



**FACILITY COMPLIANCE AUDIT REPORT**  
**Division of Waste Management**  
**Solid Waste Section**

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

**Dates of Audit:** 10/12/10                      **Date of Last Audit:** 07/21/10

**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

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

**PURPOSE OF AUDIT:**  
 Partial Audit

**STATUS OF PAST NOTED VIOLATIONS:**

- RESOLVED:** 15A NCAC 13B .0203 (d) for failure to comply with permit conditions.
- RESOLVED:** 15A NCAC 13B .0503(2)(a)(i) for the exceedence of twenty-five percent of the lower explosive limit for gases in site structures.
- RESOLVED:** 15A NCAC 13B .0503 (2)(a)(ii) for the exceedence of the lower explosive limit for the gases at the property boundary.

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**NOTED VIOLATIONS:**

NONE

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.

**AREAS OF CONCERN AND COMMENTS:**

1. Partial audit inspection of closed MSWLF conducted by A. Keller and S. King as follow-up to the Notice of Violation issued on July 21, 2010.
2. The closed MSWLF cap appeared to be in good condition following the installation of landfill gas (LFG) vents and wells associated with gas extraction system. Further work will be required to fully establish vegetation on the areas disturbed during the installation event.



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3. Groundwater monitoring well installation had been completed at the time of the audit (in accordance with the approved Groundwater Assessment Plan). Wellheads need to be locked and labeled (subcontractors still working on completing wellheads).



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4. Based on the former LFG Assessment Plan (June 7, 2000), the previous audit reports and Notice of Violation (NOV), and in response to the continuing exceedence of LFG at the property boundary in several on site wells, the County submitted a Landfill Gas Monitoring Plan to the Section (received at the Asheville Regional Office on September 20, 2010). The LFG Monitoring Plan discussed compliance monitoring points as follows:
- a. Methane Monitoring (MM) points MM-1 through MM-5 along the northern property line;
  - b. MM-6 through MM-8 along the eastern property line;
  - c. MM-9 along the southern property line;
  - d. MM-10 through MM-13 as proposed monitoring points along the southern and western property lines; and
  - e. Structures monitoring points SM-1a, SM-1b, SM-1c, SM-2, and SM-3 representing the maintenance/bus garage building (first three locations), the equipment storage building, and the maintenance storage buildings respectively.



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Newly installed MM-1, MM-2, and property boundary fence (northern edge of property).

5. During the previous LFG records review the following issues had been noted:

*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 [during the July, 2010 audit] which indicated all wells (LFG and monitoring) and sampling locations.*

The submitted LFG Monitoring Plan contained an updated site map which indicated existing groundwater monitoring wells (MW), existing and proposed methane monitoring probes (MM), structure monitoring locations (SM), existing extraction gas extraction wells (EW), and existing shallow gas vents. Additionally, the map located on site and off site structures in the vicinity of the closed landfill.

*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. D. Ballew noted that an SOP for LFG monitoring would be useful in order to standardize sampling procedures at the facility.*

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The submitted Plan set well nomenclature for current and future site activities and monitoring events and included a standard operating procedure (SOP) for LFG monitoring. **Note that Plan review and approval will be conducted by Elizabeth Werner, Section hydrogeologist.**

6. Previously conducted LFG Data review (from multiple sampling events) had indicated that perimeter wells LFG-3, LFG-4, LFG-5, and LFG-6 had exceeded 100% of the LEL for methane, and the uppermost building structure on site (MMP6) had exceeded 25% LEL for methane for on site structures. Further correspondence with Denese Ballew (Haywood Co.) regarding these sampling results both clarified the equipment capabilities and the sampling results for what was labeled MMP6 at the time of the event:
  - a. July 28, 2010 – D. Ballew stated that the equipment manufacturer (Land GEM) had recommended the equipment not be used on windy days, not be used in when cell phones are active in the vicinity of the equipment (can impact CO<sub>2</sub> and methane sensors), and that the equipment was not ideal for ambient monitoring. **Thus, during structure ambient monitoring, %LEL should be manually calculated from the %CH<sub>4</sub> by volume reading;** and
  - b. July 29, 2010 – D. Ballew submitted (via email) a correction in her data collection which stated that MMP6 was the water valve box (outside the maintenance garage) rather than the maintenance storage building, as previously reported.
7. The County took immediate actions following the NOV, including but not limited to: increased site monitoring (conducted by McGill Associates and reported by Jeff Bishop on August 11, 2010), investigation and re-sampling of all site structures, vaults, and drains, rapid installation of methane vents in landfill cap, risk assessment of potential receptors, and verification that the under-floor venting system at the main school maintenance building was in operation.
8. The landfill edge-of-waste (EOW) potentially extends beyond what current site maps indicated (per conversations between A. Keller and J. Bishop, and A. Keller and S. King). Further document review and site investigation was conducted and the investigation was ongoing at the time of the inspection.



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As part of the LFG mitigation activities at the facility, additional gas vents were installed on the north, outer edge of the access road (seen above). It was stated (S. King) that waste was encountered during the installation of several gas vents, confirming that the EOW extends beyond current site map

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boundaries. In the LFG Assessment and Remediation Plan (September 2010), the County stated that, as part of the Assessment Plan, *Haywood County will perform limited excavation to attempt to define the limits of waste along the northern and eastern portions of the landfill. Once the limit of waste is determined, the points will be surveyed and placed on a revised Overall Site Plan of the facility.* Note that the Francis Farm Landfill was operational in the early 1970's and that limited documentation exists to clarify the historical EOW.

9. The County met the NOV requirements stated in the July, 2010 audit report by taking immediate actions, as outlined above, and by submitting LFG Monitoring and Assessment Plans for the Francis Farm facility within the established time frame. While the NOVs are considered Resolved at this time, further action may be required pending Section review of the submitted Plan, or in response to future LFG sampling results. **Note that Plan review and approval will be conducted by Elizabeth Werner, Section hydrogeologist.**

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>10/29/10</u> by		hand delivery		US Mail	Certified No.
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ec: Mark Poindexter, SWS Field Operations Branch Supervisor  
 Deb Aja, SWS Western District Supervisor  
 Donald Herndon, SWS Compliance Officer  
 Elizabeth Werner, SWS Permitting Hydrogeologist  
 Cc: David Cotton, County Manager