



FACILITY COMPLIANCE AUDIT REPORT
Division of Waste Management
Solid Waste Section

UNIT TYPE:											
Lined MSWLF		LCID		YW		Transfer		Compost		SLAS	COUNTY: Haywood PERMIT NO.: 44-03 FILE TYPE: COMPLIANCE
Closed MSWLF	X	HHW		White goods		Incin		T&P		FIRM	
Closed CDLF		Tire T&P / Collection		Tire Monofill		Industrial Landfill		DEMO		SDTF	

Dates of Audit: 07/21/10 **Date of Last Audit:** 11/20/09

FACILITY NAME AND ADDRESS:
 Haywood County Municipal Solid Waste Landfill
 Francis Farm Road
 Waynesville, N. C. 28786

GPS COORDINATES: **N: 35.50298** **W: -82.95964**

FACILITY CONTACT NAME AND PHONE NUMBER:
 Stephen King, Haywood County Solid Waste Director
 Telephone 828-627-8042

FACILITY CONTACT ADDRESS:
 Stephen King, Director
 Haywood County Solid Waste Department
 278 Recycle Drive
 Clyde, N. C. 28721

AUDIT PARTICIPANTS:
 Andrea Keller, NCDENR, DWM, Solid Waste Section (SWS)
 Stephen King, Solid Waste Director
 Denese Ballew, Environmental Programs Mngr.

STATUS OF PERMIT:
 Closure Permit dated December 13, 1995
 Modification to Closure Permit dated May 23, 2006

PURPOSE OF AUDIT:
 Comprehensive Audit

NOTED VIOLATIONS:

15A NCAC 13B .0203 (d), which states: By receiving solid waste at a permitted facility, the permittee(s) shall be considered to have accepted the conditions of the permit and shall comply with conditions of the permit.

The facility received a closure letter from the SWS on December 13, 1995 which stated post closure conditions. The facility received a modification to the Permit for Closure on May 23, 2006. The modified Permit for Closure cited Methane Gas Remediation Conditions which stated:

(8) *The owner or operator shall maintain and operate the gas monitoring system to ensure that:*

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- a. *The concentration of methane gas generated by the facility does not exceed 25 percent of the lower explosive limit for methane in facility structures (excluding gas control or recovery system components); and*
 - b. *The concentration of methane gas does not exceed the lower explosive limit for methane at the facility property boundary.*
- (9) *If methane gas levels exceeding these limits are detected, the owner or operator must take all steps necessary to meet the standards established in Condition 8. Methane gas remediation plans approved by the Division are described in the List of Approved Documents, Attachment 1, Part C.*

15A NCAC 13B .0503 Siting and Design Requirements for Disposal Sites,

(2) A site shall meet the following design requirements:

(a) The concentration of explosive gases generated by the site shall not exceed:

- (i) twenty-five percent of the limit for gases in site structures (excluding gas control or recovery system components); and
- (ii) the lower explosive limit for the gasses at the property boundary;

During the document review of the landfill gas data it was determined that the Haywood County Francis Farm Municipal Landfill had exceeded the methane gas lower explosive limit at the property boundary (in LFG wells 3, 4, 5, and 6) and the twenty-five percent of the methane gas lower explosive limit in an on site structure (at location MMP 6). While the Section was aware of an initial property boundary exceedence in during the November, 2009 sampling events, neither the March 24, 2010 nor the June 29, 2010 landfill gas exceedences were reported to the Section. In addition, no corrective actions were taken to address the landfill gas exceedence in the on site structure.

Haywood County is in violation of **15A NCAC 13B .0203(d)** for failure to comply with conditions of their permit.

Haywood County is in violation of **15A NCAC 13B .0503 (2)(a)(i)** for the exceedence of twenty-five percent of the limit for gases in site structures, and for **15A NCAC 13B .0503 (2)(a)(ii)** for the exceedence of the lower explosive limit for the gases at the property boundary.

In order to achieve compliance, Haywood County must immediately implement measures to address landfill gas exceedences. While these measures do not require approval from the Section, notification of actions taken to address the potential health and safety risks should be communicated in writing. It is recommended that precautionary measures include increased site monitoring and/or supplementing the continuous monitoring alarm system of all on site structures, and conduct risk assessment of potential receptors to include any residences and other structures within 500-feet of the waste boundary.

In order to achieve compliance, Haywood County must, within 45 days, submit a Landfill Gas Monitoring and Assessment Plan for the Francis Farm facility which shall include, at a minimum, a site map indicating existing and proposed landfill gas wells, all existing and proposed landfill gas monitoring locations (including structures, vents, vaults, etc.), a standard operating procedure for collection, calibration, and reporting of landfill gas data, a standardized data collection sheet indicating all site wells and reporting standards, and a detailed contingency plan for managing landfill gas exceedences.

Please send the Landfill Gas Monitoring and Assesment Plan to Elizabeth Werner for approval:

Elizabeth S. Werner
Solid Waste Section – Permitting Branch Hydrogeologist
Raleigh Regional Office
1601 Mail Service Center
Raleigh, NC 27699-1601
Phone - 919.508.8496

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Upon completion of the approved assessment activities, the County will be required to submit a Corrective Action Plan to Ms. Werner.

Other actions may be required by the Division at a later date.

You are hereby advised that, pursuant to N.C.G.S. 130A-22, an administrative penalty of up to \$15,000 per day may be assessed for each violation of the Solid Waste Statute or Regulations. For the violation(s) noted here, you may be subject to enforcement actions including penalties, injunction from operation of a solid waste management facility or a solid waste collection service and any such further relief as may be necessary to achieve compliance with the North Carolina Solid Waste Management Act and Rules.

STATUS OF PAST NOTED VIOLATIONS: None

AREAS OF CONCERN AND COMMENTS:

1. Comprehensive inspection of closed MSWLF conducted with S. King, D. Ballew, and A. Keller.
2. Closed MSWLF cap appeared to be in good condition, vegetated, and recently mowed. Some settling is apparent. The County intends to fill low lying areas with materials generated from the upcoming well installation events (groundwater monitoring wells and gas extraction wells).
3. Groundwater and methane monitoring records were available for review (from sampling events on 2/23/09 and 8/24/09). Groundwater data for the spring 2010 sampling event was not available in report form. All wells were accessible during site inspection. Wells inspected: MW-1A, MW-1, MW-2A, MM-3, MM-4, and MM-5. Please note that several wells require both labels and exhibited cracked pads. See the 11/20/09 audit report for details.
4. A records review during the previous audit cycle had noted the following:
 - a. *LFG Assessment Plan (June 7, 2000 submittal to the Section) was not completed. Several well (methane monitoring) were not installed and there is no record that item #3 (daily monitoring for three weeks) had been completed, therefore there is no approved LFG monitoring plan in place.*
 - b. *Facility Structures: school bus maintenance building monitored (but require monitoring by county as well, and record retention) with continuous monitoring equipment but two other structures exist at facility and had not historically been monitored. Implement monitoring and complete assessment activities.*
 - c. *Groundwater assessment requirements (August 23, 2004 letter from the Section) not completed. Compliance hydrogeologist notified for GW monitoring records review.*
5. The November 20, 2009 audit report noted the following:
 - a. *Haywood County reported on meeting with McGill & Associates regarding both the LFG assessment and the GW assessment/mitigation activities. Contract discussions with BLE for management of the LFG extraction system have been underway.*
 - b. *Existing LFG wells caps have been retrofitted to meet industry standards (for LFG monitoring).*
 - c. *New LFG monitoring equipment was purchased by the county along with calibration standards.*
 - d. *Methane monitoring results were reviewed. Recommendations for data collection sheet: clarify continuous monitoring outputs (in school bus maintenance main building, 3 locations), include name of LFG collector, only place one day's worth of data per sheet, indicate if % Volume or % LEL was read vs. calculated, ensure that site map nomenclature matches data sheet.*

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6. During the LFG records review the following issues were noted:
- a. It had been recommended in the November 20, 2009 audit and during the June, 2009 site inspection that an updated site map be produced which indicated all sampling locations, including those associated with valve box and site structures. No site map was available which indicated all wells (LFG and monitoring) and sampling locations
 - b. Two reporting forms were being utilized. Well nomenclature did not match between the two reporting forms and no key was available to convert nomenclature from one form to the other.
 - c. D. Ballew noted that an SOP for LFG monitoring would be useful in order to standardize sampling procedures at the facility.
7. LFG Data review indicated the following (data sheets attached):
- a. Following the upgrade to the current LFG monitoring equipment, perimeter wells LFG-3 and LFG-6 (according to the 11/09 data sheets) exceeded 100% LEL for methane during the 11/2/09 and 11/13/09 sampling events. The County was in the process of getting approval for a LFG extraction system which was considered part of their LFG assessment and the Groundwater assessment/mitigation activities.
 - b. Documentation submitted to the Section (E. Werner, Section hydrogeologist) discussed the installation of LFG extraction wells (as part of groundwater assessment and remediation activities), but did not contain discussion of LFG exceedences, assessment, or remediation.
 - c. Sampling event of 03/24/10 indicated the following (select data points noted):

Sample Point	CH4 % by volume (read from meter)	% LEL (read from meter)	% LEL (Calculated from CH4 data)
MMW3/LFG-3	7.0	>100	>100
MMW4/LFG-4	35.0	>100	>100
MMW5/LFG-5	0.0	0.0	0.0
MMW6/LFG-6	39.0	>100	>100
MMP6/uppermost building	10.0	21.0	>100
MMV1/Passive Vent #1	46.0	>100	>100
MMV3/Passive Vent #3	0.0	0.0	0.0
GWMW 4 / MW-4	17.0	5.0	>100

- d. Sampling event of 06/29/10 indicated the following (select data points noted):

Sample Point	CH4 % by volume (read from meter)	% LEL (read from meter)	% LEL (Calculated from CH4 data)
MMW3/LFG-3	34	>100	>100
MMW4/LFG-4	0.0	2	0
MMW5/LFG-5	36.5	>100	>100
MMW6/LFG-6	0.0	0	0
MMP6/uppermost building	0.0	0	0
MMV1/Passive Vent #1	0.0	0	0
MMV3/Passive Vent #3	34	>100	>100
GWMW 4 / MW-4	0.1	2	2.0

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8. In Summary, from the previous two sampling events: perimeter wells LFG-3, LFG-4, LFG-5, and LFG-6 were in exceedance of 100% of the LEL for methane, and the uppermost building structure on site (MMP6) was in exceedance of the 25% LEL for methane for on site structures. The Section was not notified of these additional exceedances, nor was corrective action taken to address the exceedance in the on site structure.

9. Additionally, the question was raised during the data review regarding the meter %LEL not matching the calculated %LEL with respect to the methane reading (see 7b Table, MMP6 and GWMW 4). The County has been asked to clarify the metered %LEL with the equipment manufacturer. **At this time, the % methane by volume reading is considered the governing data point for each sampling location.**

Please contact me if you have any questions or concerns regarding this audit report.



Phone: 828-296-4700 .

Andrea Keller

Environmental Senior Specialist
Regional Representative

Mailed on : <u>07/26/10</u> by		hand delivery		US Mail		Certified No. <u>[7006 2150 0005 2458 9273]</u>
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cc: Mark Poindexter, SWS Field Operations Branch Supervisor
Deb Aja, SWS Western District Supervisor
Donald Herndon, SWS Compliance Officer
Allen Gaither, SWS Permitting Engineer
Ed Mussler, SWS Permitting Branch Manager
Elizabeth Werner, SWS Permitting Hydrogeologist
Cc: David Cotton, County Manager

Haywood County Landfill Gas Monitoring
Francis Farm Landfill

Haywood County
Francis

Well ID	Barometric Pressure Time	Temp. °F	Gas Readings			Balance %	LEL %	Staff:	DDB
			CH ₄ %	CO ₂ %	O ₂ %				
"Hg 27"	3:30pm							Date: 3/24/2010	
								Weather Conditions: Sunny, 10-15 mph wind Temperature: 61° F	
MMW 1	NA								
MMW 2	NA								
MMW 3			7.0	5.6	18.0	58.0	>100.00		
MMW 4			35.0	33.0	12.0	20.0	>100.0		
MMW 5			0.0	0.0	19.0	80.0	0.0		
MMW 6			39.0	37.0	8.0	16.0	>100.0		
MMW 7			0.0	0.0	18.0	81.0	0.0		
MMW 8			0.0	0.0	17.0	82.0	0.0		
MMP 1			0.0	0.0	19.0	81.0	0.0		
MMP 2			0.0	0.0	18.0	81.0	0.0		
MMP 3			0.0	0.0	18.0	82.0	0.0		
MMP 4			0.0	0.0	18.0	82.0	0.0		
MMP 5			0.0	0.0	19.0	81.0	0.0		
MMP 6			10.0	7.0	15.0	65.0	21.0		
MMV 1			46.0	43.0	1.0	10.0	>100.0		
MMV 2			0.0	0.0	18.0	81.0	0.0		
MMV 3			0.0	0.0	19.0	81.0	0.0		
GWMW 4			17.0	15.0	14.0	45.0	5.0		
GWMW 5			0.0	0.0	18.0	82.0	0.0		

