landfill gas collection and monitoring system was removed April 2013 by Enerdyne. Golder Associates on behalf of Henderson County submitted a Landfill Gas Remediation Plan - Phase I Plan on September 26, 2013, in which this office responded October 17, 2013 in a positive manner. In the Phase I plan, a portion of the plan was to vent landfill gas extraction wells within the area of the exceedances. During this methane gas monitoring event, it appears that the vents are working, one of the wells (TR-3) dropped below the lower explosive limits (LEL) and the other well (MP-5) has begun to reduce, however still outside of the boundaries. In the meantime, during each methane gas monitoring event, when exceedances are indicated, Henderson County will continue to report them within 7 days to this office.

If you refer to the attachment "Boundary Probe Monitoring Log" only one (MP-5) of the two compliance monitoring points (MP-5 and TR-3) had detections of methane noted above the lower explosive limit (LEL) during this event, and that well has reduced from 47.9% to 35.3%. No methane was detected in the facility structures during this compliance monitoring event.

On the previous report, we reported on a structure known as the "Revis House", this structure was demolished and removed from the premises in early December 2013. In our future reporting this structure will be removed from this report.

Please allow this letter report to act as the 7-day notification of methane exceedances as required by the North Carolina Solid Waste Management Regulations. As you know the exceedances are likely due to the recent shutdown of the active landfill gas system that was operated at the landfill by Enerdyne until April 2013. If you have any questions or concerns, please contact us at (828)-694-6521.

Sincerely,

Natalie J. Berry

Natalie J. Berry, PE
Henderson County Engineering Department

ASSISTANT COUNTY ENGINEER OFFICE
HENDERSON COUNTY ENGINEERING - SOLID WASTE DIVISION
100 N. KING STREET, SUITE 210 • Phone: 828-694-6521

RE: Methane Monitoring results - fourth quarterly event of 2013 (Continued)

Assistant County Engineer

Attachments: Boundary Gas Probe Monitoring Log - December 18, 2013
Methane Monitoring Location Map (provided by Golder Associates)
Environmental Monitoring Reporting Form

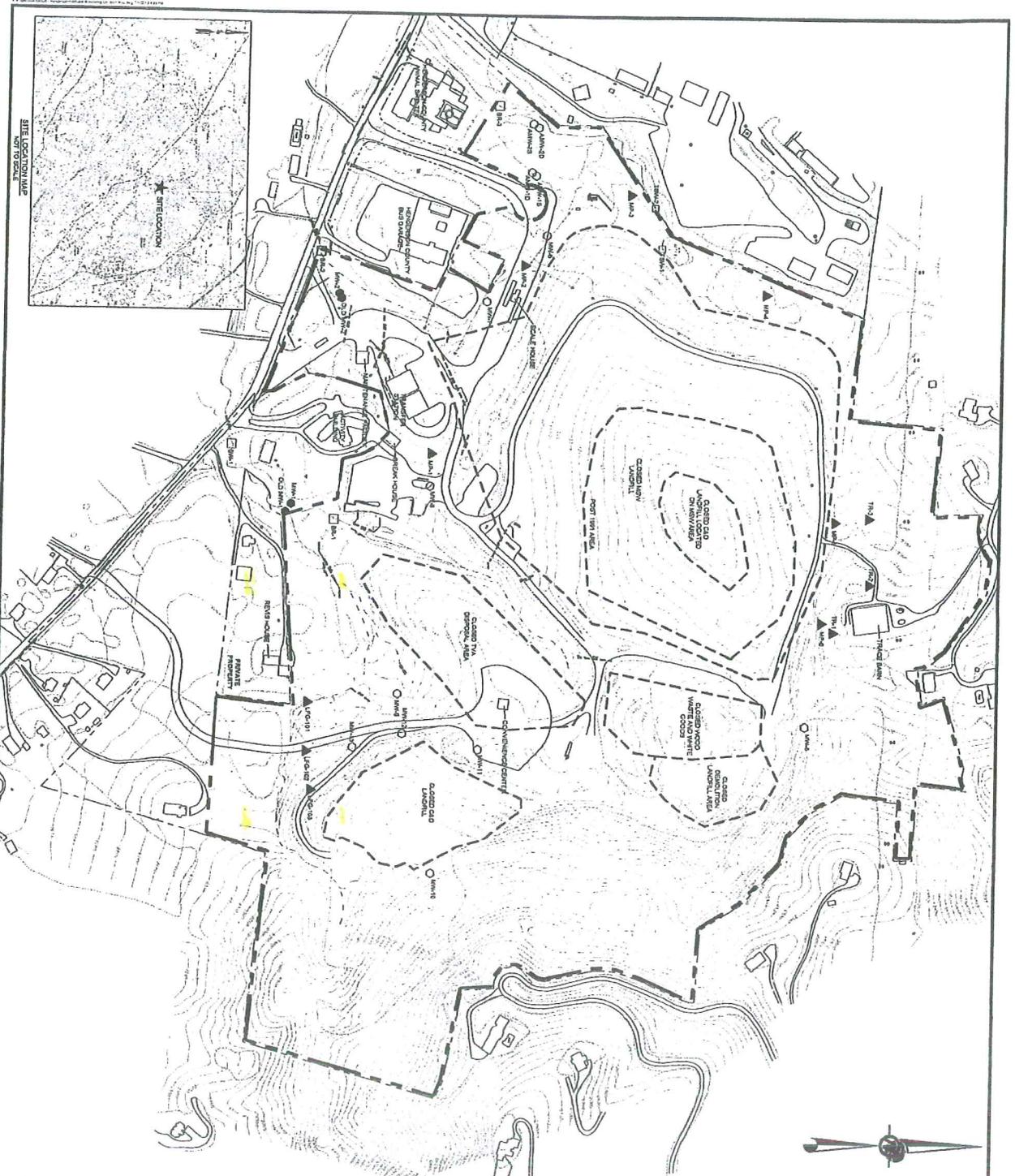
cc: Marcus A. Jones PE, Director of Henderson County Engineering
Greg Wiggins, Manager of Henderson County Solid Waste Operations
Rachel Kirkman PG, Associate and Senior Geologist - Golder Associates
David "Dusty" Y. Reedy II, PG, Senior Project Hydrogeologist - Golder Associates

December 23, 2013

DATE: 12/18/2013**BOUNDARY PROBE MONITORING LOG**Project Name: Henderson County Closed Landfill
Site Contact: Greg Wiggins, ManagerDENR Permit Number: 45-01
Technician(s): Natalie Berry, Joe Roberts, and Greg WigginsHigh Temperature: 47°
Starting Barometric Pressure: 27.84
Monitoring Equipment: Gem Plus 2000Low Temperature: 47°
End Barometric Pressure: 27.85

Monitoring Point	Time	% Methane (CH ₄)	% Carbon Dioxide (CO ₂)	% Oxygen (O ₂)	H ₂ S (ppm)	Comments
MP-1	1:10:00 PM	0.1	7.2	14.9	77.8	Located on the perimeter of the closed LF
MP-3	2:30:00 PM	0.0	1.2	2.0	96.8	Located on the perimeter of the closed LF
MP-4	2:35:00 PM	3.5	22.0	7.0	67.5	Located on the perimeter of the closed LF
MP-5	1:15:00 PM	35.3	25.5	7.2	32.0	Located on the perimeter of the closed LF
MP-6	2:15:00 PM	5.3	9.0	10.1	75.6	Located on the perimeter of the closed LF
LFG-101	2:50:00 PM	0.0	1.4	15.8	82.8	Located at the entrance rd to cc
LFG-102	3:00:00 PM	0.0	0.4	16.2	83.4	Located at the entrance rd to cc
LFG-103	3:15:00 PM	0.0	10.0	13.0	77.0	Located at the entrance rd to cc
TR-1	1:30:00 PM	0.0	2.3	19.4	78.3	Trace Property
TR-2	1:40:00 PM	8.6	17.8	7.5	66.1	Trace Property
TR-3	1:50:00 PM	4.4	15.1	11.3	69.2	Trace Property
Activity Building	3:45:00 PM	0.0	0.2	20.6	79.2	Structures
Animal Shelter	4:00:00 PM	0.0	0.2	20.6	79.2	Structures
Break House	3:25:00 PM	0.0	0.3	20.6	79.1	Structures
Bus Garage	4:25:00 PM	0.0	0.2	20.9	78.9	Structures
Convenience Center	4:10:00 PM	0.0	0.2	20.9	78.9	Structures
Maintenance Shop	4:35:00 PM	0.0	0.2	20.9	78.9	Structures
Revis House	N/A	-	-	-	-	Demolished in early December 2013
Scalehouse	4:50:00 PM	0.0	0.2	20.7	79.1	Structures
Trace Barn	2:00:00 PM	0.0	0.4	20.6	79.0	Structures

Completed by: Natalie J. Berry PE, Assistant County Engineer



APPROVAL	DATE	REVISION	BY
DESIGNED	08/27/03	REVISED BY CONTRACTOR	AWB
DRAWN	08/27/03	REVISED BY CONTRACTOR	AWB
CHECKED	08/27/03	REVISED BY CONTRACTOR	AWB
PROJECT NO.	03-4551013	SHEET NO.	1
CLIENT	W&A	SCALE	AS SHOWN
DATE	08/27/03	DATE	08/27/03
BY	AWB	BY	AWB
CHECKED	AWB	CHECKED	AWB
DATE	08/27/03	DATE	08/27/03
BY	AWB	BY	AWB
CHECKED	AWB	CHECKED	AWB
DATE	08/27/03	DATE	08/27/03
BY	AWB	BY	AWB

METHANE MONITORING LOCATION MAP



DWG. 1

NOTES

1. TOPOGRAPHIC CONTOUR INTERVAL - 4 FEET
2. COORDINATE SYSTEM IS NAD 83 UTM PLANE COG.
3. TOPOGRAPHIC CONTOUR IS SHOWN FOR REFERENCE ONLY AND NOT TO SCALE.

REFERENCES

1. BASED MAP PROVIDED BY GOLDER ASSOCIATES & MODIFIED FROM PREVIOUS WATER QUALITY MONITORING REPORTS.

- LEGEND**
- DISTANCE 10 FT. CONTOUR
 - DISTANCE 5 FT. CONTOUR
 - PROPERTY LINE
 - LIMIT OF WASTE
 - STORM DRAIN
 - BURIED
 - FENCE LINE
 - EXISTING ROAD
 - FENCE
 - MW-1 COMPAKED MONITORING WELL AND IDENTIFICATION
 - MW-2 NON-COMPAKED MONITORING WELL AND IDENTIFICATION
 - ▲ MW-3 METHANE MONITORING POINT AND IDENTIFICATION
 - MW-4 SPATIAL WATER MONITORING POINT AND IDENTIFICATION

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): _____

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:
 Name: Natalie J. Berry or Greg Wiggins Phone: (828) 694-6521 or (828) 697-4505 respectively
 E-mail: nberry@hendersoncountync.org and gwiggins@hendersoncountync.org

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Henderson County Closed Landfill	191 Transfer Station Drive Hendersonville, NC 28791	45-01	.1600/.0500	December 18, 2013

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.

Assistant County Engineer (828) 694-6521
 Facility Representative Name (Print) Natalie J Berry PE Title _____ (Area Code) Telephone Number _____
Digitally signed by Natalie J Berry PE
 DN: cn=Natalie J Berry PE, o=Henderson County Engineering, ou=Solid Waste Engineering, email=nberry@hendersoncountync.org, c=US
 Date: 2013.12.20 16:11:43 -0500 Affix NC Licensed/ Professional Geologist Seal

Signature _____ Date _____
 100 North King Street, Suite 210 - Hendersonville, NC 28792
 Facility Representative Address _____
 North Carolina Professional Engineer License Number 035614
 NC PE Firm License Number (if applicable effective May 1, 2009) _____



North Carolina Department of Environment and Natural Resources

Division of Waste Management

Dexter R. Matthews

Director

Pat McCrory
Governor

John E. Skvarla, III
Secretary

October 17, 2013

Sent Via Email – majones@hendersoncountync.org

Mr. Marcus Jones
Henderson County
Director of Engineering
802 Stoney Mountain Road
Hendersonville, NC 28791

Re: *Landfill Gas Remediation Plan – Phase 1*
Closed Henderson County MSW Landfill
Henderson County
Solid Waste Section Permit Number 45-01
DIN 19987

Dear Mr. Jones:

The Solid Waste Section has completed a review of the *Landfill Gas Remediation Plan – Phase 1* dated September 26, 2013 (DIN 19943) and submitted by Golder Associates NC, Inc on behalf of Henderson County for the Closed Henderson County MSW Landfill.

On June 26, 2013, two landfill gas monitoring wells indicated methane exceedances above the lower explosive limits. The Solid Waste Section was notified of the exceedances on July 2, 2013, and the methane exceedances appear to be related to the recent shutdown and removal of the active landfill gas system that was operated by Enerdyne until April 2013.

Henderson County is proposing a phased approach to address the methane gas exceedances. Phase 1 consists of the following:

- Venting landfill gas extraction wells within the area of the exceedances,
- Conduct a field investigation to acquire information from the existing landfill gas monitoring wells and probes, and
- Create a landfill gas generation model to evaluate long term control of landfill gas in order to determine and design the best option for Phase 2. Phase 2 will be prepared once sufficient information has been obtained.

As a result, the Solid Waste Section approves the *Landfill Gas Remediation Plan – Phase 1* for immediate implementation. If you have any questions or concerns regarding this letter, please feel free to contact me at 919-707-8294 or by email at jaclynne.drummond@ncdenr.gov. Thank you for your continued cooperation with this matter.

Sincerely,



Jaclynne Drummond
Compliance Hydrogeologist
Solid Waste Section

Digitally signed by Jaclynne Drummond
DN: cn=Jaclynne Drummond, o=NC Division of Waste
Management, ou=NC Solid Waste Section,
email=jaclynne.drummond@ncdenr.gov, c=US
Date: 2013.10.17 08:09:17 -04'00'

cc sent via email: Natalie Berry, Henderson County Assistant Engineer
 Greg Wiggins, Henderson County Solid Waste Manager
 Jason Watkins, Western District Supervisor
 Andrea Keller, Environmental Senior Specialist
 Larry Frost, Permitting Engineer
 Dusty Reedy, Golder Associates NC, Inc.