



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

November 17, 2010

Mr. Tom Miller, Solid Waste Director
P.O. Box 3289
130 S. Queen Street
Kinston, North Carolina 28501

Re: Additional Comments on Permit to Construct (PTC) Application – Phase 2
Lenoir County Municipal Solid Waste Landfill (MSWLF)
Lenoir County, North Carolina, Permit No. 54-09, Document ID No. (Doc ID) 12205

Dear Mr. Miller:

On November 5, 2010, the Division of Waste Management (DWM), Solid Waste Section (SWS) received the revised PTC application document (Doc ID 12120) for the Phase 2 development at the above-referenced MSWLF. Municipal Engineering Services Co., Inc. (MESCO) on your behalf submitted the PTC application. The SWS has conducted a review of the engineering related portions of the PTC application and has additional comments on the application. Your responses to the following comments will expedite the review of the permit application:

General:

Please conduct a global search throughout the permit application to ensure the name of **Division of Waste Management, not Division of Solid Waste** is properly provided in the document.

Section 1.0 Facility Plan

1. (Drawings F-1/Sheet 3 of 10) Please verify the identification of the existing leachate sample location at Phase 1 area. The historical data and records indicate the identification of the existing leachate sample location is "Lagoon," not LS-1. Please clarify.

Section 2.0 Engineering Plan

The comments depicted below are presented in the DWM correspondences dated July 21, 2010 (Doc ID 9570) and September 9, 2010 (Doc ID 11554). The revised PTC application (Doc ID 12120) did not properly address these comments; therefore, the DWM reiterates these comments in this letter again.

2. (Section 2.1.6 – Cap System Standards) Please provide the references of "the proper seeding and mulch of the erosive layer and other erosion control devices." The references shall be the approved erosion and sediment control plan and/or the North Carolina Erosion and Sediment Control Planning Design Manual.

3. (Sections 2.1.5 & 2.2.2) Has the appended Erosion Control Plan been approved by the Land Quality Section of the Division of Land Resources? Pursuant to Rule 15A NCAC 13B .1624 (b)(15), Lenoir County must provide **a hard copy of the approval letter** from the Land Quality Section to confirm that the submitted Erosion Control Plan (calculations and drawings) for developing and operating Phase 2 is in compliance with the requirements stated in the Sedimentation Pollution Control Law (15A NCAC 4).
4. (Section 2.2 – Leachate Collection System Calculation Summary, on Page 38) This Section concludes that SDR 17 HDPE pipe can sustain the loads created by at least 250-ft of waste which is inconsistent with the designed waste height of 200 feet as present in the Section 2.2.5. Please clarify.
5. (Section 2.2.8) Please address the following concerns:
 - i. The side slope on the south-east side of the final grade for Phase 2 as shown on Drawing E11/Sheet 13 of 15 is likely a 2 (H) to 1(V) slope. Please run slope stability analysis on this 2 to 1 interim slope to ensure the side slope can safely stand prior to waste filling into Phase 3 cell.
 - ii. Please provide the reports of bearing capacity analysis and both total and differential settlement analysis for Phase 2 area. The reports must include the assumptions, perimeters used for calculations, calculating processes, and literature references. It is advisable for Lenoir County that the foundation analysis should consider all loadings, including the total waste loads (considering the complete vertical expansions), baseliner systems, and the final cover systems, exerting on the subgrade soil.
 - iii. Provide the **output data sheets** generated from the computer program used for the slope stability analysis.

Section 4.0 Construction Quality Assurance (CQA) Plan

6. Since the “project Engineer” is not defined in the Section 4.1, please conduct a global search throughout the permit application to ensure the name of “Project Engineer” is replacing by **“Engineer,”** “Project Superintendent” is replacing by **“Flexible Membrane Liner Superintendent,”** and “CQA Inspector” is replacing by **Construction Observer.”**
7. (Section 2.4) According to the conclusions in Appendix B of the revised Slope Stability Analysis (Section 2.2.8), the interface friction angles between geocomposite drainage net/FML [26 degree], FML/GCL [26 degree], GCL/compacted soil liner [21 degree] shall be used as the minimum criteria (not the 13.0 and 13.5 degrees) in the Table 1 of Section 2.4. Please revise the minimum criteria of the interface friction angles listed in Table 1.
8. (Section 3.5, on page 204) Please address the following concerns for construction and backfilling of the permanent anchor trenches:
 - i. Specify the earthen material (type & maximum grain size, etc.) and the minimum compaction effort (determined by ASTM D698) for the compacted backfill in the anchor trenches, which is consistent with the compaction effort noted in the “Permanent Anchor Trench Detail” on Drawing No. E8/Sheet 10 of 15.
 - ii. Specify field QC testing methods and frequencies on the compacted backfill in the anchor trenches.

9. (Section 4.1) This CQA Plan shall be prepared for constructing all landfill components described in the permit application including final cover systems; therefore, please revise the Contractor's responsibility by adding "**construction of final cover system and gas venting system**" in the third sentence of the fourth paragraph of this Section.
10. (Sections 4.2.2) Please address the following concerns:
 - i. In the Paragraphs (c) & (d), please replace the ASTM Method D2488 by D2487 in consistent with the Section 4.2.10 (c) & (d).
 - ii. In the Paragraph (l), please add "and mixed in the field using either a plug mill or a soil stabilizer." to the end of the second sentence in consistent with the Section 4.2.10 (l).
 - iii. In the Paragraphs (h) & (n), should the area requires to be reworked or replaced also be retested? Please clarify.
11. (Sections 4.2.2.(c) –Destructive Testing, on page 214) Please add the specification of "the tensiometer that has a constant separation rate of 2.0 inch per minute for peel and shear" to this subparagraph (2) Procedure for Destructive Testing.
12. (Section 4.2.10) Please address the following concerns:
 - i. In the Paragraph (i) please add "or other holes created by survey stakes, etc." to the 7th sentence in consistent with the Section 4.2.2 (i).
 - ii. In the Paragraph (m) please add "such as tire ruts" to the end of the last sentence in consistent with the Section 4.2.2 (m).
 - iii. In the Paragraph (n) please add the retest requirement on the repair cap area in consistent with the Section 4.2.2 (n).
13. (Section 4.2.11 – Preparation for Geomembrane Deployment, Paragraph (c) – Verification, on page 227) The CQA testing properties and frequencies shall be consistent with Section 4.2.4. Therefore, add the following paragraph to the Section 4.2.11.(1) Paragraph (c):

The Engineer will remove a sample from 1 out of 4 rolls delivered to the site and have a third party lab test for thickness, density, carbon black content & dispersion, and all tensile properties. The lab will have been accredited by the Geosynthetic Accreditation Institute (GAI)."
14. (Section 4.2.11.(5) – Test Seam; (b) Sample Procedures, on page 229) To consistent with the sample procedures described in the Section 4.2.4.(5)(b) please add the following specification to the procedures.
 - i. After the first step of the procedure, the second step shall be "Two random samples one (1) inch wide shall be cut from the test seam."
 - ii. Add the specification of "the tensiometer that has a constant separation rate of 2.0 inch per minute for peel and shear" to the third step.
15. With respect to the testing of interface friction angles between the components consisting of the final cover system, the technical specification must be prepared and describe: testing methods and frequencies, and the minimum interface friction angles between:
 - i. The 24-inch-thick Protective Soil Cover and the 250-mil-double-bounded drainage composite.
 - ii. The 250-mil-double-bounded drainage composite and the 40-mil LLDPE.
 - iii. The 40-mil LLDPE and the 18-inch-thick compacted clay liner

The specified minimum interface friction angles must be equal to or exceeding those designed values concluded from Section 2.2.9 in the Engineering Plan.

Section 5.0 Operations Plan

16. (Section 5.1, 5th Paragraph, on Page 245) Please address the following concerns:
 - i. Since the Section 5.3 -Appendix I describes the Waste Screening and Inspection Plan, the reference of the Appendix I analyte for groundwater and surface water sampling in Section 5.3 of the Operations Plan is incorrect. Please provide the correct reference.
 - ii. Please add the locations of new groundwater monitoring wells – MW-19S, MW-19D, & MW-20 and surface water monitoring point SW-3 to the Drawing P8/Sheet 10 of 11.
17. (Section 5.2.2) Please delete “Section 5.4-Appendix II” from the subparagraph b of this subsection which is not relevant to the cover material requirements.
18. (Section 5.2.12) According to the Section 3.6 of the Groundwater and Surface Water Sampling Analysis Plan in the approved Design Hydrogeologic Study, leachate samples will be collected from two locations: Lagoon for Phase 1 area and LE-2 for Phase 2 area. Please describe the sample locations in the Section 5.2.12 and identify and show the sample locations on the Drawing P8/Sheet 10 of 11.

Section 6 Closure Plan

19. (Section 6.6) The material specification of the drainage composite stated in Section 6.6 (Geonet thickness of 220 mils) is inconsistent with that (Geonet thickness of 250 mils) stated in Section 4.2.13 and drawings. Additionally, please specify the weight of geotextile (6, 8 or 10 oz/yd²) of the selected geocomposite. Please clarify.

Please respond the above-mentioned comments and provide the Solid Waste Section one hard copy of the revised portions of the PTC application and the additional information that has not been previously submitted. Please also provide an electronic copy, in the pdf format, of the entire revised PTC application. The Solid Waste Section appreciates your efforts and cooperation in this matter. If you have any questions or would like to schedule a meeting to discuss this matter further, please contact me at (919) 508- 8507.

Sincerely,



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
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