



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

<b>UNIT TYPE:</b>											
Lined MSWLF		LCID		YW		Transfer		Compost		SLAS	<b>COUNTY: HENDERSON</b> <b>PERMIT NO.: 45-01</b> <b>FILE TYPE: COMPLIANCE</b>
Closed MSWLF	<b>X</b>	HHW		White goods		Incin		T&P		FIRM	
Closed CDLF	<b>X</b>	Closed CDLF atop Closed MSWLF	<b>X</b>	Asbestos Disposal Area(s)	<b>X</b>	TVA Industrial Landfill	<b>X</b>	DEMO	<b>X</b>	SDTF	

**Date of Audit:** 03/10/2010

**Date of Previous Site Visit:** 02/11/09.

**FACILITY NAME AND ADDRESS:**

Henderson County Solid Waste Landfill

**GPS COORDINATES:** N: 35.35558, E: -82.49531

**FACILITY CONTACT NAME AND PHONE NUMBER:**

Marcus Jones – Henderson Co. Director of Engineering  
 100 N. King Street  
 Hendersonville, NC 28792

**FACILITY CONTACT ADDRESS:**

Henderson County Solid Waste Transfer Facility  
 802 Stoney Mountain Road  
 Hendersonville, NC 28971  
 (828) 697-4505

**AUDIT PARTICIPANTS:**

Andrea Keller – DENR Solid Waste Section  
 Bill Wagner – DENR Solid Waste Section  
 Will Sagar – Henderson Co. Solid Waste Director  
 Natalie Berry – Henderson Co. Asst. County Engineer  
 Rebecca Coplin – Henderson County SW Dept.

**STATUS OF PERMIT:**

MSWLF Transition Plan Approval – November 13, 1995  
 MSWLF stopped receiving waste – December 31, 1997  
 MSWLF and C&DLF on top of closed MSWLF Closure Permit – April 11, 2006  
 C&DLF stand-alone PTO – October 4, 2001  
 C&DLF stand-alone – Inactive (waiting on formal closure letter from the Section)

**PURPOSE OF AUDIT:**

COMPREHENSIVE

**NOTICE OF VIOLATION(S):**

Closed stand-alone C&DLF

15A NCAC 13B .0531 Applicability (c) states: *that Owners and operators of C&DLF facilities and units must conform to the requirements of Rules .0531 through .0547 of this Section as follows: C&DLF units permitted to*

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*operate prior to January 1, 2007, and which do not receive solid waste after June 30, 2008, must comply with the Conditions of the Solid Waste Permit and Rule.0510 of this Section*

15A NCAC 13B .0510 of this section *requires that a disposal site be closed in accordance with rule .0505 of this Subchapter.*

15A NCAC 13B .0505(4)(a) states: *Adequate erosion control measures shall be practiced to prevent excessive on-site erosion.*

15A NCAC 13B .0505 (6)(a) states: *Within six months after final termination of disposal operations at the site or a major part thereof or upon revocation of a permit, the area shall be stabilized with native grasses.*

During the comprehensive inspection it was determined that the stand-alone closed C&DLF exhibited excessive rills, discharge, and uncovered waste with little to no stabilization with native grasses. See items 1, 2, and 3 noted below in the Areas of Concerns and Comments section.

Henderson County is in **violation of 15A NCAC 13B .0505(4)(a)** for failure to prevent excessive on-site erosion at the stand-alone C&DLF unit.

Henderson County is in **violation of 15A NCAC 13B .0505(6)(a)** for failure to stabilize the site with native grasses within six months of final termination of disposal operations.

**In order to achieve compliance, Henderson County must, by June 4, 2010, correct the settlement, subsidence, erosion, and vegetation requirements at the C&DLF unit. The seepage/leachate release issue must be addressed immediately to ensure that leachate does not leave the site.**

Closed MSWLF

15A NCAC 13B .1627 (d) Post-closure criteria (1)(A) states: *Maintaining the integrity and effectiveness of any cap system, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the cap system;*

During the comprehensive inspection it was determined that the MSWLF with a C&DLF on top exhibited erosion rills, discharge, and uncovered waste. The surface water drainage in the drainage ditch, as it passes through solid waste, is considered leachate and must be treated accordingly. Additionally, woody tree growth was established on the lower slopes of the MSWLF. See items 2 and 4 noted below in the Areas of Concerns and Comments section.

Henderson County is in **violation of 15A NCAC 13B .1627(d)(1)(A)** for failure to maintain the integrity and effectiveness of the closed MSWLF cap system.

**In order to achieve compliance, Henderson County must, by May 7, 2010, submit a plan to the Section detailing how the County intends to achieve compliance regarding the settlement, subsidence, erosion, and woody vegetation at the closed MSWLF unit and the closed C&DLF unit atop the MSWLF unit. This plan must include a reasonable timeline for corrective actions. The seepage/leachate release issue must be addressed immediately to ensure that leachate does not leave the site.**

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.

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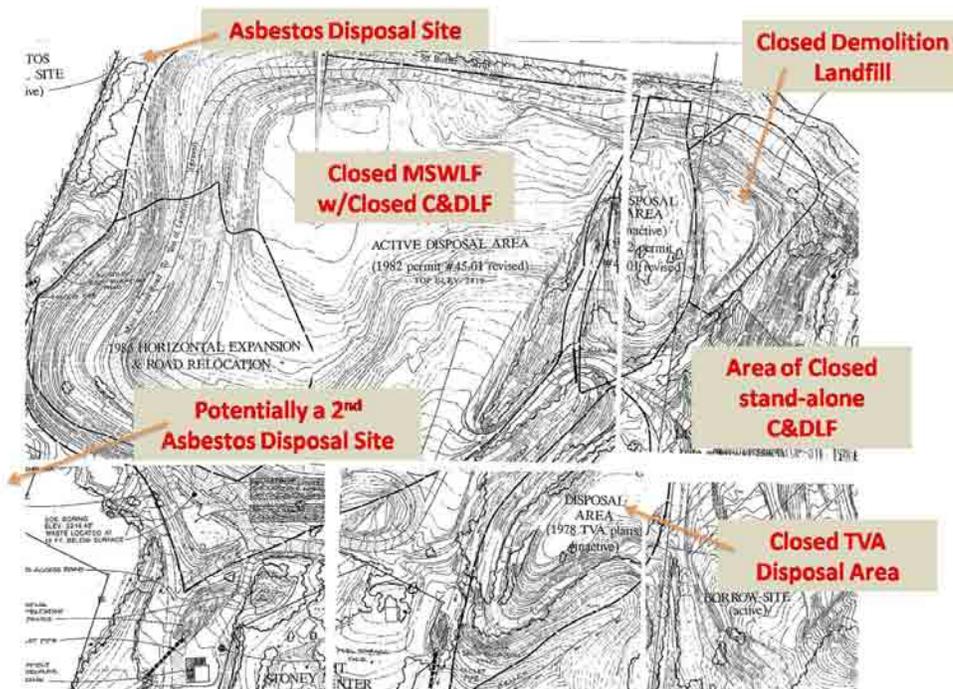
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**STATUS OF PAST NOTED VIOLATIONS:**  
NONE

**AREAS OF CONCERN AND COMMENTS:**

**GENERAL COMMENTS:**

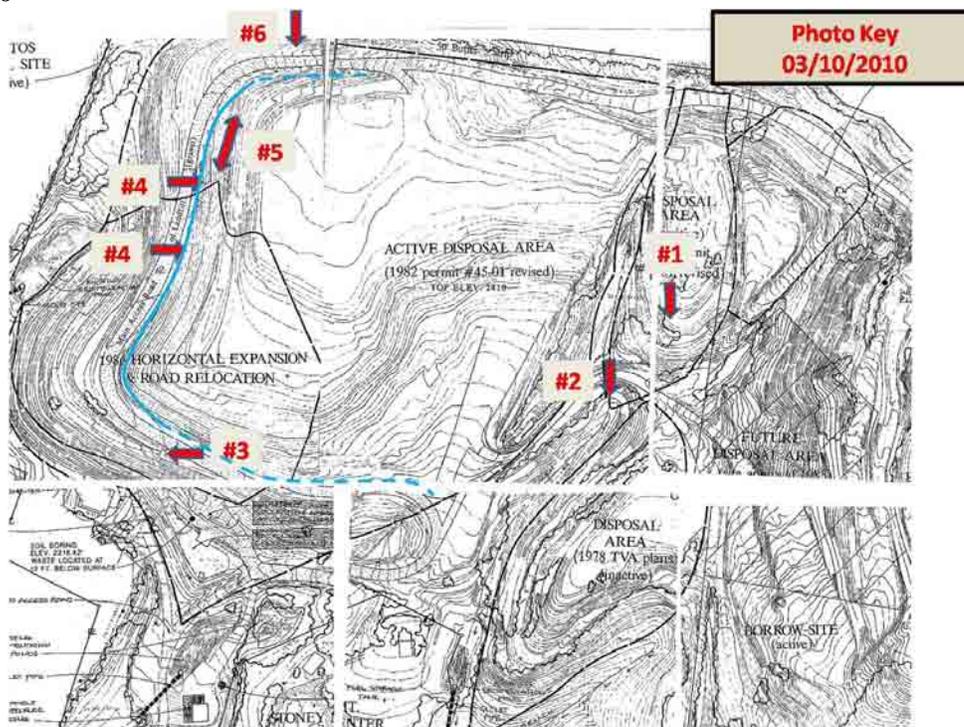
1. On site to conduct comprehensive audit of the closed MSWLF, closed C&DLF located on top of the closed MSWLF, and the inactive stand-alone C&DLF (awaiting formal closure from the Section). In addition to these three fill areas, the following fill activities are located within the facility boundary (a 1992 Gas Monitoring Probe Location Map, sheet one; a 1992 Base Area Existing Solid Waste Disposal Facility map, sheet 1; and a 1993 Site Plan Proposed Final Contours/Existing Contours sheet 2):
  - a. Closed TVA Disposal Area (1978)
  - b. Closed Disposal Area 1982 Permit
  - c. Demolition Landfill (inactive)
  - d. Asbestos disposal site (inactive)
  - e. Asbestos disposal site (proposed)



partial 1992 site map

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2. Future site maps submitted to the Section, including proposed site plans regarding the new Transfer Station, access roads, Material Recovery Facility, and convenience center drop off locations should indicate all site fill areas in relation to the proposed activities. In addition, per the memorandum dated May 29, 2009 (Subject: *Permanent Edge-of-Waste Markers at Construction and Demolition Debris Landfill, Industrial Solid Waste Landfills, and Municipal Solid Waste Landfills*), owners and operators of all active, inactive and closed landfill units should install and maintain permanent edge-of-waste (EOW) markers for all landfill units. (See attached memo). Further discussion regarding EOW issues are found below.
3. In addition to the above-noted fill activities, there is an active beneficial fill area located south of the current white goods area (governed under the 45-04T permit). The beneficial fill area must be controlled in order to ensure that only materials which meet the definition of beneficial fill are disposed of in this area of the facility.



03/10/2010 photos #1: painted block, rebar, porcelain and some plastics were noted.

15A NCAC 13B .0562 Beneficial Fill (1) states: *the fill material consists only of inert debris limited to concrete, brick, concrete block, uncontaminated soil, rock, and gravel.*

While most of the material noted at the site conforms with the above-stated definition, **this area is not considered a disposal site for solid waste and thus all non-conforming materials must be sorted and removed from this fill area for proper disposal.**

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4. Surface water runs between the closed MSWLF and the fill area listed at 1982 Disposal Area (may also be MSWLF), and then passes along the east border of the TVA 1978 fill area. This drainage/creek area appears to have a build up of surface waste (metals and plastics), windblown material, and/or possible uncovered waste (unable to determine fill areas on older, closed fill units as there are no EOW markers in place).



03/10/2010 photo #2

This material should be removed for proper disposal as this activity could be considered the establishment of an illegal open dump site. It is recommended that this clean up be conducted before visibility is lost due to vegetation growth over the spring/summer months.

INACTIVE (stand-alone) C&DLF COMMENTS:

The stand-alone C&DLF had met closure requirements at the time of the required engineering submittal. However, in the months following this documentation of final cap thickness and grading at the closed C&DLF the landfill unit cap has suffered considerable erosion and slumping.

1. The erosion ditch pictured below had exposed waste and appeared to be outside of the existing EOW markers in place at the C&DLF. This may be due to erosion of a previous fill area, or of transport of waste off the C&DLF footprint due to heavy rains/snow.



2. EOW markers will need to be re-established for the closed C&DLF. The wooden stakes currently in place are not stable. It is recommended that EOW markers be: visible in line of site from marker to marker, made of materials able withstand the elements, and labeled "EOW" or similar.

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03/10/10 EOW markers

3. Slumping was visible on the southwestern slope of the landfill. Additionally, several leachate seeps were noted. This area requires soil cover and vegetation for erosion control. The leachate seeps appeared to stay within the footprint of the C&DLF but this issue should be investigated by the county to verify.



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4. The access road on the C&DLF is slumping and eroding and the ground cover appears unstable (visible cracking). The EOW markers are on the outside edge of the access road are being pushed along with the slumped soil.



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**Items 1, 2 and 4 need to be addressed as required in the Notice of Violation section within this audit report. The seepage/leachate release issue must be addressed immediately to ensure that leachate does not leave the site.**

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CLOSED MSWLF COMMENTS:

1. The closed MSWLF footprint is considerably larger than the current area marked with EOW markers. **Correct the EOW markers as soon as possible.** Due to the planned site construction activities, and with reference to the attached memorandum regarding EOW markers, **a survey of EOW should be conducted for all fill areas.**
2. The access road located on the MSWLF waste fill area (leading up to the white goods, closed C&DLF, and grinding operation areas) currently shows EOW markers to the “outside” or left of the road (see photo below). Per Mr. Sagar and site maps referenced earlier, the EOW is actually 100-300’ past these EOW markers. In this region, significant vegetation has taken root. This area must be accessible, mowed regularly, and must not contain any woody vegetation (trees).



03/10/10 photo #3

While the MSWLF was closed under the .1600 Rules and the C&DLFs, Demolition LF, and TVA disposal area were closed under the .0500 Rules, all Areas must meet the Post-Closure General Condition stated in the permit such that *the owner or operator shall maintain the integrity and effectiveness of any cap system.*

The woody/tree growth is encroaching upon the cap system. As these types of root systems will most likely extend beyond the erosion layer into the impermeable layer of the cap (thus destroying the integrity of the cap system and creating a path for water into the landfill), and as trees both inhibit the proper mowing and necessary maintenance of the cap while impeding on the ability to visually inspect the cap integrity, **this woody shrub/tree growth must be eliminated. Any stumps and root systems of larger trees must be removed and the cap system repaired.**

3. The closed MSWLF Post-Closure Conditions (April 11, 2006) in the *Letter of Closure* and the .1600 Rules are the governing regulations for this landfill unit. The list of Approved Documents includes Closure Plans, Post-Closure Use Plan, **Methane Gas Remediation Plan**, and a Ground Water Corrective Action Plan. During the next scheduled site visit, the Section wishes to review these documents, in particular Part C: Methane Gas Remediation Plan – please have this available at the landfill at the time of the site inspection.
4. The closed MSWLF has a drainage ditch running on the “inside” of the access road. This drainage ditch exhibited erosion to the extent that solid waste was exposed and the landfill cap exhibited erosion such that rills had formed and discharge was draining into the drainage ditch.

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Rills/discharge from landfill into drainage ditch, photos #4



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Drainage ditch/waste #5

Post Closure General Condition #2 states that *the owner or operator shall maintain the integrity and effectiveness of any cap system, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the cap system.*

**Item number 2 and 4 need to be addressed as required in the Notice of Violation section within this audit report. The seepage/leachate release issue must be addressed immediately to ensure that leachate does not leave the site.**

5. The groundwater monitoring data was available and currently under review by the Section hydrogeologist.
6. The landfill gas (LFG) monitoring plan was unavailable at the time of the audit. However, the collected data was available. Henderson County utilizes Enerdyne for maintenance of the gas extraction system and for the collection of LFG monitoring data. While monitoring data was available for review, due to the lack of a Plan it was difficult to determine the following: Number of wells and location of wells, whether the methane data was in % Volume or % LEL, and what the other data points on the spreadsheet represented (structures on/off property?). Additionally, two of the LFG monitoring wells located on the north side of the property (in the region where, historically, methane migration had occurred) **were not capped, locked, or labeled.**

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03/10/10 LFG Monitoring well. #6

7. No data was available that appeared to represent monitoring in the facility site structures (office buildings, scale house, etc.) as required in both Rule and in Closure Condition #12:  
*The owner or operator shall maintain and operating the gas monitoring system to ensure that:*
- (a) *The concentration of methane gas generated by the facility does not exceed 25% 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.*

**Please provide evidence that all facility structures have been monitored for LFG. If the LFG Monitoring Plan does not include all structures, or is out of date with current site activities and future plan, an updated LFG Monitoring Plan should be submitted during the next permit application/amendment/renewal cycle.**

8. During the site inspection, it was stated (W. Sagar) that groundwater monitoring wells had been screened for methane as part of an assessment activity pertaining to groundwater contamination at the site. It was also stated that the % Vol of methane in at least one of these wells was >35% methane. Depending on the actual readings and the location of this well(s), this information should have been immediately communicated to the Section hydrogeologist (Jaclyne Drummond, 919-508-8500) to determine a potential course of action. Per Closure Condition #13: *If methane gas levels exceeding these limits are detected, the owner or operator must take all steps required in Rule .1642(4)(c). Methane gas remediation plans approved by the Division are described in the list of Approved Documents, Attachment 1, Part C.*

**Please provide the LFG data collected from this assessment activity to Ms. Drummond.**

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

Andrea Keller  
 Environmental Senior Specialist  
**Regional Representative**

Phone: (828) 296-4700

Mailed on : <u>04/08/10</u> by		Hand delivery		US Mail		Certified No. [ <u>7006 2150</u> 0005 2458 9228]
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cc: Mark Poindexter, Field Operations Branch Supervisor  
 Deb Aja, Western District Supervisor

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