



William G. Ross Jr., Secretary

December 23, 2008

Mr. Danny Bagley, Manager  
Edgecombe County Solid Waste Management Department  
P.O. Box 10  
Tarboro, North Carolina 27886

Re: Comments on Permit Application of Edgecombe County Construction and Demolition Debris Landfill (C&DLF),  
Continued Operations (Application)  
Edgecombe County, North Carolina  
Permit No. 33-01, Document ID No. 6506

Dear Mr. Bagley:

The Division of Waste Management (the Division), Solid Waste Section (SWS) has received the above-referenced Application from the Edgecombe County (the Applicant) and conducted a review of compliance with the Solid Waste Management Rule (Rule), 15A NCAC 13B .0547(4). The SWS hydrogeologist will review the Section C – Corrective Action Permit Modification Application and Water Quality Monitoring Plan in Appendix II of the Section B of the permit application and may request any additional information related to corrective action, water quality monitoring and hydro-geology in a separate letter upon completion of his or her review. This letter is a review of the engineering related portions of the Application, and the SWS needs the following additional information:

#### **Section A – Local Government approval**

1. The property owners' information shown on Figure 1 in Section A of the permit application is different from the one listed on GIS data found at Edgecombe County Property Tax Web pages. Two property owners – Ollen Johnson and Dewey Hudson whose properties share the common border with the Edgecombe County Landfill facility did not present on Figure 1, and their names were replaced by Marshall Dunn. Please clarify. Additionally, if the info from the Edgecombe County Property Tax Web pages are correct, the Applicant did not fulfill the requirement stated in Rule .0536 (c)(11)(C).

#### **Section B – Operation Plan**

2. The Operation Plan needs to describe the proposed facility plan which is approved by the Edgecombe County Commission Board. The facility plan is a conceptual plan for the development of the entire C&DLF facility and is prepared in accordance with Rules .0537 (d)(1), (e)(1), (e)(2), and (e)(3). Please provide the facility plan and related drawings.
3. The C&DLF facility shall be developed by a phased approach. Please describe how the facility will be incrementally developed (or fill sequences) from the existing base grades on top of the closed MSWLF to the final grades shown on Drawing 3 of 10 in the Section B. The Applicant needs to describe the total gross capacity of the proposed C&DLF in its projected 46-year life term and estimated gross capacity for the every 5-year developing phase of the C&DLF facility. Topographic and cross-section drawings to show the proposed phased development need to be provided as well.
4. The wastes including yard wastes, white goods, and used tires are received at the C&DLF according the Division Facility Compliance Audit Report dated March 20, 2007. The Operations Plan must describe how the above-

mentioned wastes be managed on-site including, but not limited to, waste segregation (need to be incorporated to the waste screening and segregation plan), estimated waste amount per week or month, temporary stockpile and storage locations, schedule of off-site removal, prevention surface water from contacting wastes, and the maximum tonnage will be allowed to store at any time at the facility. The information of the companies that have contracted to Edgecombe County to haul and process the recyclable wastes off-facility need to be provided in the Operations Plan. The total amount of each of the recyclable wastes must be documented in the operating record. Scales shall be used to weigh the amount of recyclable waste.

5. (2.4 Waste Screening and Acceptance Program) The written agreement or proof of arrangement for handling hazardous wastes and substances found at the C&DLF between the Edgecombe County hazardous material emergency response team and the Applicant needs to be appended to the Operation Plan and be a portion of the permit application. Additionally, the Operations Plan needs to address what kinds of fire fighting equipment are available on site? Are the compactors and other facility equipment equipped with proper fire extinguishers?
6. (6.3 Equipment) The written agreement or proof of arrangement for the fire-fighting services at the C&DLF between the Princeville Fire Department and the Applicant needs to be appended to the Operation Plan and be a portion of the permit application.
7. (8.0 Erosion and Sediment Control) The Erosion and Sedimentation Control Plan needs to get approval from the Division of Land Resources, Land Quality Section prior to submitting the permit application.
8. On Drawings 2 of 10 through 5 of 10, the green broken lines are noted as "Limit of Waste." Is this the limits of wastes of the closed MSWLF on which the existing C&DLF is seated? Please clarify.
9. There are three sediment basins (SB-1 through SB-3) shown on Drawing 3 of 10. Which sediment basin is existent and currently used, and which one is the proposed one? Please clarify.
10. The scale of Drawing 4 of 10 is incorrect. Please make necessary revision.

#### **Section B, Appendix II – Water Quality Monitoring Plan (WQMP)**

11. Several piezometers on Figure 2 are proposing to be abandoned. The WQMP needs to describe the well abandonment procedures and notification requirements. Please revise the plan accordingly.
12. The plume of each constituent of concerns and groundwater flow directions need to be presented on Figure 2 so that if the effectiveness and validity of the proposed the groundwater monitoring network can be examined by the Division. Please add the delineated plume(s) and groundwater directions to the Figure 2.
13. Please also add the following information to the Figure 2:
  - Surface water flow directions including Jerry's Creek & Wright's Creek and other drainage features (ditches – intermittent or perennial & ponds) around the landfill.
  - The trench drain discussed in the Section 4.1.
14. The Section 2.6.2 (last sentence of the first paragraph) said that "the drainage ditch was designed to transport surface water and groundwater around the perimeter of the waste boundary." Have there discharging points of groundwater to the drainage ditches been identified yet? If so, please add the discharging points to the Figure 2, and the characteristics and findings of the relationship between on-site groundwater and surface water shall be discussed in the surface water monitoring plan.
15. The WQMP must discuss the sampling protocols (such as sequence - from least to most contaminated wells or monitoring points), PPE, health and safety, decontamination procedures, disposals of investigation derived wastes. Please revise the sampling plan accordingly.

### **Section B, Appendix III - Gas Monitoring Plan (GMP)**

16. Is there any reason why the gas monitoring wells, GW-1 (on Drawing 2 of 10 in Section B) and GW-2 (shown on the Figure 2 in the GMP) are not selected as the component of the proposed methane gas monitoring network. Additionally the well GW-1 was not shown on the Figure 2 in the GMP. Please make necessary correction.
17. Please explain why the proposed methane gas monitoring network does not cover the residential areas in the proximity of the landfill.
18. The GMP needs to address the current status of the gas monitoring wells proposed to be used for gas monitoring. If the wells have been installed previously, the well logs (including survey coordinates) and historical monitoring data need be submitted with the permit application. If the wells are proposed to be installed after the permit is approved, the Applicant must provide the Division the specification for the gas well installation in the CQA Plan. Upon completion of the well installation, the soil boring log, well log, and other pertinent information shall be submitted to the Solid Waste Section Hydro-geologist for review and approval. Please revise the GMP accordingly.
19. A proposed barrier wall shown on Drawing 3 of 3 in the Section C – Corrective Action Permit Modification Application will be constructed in the areas where several gas monitoring wells are located. It is evidently some wells will be separated by the barrier wall (located on the either sides of the wall). The GMP needs to address whether or not the presence of the wall will have influence on the effectiveness of gas monitoring.
20. The Section 2.3 discussed to probe the area around the gas outbreak and document the measured methane gas concentration. What will be the countermeasures if the high gas concentration (greater than 25%LEL) is consistently detected at the gas outbreak area in consecutive sampling events? Additionally, how will the “probed” hole in the final cover are repaired?

### **Section D – Closure and Post-Closure Plan**

21. (2. Closure Plan & Table A) The Closure Plan needs to explain how the largest area to be closed (have the C&D wastes currently been spreading over the entire 35.4-acre area?) was determined and to mark this proposed closed on the drawings in this Section D. The drawings in this Section D are duplicates of the Section B, and they should be more specifically related to the closure of the estimated of the largest area at any time during the active life [Rule .0543(d)(2)]. Please revise the drawings accordingly.
22. (2.1.1 Low permeability Layer & Section C) The Rule .1627(c)(1) requires the cap has “ a permeability less than or equal soils underlying the landfill, or the permeability specified for the final cover in the effective permit, or a permeability no greater than  $1.0 \times 10^{-5}$  cm/sec, **whichever is less.**” What is the permeability of the foundation soil underlying the C&DLF which is the final cover for the closed MSWLF? Please provide the permeability testing results of the foundation soil and sample locations relative to the landfill footprint to support the proposed permeability of soil cap. If the above-requested data are not available, the alternative soil cap system consisting geosynthetic material and earthen material may be warranted and proposed in the Closure Plan. Additionally, the capping is considered as one of the pivotal components of the proposed corrective action plan to ensure the success of contaminant source control, the alternative soil cap system for the C&DLF consisting geosynthetic material and earthen material may be warranted and proposed in the Closure Plan.
23. What will be the proposed side slopes for the closed C&DLF? Please specify the slopes (horizontal to vertical) in the context and drawings. The final cover system needs to designed in considerations of the slope stability including the veneer slope stability and global (entire landfill structure integrity) stability. Please provide the slope stability analysis data to support the final cap design. And the soil engineering properties including shear strength, density, and/or internal friction angle used for designing the final soil cover system must be considered as the minimum criteria to select the earthen material and be field tested in according to the requirements specified in the Construction Quality Control and Quality Assurance (CQA) Plan.

24. The details of the proposed cover system on Drawing 7 of 10 shows a 12-inch-thick intermediate soil cover over the wastes; however, this cover was not described in the Section 2.1- Cap System. Please revise the context by adding the description of the intermediate soil cover over.
25. The Applicant should provide document (construction plans, test schemes, and specifications) for quality assurance and quality control of the proposed cap construction to meet the requirement of the Construction Quality Plan (CQA) (Rule .1621) and Construction Quality Report [Rule .1624(b)(16)(A)(ii)].
26. (2.1.1 Low-Permeability Layer) Are there any testing results to show the earthen material from Borrow Area 1 proposed for constructing the final cover meets the hydraulic conductivity requirement –  $1 \times 10^{-5}$  cm/sec? Based on the soil laboratory testing, the relationship between the soil compaction effort and the hydraulic conductivity needs to be established and present in the CQA plan. The index tests and soil classification tests are not adequate and sufficient to prove the earthen material from Borrow Area 1 suitable for the cap system.
27. There are approximately 60 methane gas vents/wells are shown on Figure 2; and the Section 2.1.3 mentioned that “Four vents within the active C&D Landfill were recently extended using schedule 40 PVC pipe....” Is this a vertical or lateral extension? Does the 60 gas vents currently exist on-site? Please clarify. If the gas vents are proposing to be installed in the future, the Applicant may want to design and construct the gas venting system for combing landfill gas removal from the proposed C&DLF and the underlying closed MSWLF. Additionally, the Section 2.1.3 needs to describe the future layout of the gas vents in the areas currently encompassing the C&D wastes.
28. (2.1.4 Alternative Cover System) The Closure Plan needs to describe in a more detail manner of the alternative cover system including, but not limited to, the characteristics and engineering properties of low-permeability barrier and GCL, the drainage layer (geocomposite layer), gas migration layer, and so on if the Applicant wants to obtain the Division’s approval of this alternative cover system. Additionally, does the proposed 6-inch thick erosion layer provide sufficient water retention for the vegetation growth? Please clarify.
29. (2.4 Estimated Maximum Inventory Wastes) The Closure Plan needs to describe, by providing supporting document and calculation, how the estimated maximum inventory wastes (for the Closed MSWLF and proposed C&DLF) were evaluated.
30. (2.5 Closure Schedule) Following closure of each phase of landfill, a CQA report required by Rule .1624(b)(8) and or (b)(9) if alternative cover system is approved and implemented, must be submitted to the Division for a review and approval. Please add the requirements to the Section 2.5.
31. There is a point on the upstream side of the existing sedimentation pond and called “Leachate” on Figure 2. Is this a surface water monitoring point or a leachate collecting point? Additionally, there is a point called “Pond” on Figure 2. Is this a NPDES Permit sampling point? Please clarify.
32. The Post-Closure Plan needs to discuss the surface water structure (sediment basins and drainage features) maintenance, and the associated costs listed in the cost estimate. Have the maintenance of sediment ponds and erosion control BMPs been included in the post-closure care costs? Additionally, the plan needs to propose the report and response procedures to ensure any observed damage getting properly repair after a scheduled inspection. Please revise the Post-Closure Plan accordingly.
33. Please describe the leachate management procedures in the event that leachate seeps out of the closed unlined MSWLF overlain by the C&DLF unit during the 30-year post-closure care period. The related costs for leachate management need to be included in the cost estimates for post-closure care.

34. (Table A) Does the cost estimate for the final cap take into account shrinkage factors for the compacted clayey soil? How are the quantities of laboratory testing (Task 8 of the cost estimate) determined? Has the fee for record a notation on the deed to the landfill facility property been included in the cost estimate?
35. (Table B) The Post-closure cost estimate proposed two (2) surface water monitoring points which contradicted to proposals stated in the Section 5 of the Water Quality Monitoring Plan, five (5) surface water monitoring points and sampling points required by the site-specific NPDES Permit. Please clarify.

**Section D, Appendix I – Borrow Area Wetland and Geotechnical Evaluation**

36. Since the wetlands in the proposed borrow areas was identified in the permit application as having jurisdictional wetland status, the written USACE wetland jurisdictional determination must be provide and appended to the Application. Additionally, a plan that address protection measures of wetlands, drainage features, and surface water quality in the close proximity of the borrow areas from land disturbance and excavation activities in the proposed borrow areas needs to be submitted to the Division of Water Quality for a review and approval. Any statutory requirements in Rules 15A NCAC 02B .0255 - .0261 must be address in the plan which must be approved by the Division of Water Quality. The Division will not issue a Solid Waste Manage Permit without receiving and reviewing the above-mentioned documents which shall be a portion of the Application.
37. Is the soil volume in the borrow areas sufficiently meet the requirement for daily cover and final cover? Please clarify.

**Corrective Action Plan**

Please provide the “Reference” section to list all submittals and the Division-approved documents related to the groundwater corrective actions.

The Division 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 myself at (919) 508- 8507 or Donna Wilson at (919) 508-8510.

Sincerely,



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

cc: John A. Moody, P.E., S&ME, Inc.  
Ed Mussler, SWS  
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