



North Carolina Department of Environment and Natural Resources
Division of Waste Management

Beverly Eaves Perdue
Governor

Dexter R. Matthews
Director

Dee Freeman
Secretary

Solid Waste Section

March 11, 2011

Mr. Tim Rogers
Solid Waste Director
460 B South Landfill Road
Dudley, NC 28333

Re: Additional Comments on Permit To Construct Application for Phase 3 (Permit Application), Wayne County Municipal Solid Waste Landfill (MSWLF)
Wayne County, North Carolina
Permit No. 96-06, Document ID No. (Doc ID) 13196

Dear Mr. Rogers:

The Division of Waste Management (DWM), Solid Waste Section has reviewed the February 02 2011 letter and attached revised Permit Application (Doc ID12973), submitted by Municipal Engineering Services Co., Inc. (MESCO), on behalf of Wayne County, to respond the DWM's comments (Doc ID 12580) dated January 04, 2011. Based on the review Solid Waste Section has additional comments on the new submittal, and your responses to the following comments will expedite the review of the Permit Application:

Section 1.0 – Facility Plan

1. (Section 1.2 Landfill Capacity) In the last sentence of the Section 1.2, the estimated schedule of closure will be approximately 33 years, the reported "43 years" is likely a typographic error. Please make necessary correction.

Section 2.0 – Engineering Plan

2. (Section 2.1.3, page 15) The Solid Waste Management Rule (Rule) 15A NCAC 13B .1624(b)(4) requires that a MSWLF shall be constructed so that the **post settlement** bottom elevation of the **base liner system** is a minimum of four feet above the season high groundwater table and bedrock datum plan counters established in the Design Hydrogeological Report prepared in accordance with Rule .1632(b) of this section." Pursuant to Rule .1624(b)(4) requirement, County must revise the description of the "vertical separation – **waste** and season high groundwater" in Section 2.1.3 accordingly.
3. (Section 2.1.3, page 15) Section 2.1.3 reported that "Phase 3 has a minimum vertical separation ... of **9.11 ft.**" However, according to the data presented in Table 5 and Drawing Nos. Plate 4A/Sheet No. 1 of 1 and Plate 4B/Sheet No. 1 of 1 of the *Design Hydrogeologic*

Study (Doc ID 10382) for Phase 3 development dated July 2008, the elevations of seasonal high groundwater and long term seasonal high underneath the Phase 3 ranging from 134 to 152 feet above mean seal level (amsl), from the west to east directions; and the elevations of designed subgrade range from 165 to 139.5 feet amsl - from center portion of the Phase 3 toward the west end (west sump area) and from 165 to 153 feet amsl - from center portion of the Phase 3 toward the east end (east sump area) as shown on Drawing No. E6/Sheet 8 of 17. Superposing or overlapping the above-referenced drawings, it is evident that the minimum vertical separation distances occur in the vicinity of each of the two sump areas, approximately 4.79 feet (east sump area) and 4 feet (west sump area), respectively.

However, according to the Engineering Plan the calculated total settlement on the subgrade underneath Phase 3 area resulting from the proposed 115-foot-high waste loading is approximately 18 inches or 1.5 feet. The Rule .1624(b)(4) requires that vertical separation distance is measured from the **post settlement** top elevation of the subgrade. Therefore, the actual minimum vertical separation distances occur in the vicinity of each sump area, after subtracting out 1.5 feet settlement, approximately **3.29 feet** (east sump area) and **2.5 feet** (west sump area), respectively. County must conduct the following actions:

- i. Redesign the final subgrade elevations of each landfill cell to meet the requirements stated in Rule .1624(b)(4) & (7).
 - ii. Re-examine the designs and calculations of the proposed leachate collection and removal system (LCRS) in the Engineering Plan to ensure the expected leachate can be properly and safely removed by gravity drain according to the requirements stated in Rule .1624(b)(2).
 - iii. Revise the related information due to the change of subgrade elevations throughout the Permit Application resulting from the response to the Comment 3i, such as the total gross landfill capacity for Phase 3 and/or future phases in the Facility Plan (text, tables and drawings).
4. (Engineering Plan Figures) Please address the following concerns:
- i. (Drawing No. E2/Sheet 4 of 17) The references of details of silt fence and inlet/outlet protections to Sheet 6 of 17 is incorrect. The correct reference is Sheet 7 of 17. Please correct the typo on the drawing.
 - ii. (Drawing No. E6/Sheet 8 of 17 through Drawing No. E8/Sheet 10 of 17 and E13/ Sheet 15 of 17) The designed final grade lines for each layer may be subjected to changes in accordance the responses to the Comment No. 3.

Section 4.0 Construction Quality Assurance (COA) Plan

5. (Sections 4.2.2, pages 237 through 239) For the sake of consistency of the testing methods as specified in Section 4.2.11, please use ASTM D2487 to replace ASTM D2488 in Section 4.2.2.

6. (Section 4.2.6, page 260) Please add the QA/QC testing requirements (testing method, frequency, and minimum passing criteria [26 degree]) of the interface angles between Geocomposite Drainage Layer and 3-ft-thick protective soil cover and FML (60-mil textured HDPE) which are the components of the proposed base liner system and to be installed on the 3 (horizontal) to 1 (vertical) side slopes of the proposed Phase 3.
7. (Section 4.2.7, Paragraph (2) - Stone Surrounding Perforated Collection Pipe, page 264) Please provide the QA/QC testing methods and frequency on the stone (NCDOT aggregate standard size No. 5) surrounding the perforated collection piping to ensure that the stone column has a minimum hydraulic conductivity of 0.1 cm/sec or 0.04 inch/sec in consistent with LCRs design in the Section 2.2.4 (on page 139) of the Engineering Plan.
8. (Section 4.2.11, Paragraph 5 (b)(3) - Sample Procedures, on page 274) The testing passing/failure criteria are applicable to HDPE but not applicable to LLDPE. Please revise the testing passing/failure criteria accordingly.

Section 5.0 – Operations Plan

9. The Solid Waste Section conditionally accepts the response to the Comment No. 21 dated January 04, 2011. Wayne County must submit the LFGCCs and LFGTE as-built drawings and a revised Operation Plan with QA/QC document to the Solid Waste Section for review and approval. The Permit To Operate for the new Phase 3 will not be issued to Wayne County until this pre-operational condition is completed fulfilled.

Section 6.0 – Closure Plan

10. In Section 6.1, the estimate of the maximum inventory of waste (1,539, 258 cubic yards) ever on-site over the active life to date of the landfill facility is not consistent with the one (1,539, 760 cubic yards) described in Section 1.2 of the Facility Plan. Please clarify.
11. In the last sentence of the Section 6.1, the estimated schedule of closure (43 years) is likely a typographic error of 33 years (see Comment No. 1). Please make necessary correction.
12. (Section 6.8) The cost item No.8 must also include costs of material (gravel, geotextile, etc.) other than vent pipes for methane gas system as described in Section 6.7 and presented in the previously submitted Permit Application. Please revise the cost estimate according to the Closure Plan and related drawing – Typical Methane Gs Collection Well to Vent Conversion Detail on Drawing No. E-12/Sheet 14 of 17.

Section 7.0 – Post-Closure Plan

13. (Section 7.2) The sum of the total estimated costs in the amount of \$2,064,000 for the proposed Post-Closure cares is incorrect. The correct value is \$2,154,000. Please make necessary correction.

Please submit DWM the completed written responses and the hard copy of the portions of the Permit Application which are subjected to change and one completed electronic copy of the submittal (the responses letter and the completed new permit application). The Solid Waste

Section appreciates your efforts and cooperation in this matter. If you have any permitting questions, please contact me at (919) 508- 8507.

Sincerely,

A handwritten signature in black ink, appearing to read 'M. Chao', written in a cursive style.

Ming-Tai Chao, P.E.
Environmental Engineer II
Permitting Branch, Solid Waste Section

cc:

Wayne Sullivan, MESCO
Donna Wilson, DWM
Dennis Shackelford, DWM
Central File

Ed Mussler, Permitting Branch Supervisor
Christine Ritter, DWM
Wes Hare, DWM

