



## NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

Division of Waste Management

Pat McCrory  
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### Solid Waste Section

October 25, 2013

Mr. Joseph Jeffries  
Deputy County Manager  
PO BOX 759  
Lillington, NC 27546

**Subject:** Comments on Permit Amendment Applications for Continued Operation in Compliance with Solid Waste Management Rule 15A NCAC 13B .0547(4) Dunn-Erwin Construction and Demolition Debris Landfill (C&DLF) Harnett County, North Carolina, Permit No. 4302-CDLF-1998, Document ID No. (Doc ID) 19850

Dear Mr. Jeffries:

The Division of Waste Management (DWM), Solid Waste Section (SWS) has completed a review of the following documents titled:

- Letter (**Document A, Doc ID 5060**) that is prepared by CT Clayton, Sr., P.E., Inc. and dated June 26, 2008 contained the following documents:
  - i. Zoning approval Letter dated June 19, 2008.
  - ii. Resolution Letter adopted by the Harnett County Board of County Commissioners dated June 16, 2008.
  - iii. Financial Assurance document dated June 25, 2008.
  - iv. Public Notice.
  - v. Operations Plan.
  - vi. Closure Plan.
  - vii. Air Space Analysis.
  - viii. Additional information related to final cover system of the C&DLF.
- “*Harnett County, North Carolina Dunn-Erwin Construction and Demolition Debris Landfill, Request for Fill Plan Modification, Permit # 43-02.*” Prepared by CT Clayton, Sr., P.E., Inc. and dated July 26 2013 and received by SWS on July 29, 2013. (**Document B, Doc ID 19849**)

Based on the review the SWS has several comments on the above-mention application documents which stated below:

### **Document A (Doc ID 5060)**

1. Pursuant Solid Waste Management Rule (Rule) 15A NCAC 13B .0547(4), please submit a complete local government approval documentation stipulated in Rules .0536(c)(11)(C) & (D) including a Facility Plan which must be prepared according to Rules .0537(d)(10), (e)(1) through (e)(3), letters sent and notified property owners of all property that shares a common border with the landfill property, and the July 14 2008 public meeting record/document.

### Closure Plan

2. (Section 1.1) The submitted Closure Plan shall be a final plan and prepared according to Rule .1627, not a guide, and be ready for implementing the scheduled or the unexpected closure activities. However, an updated Closure Plan with an alternative cover system including a construction quality assurance plan can be submitted for a review approval at least ninety (90) days prior to closure or partial closure of any landfill unit/cell. The revised plan must be prepared in accordance with applicable statutes and rules in effect at the time of closure and will be subject to a permitting fee. Please revise the section accordingly and provide a Closure Plan and related drawings.
3. (Section 1.2) Please address the following concerns:
  - i. According to Rule .0547(4)(d), the closure criteria for the C&DLF on top of the closed MSWLF must follow the Rule .1627, not .0543. Please make necessary correction.
  - ii. This Section must provide the proposed total gross capacity (Comments No. 4 & No.18) and the largest area of the C&DLF subject to closure (approximately 14 acres) at any time during the active life described in Section 2.0 & Section 5.0 –Airspace Analysis of Document B (Doc ID 19849).
4. (Section 1.3) Please address the following concerns:
  - i. The description of the final cover system is inconsistent with that (Typical Cap detail) shown of the Sheet 3 of 7 and the Section 5 - Air Space Analysis of the Document B (Doc ID 19849). Please clarify.
  - ii. The proposed side slope for the final cover system is at a maximum slope of 3 (horizontal) to 1 (vertical) which is inconsistent with that (4 to 1 slope) shown on “Detail 3” of drawing Sheet 2 of 2 (Document A), the cross-sections “Section A-A” and “Section B-B” on drawing Sheet 3 of 7 of the Document B (Doc ID 19849). Please clarify.
  - iii. Please propose a range of final grades/slopes of the top deck area of the final cover system [Rule .1627(c)(3)(A)].
  - iv. Please describe the devices and procedures to remove explosive gas inside the closed C&DLF such as installation gas vent (the rule of thumb - one vent per acre of closed area) or landfill gas collection and removal system which may be incorporated into the existing gas removal system described in Section 2.0 of the Document B (Doc ID 19849).

(Referring Comment No. 56 as well) Have there gas monitoring wells been installed around the perimeters along the landfill property. If the answer is yes, please provide gas monitoring plan and drawings of the existing gas well locations, which can be a portion of site monitoring plan under a separate cover. If not, please explain the reason (s) why the explosive gas is not monitored at this landfill facility boundaries [Rule .1627(d)(1)(D)].

5. (Section 1.7) Please provide the CQA Plan for properly constructing the proposed final cover system and gas vent system; the plan must be prepared according to Rules .0547(4)(d) & .1627(c)(3).
6. Please provide a cost estimate for the planned closure activities; the estimates must be prepared according to costs associated the tasks described in the Closure Plan.

### Post-Closure Plan

7. (Section 2.1) Please add the explosive gas monitoring to the Bullet Item 2.
8. (Section 2.2) Please update the contact information.
9. (Section 2.4) During the post-closure period the routine monitoring, inspection, maintenance, and/or repair (MIMR) activities shall include the following tasks/items in addition to those mentioned in the Section:
  - i. The permanent edge markers defined the waste boundaries.
  - ii. The prevention or remediate leachate breakout.
  - iii. The on-site sediment basins.
  - iv. The explosive gas monitoring networks and gas wells/vents.
  - v. The MIMR of vegetation including re-seeding, mowing consistent with the maintenance requirements described in Section 1.14 of the Document B.
  - vi. The MIMR of roads to access final cap system and monitoring networks.
  - vii. The operation and MIMR of the Leachate Management System including the on-site pumping station.
10. (Section 2.4.5) Please provide the copy of the current GMP and/or its amendment (s) appended to Document A (also referring Comment No. 56).
11. (Section 2.5) The additional tasks mentioned in **Comment No. 9** must be added to the routine inspection lists and Table 2.1.
12. Please provide a cost estimate for the minimum 30-year post-closure cares. The cost estimate must be prepared according to costs associated the tasks described in the Sections 2.4 & 2.5 of the Post-Closure Plan which must cover the C&DLF and the closed MSWLF (Phase III) which is underneath the C&DLF.
13. The following documents are assumed to be replaced by the new submittals contained in Document B (19849) which includes Air Space Analysis and Operations Plan; therefore, the SWS will not make any effort to review these documents at this time. If the assumption is incorrect, please provide the instructions of which document or which portion of the document is still applicable.

### **Document B (Doc ID 19849)**

14. (Section 2.0, Site History) The Dunn-Erwin Landfill facility contained a lot of solid waste management facilities (SWMFs) such as:
  - Closed landfill units (Phases I & II) including unlined MSWLF, Demolition Landfill, Asbestos Monofill, Used Tire Monofill.
  - Active landfill units including Dunn-Erwin C&DLF on top of the closed unlined MSWLF (Phase III) and a LCIDLF.
  - Dunn-Erwin MSW Transfer Station operating under a separate Solid Waste Management Permit Number – 43-07T.
  - Miscellaneous recycling units including white goods/scrap metal unit, used tire unit, battery collection unit, yard waste collection and treatment/process unit, convenience center/waste drop off center, etc.

Since the SWS is planning to issue Harnett County Dunn-Erwin Landfill Facility a single permit which will regulate the operations of all SWMFs, it is imperative that this Section, at a minimum, provides

- i. Chronological permit activities of the closed and active SWMFs.
- ii. The site-specific info related to the active Dunn-Erwin C&DLF and the closed unlined MSWLF (Phase III) underneath the active C&DLF, such as the beginning date of receiving waste and/or date of ceasing waste operating and completion of closure, the historical disposal rates, waste boundaries, the final fill elevations, the side slopes of final fills, etc.
- iii. The progress of the groundwater corrective actions according to the approved Corrective Action Plan associated with the closed MSWLF (Phase III) [Rule .0547(c)].

Referring Comment Nos. 24 & 25, the locations of the SWMFs must show on the Operation Plan Drawings, and the Operations Plan must address how the SWMFs is managed at this landfill.

15. (Section 2.0, Site History) A mechanical gas venting system was installed in the area of the final cap overlying the compacted municipal solid waste. Please address the following concerns associated with the gas venting system:
  - i. Please describe the details of the gas venting system including, but not limited to, the dates of completing and operating the system, the number of gas wells/vents installed/operated, the well identifications, and well depths, the current status of wells/vents, piping (header and lateral) material & diameter, piping bedding requirements, fittings, condensate trap/removal devices, and the gas collection/control/destroy measures and mechanisms, and the valid air quality permit (a copy of the valid permit shall be appended to the Application).
  - ii. Referring the Comment No. 4, please provide a plan if the existing gas venting system will be connected to the gas wells/vents to be installed during the course of the site closure.
16. (Section 3.0) The referenced rule is incorrect. Please make necessary correction.
17. (Section 4.0) Please address the following concerns:
  - i. Please detail the proposed containment earthen berm including, but not limited to, berm configurations – length, width (top & toe), elevations (above mean seal levels) of the top and toe, side slopes.
  - ii. Summarize the minimum criteria of the engineering properties (density, soil strength – cohesion and internal friction angle, soil type, etc.) that the constructed earthen berm must be constantly processed to resist any external loads/forces according to the Slope Stability Evaluation in Appendix V.
  - iii. The stormwater and erosion and sediment control calculations are placed in the Appendix VII, not Appendix VIII. Please correct the typo.
  - iv. Please provide detailed construction procedures of how to bind or “key” the proposed earthen berm to the existing grades into an integral unit, at both vertical (downward) and lateral (east and west wing of the containment berm) directions. The descriptions of the “key” throughout this Application is inconsistent; the Section 3.2.1 of the CQA Plan (Appendix VI) failed to describe the typical construction procedures of “key” as shown the drawing Sheet 3 of 7. Additionally, for an earthen (gravity) retaining structure, according to the general civil engineering and construction practices, the “key” of the structure base is normally protruded or placed or embedded into subgrade for certain feet, not on the existing ground surface so that the additional resistance against the structure failure due to sliding force/gravity can be generated.
  - v. Because the perch water/leachate seated at the up-gradient toe of the earthen berm (interior/waste side) is expected (which is consistent with the Containment Berm Construction Note No. 5), without

- leachate removal system and embed key structure, please describe how to prevent leachate seep out of the bottom of the toe (exterior side of the berm) via the interface between berm base and existing grade.
- vi. The Containment Berm Construction Note No. 5 in drawing Sheet 1 of 7 doesn't address how to disposal of the collected "surface water" which is potentially a leachate according to the definition of leachate [Rule .0101(24)]. It is imperative that the Engineering Plan provides approaches or practices to remove potentially leachate build up in the waste behind the containment berm during the daily operation and the post-closure period. Please be advised that the excessive pore water pressure buildup behind an earthen retaining structure is one of the main reasons that result in the failure of the retaining structure and/or leachate breakout at or near the berm toe areas.
  - vii. If there is a stormwater segregation structure to be used to clearly separate stormwater and leachate at the landfill, please provide the detailed descriptions of operating this segregation structure in the progress of waste filling sequences.
  - viii. Please describe how to protect the existing leachate sump # 2 inside the proposed "piggyback" waste disposal area in consistent with drawing Sheet 1.2.6 of 8.
  - ix. Please explain which portions of the Leachate Management System are subjected to modifications and why the modifications are necessary.
18. (Section 5.0) Please address the following concerns:
- i. Please provide the historically annual disposal rates and compaction rate (in-place waste density) according to the data collected from the on-site scale. The data will be used to justify the proposed annual disposal rate which is used to calculate the projected remaining service life of the C&DLF.
  - ii. Please provide in-place waste volume of the closed MSWLF (Phase III) underneath the CDLF and the gross capacity of the C&DLF as defined in Rule .0537(e)(2)(B) which includes net waste volume, periodical soil cover volume, and final cover system volume.
  - iii. The projected year that the C&DLF will terminate waste operation if the estimated annual disposal rate is not changed.
19. (Section 6.0) The CQA Plan is also required for the final cover system which must meet the requirements stated in Rules .1621, .1624(b)(8), (b)(15), & (b)(16), and .1627 (referring Comment No. 5). Please revise this Section accordingly.
20. (Section 7.0) In addition to the approval letter, please provide a copy of the Erosion and Sediment Control Plan for this C&DLF approved by the NC Land Quality Section.
21. (Section 8.0) The mentioned modification is placed in Appendix VI, not Appendix VII. Please correct this typo.
22. (Appendix I) The total acreages shown on the property deed is approximately 213.61 acres which is different from the acreage of 296 acre described in the Section 2.0. Please clarify.
23. (Appendix II) The zoning letter is related to the on-site waste transfer station (Dunn-Erwin Transfer Station). Please provide the zoning letter from Harnett County with regard to approval of waste disposal at this C&DLF.

24. According to the Facility Compliance Audit Report there are several miscellaneous waste management units operating within the landfill facility including convenience center/waste drop-off area, white goods, and used tires. The Operations Plan must describe how the wastes in these units be managed on-site including, but not limited to:
- Waste segregation plan (incorporated into the waste screening and segregation plan).
  - Estimated waste amount per week, month, or year.
  - The approaches to proper removal of chlorofluorocarbon refrigerants from white goods.
  - Schedule for off-site removal of the recyclable wastes.
  - Post sign/label to identify the unit for collecting acceptable wastes such as used motor oil must be placed inside a double-wall container with legible label – “USED OIL”.
  - Measures and BMPs for prevention surface water from contacting wastes (electronic wastes & battery must be placed on an elevated pad (such pallet) and used/scrap tires placed inside covered structures).
  - The maximum tonnage or volume will be allowed to store at any time at the facility.
  - The information of the companies that have contracted to Harnett County to haul and process the recyclable wastes off-facility.
  - 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.
25. Please provide the Operation Drawings according to Rule .0542(b)(1). The additional air spaces generated from this “piggyback” proposal must be incorporated into the progression of fill sequences in the next five-year periods. The Containment Berm Construction Note No. 6 in drawing Sheet 1 of 7 doesn’t provide the waste fill sequences in the new constructed “piggyback” area.
26. The Dunn-Erwin Landfill Facility is accepting asbestos waste or spent asbestos containing material (ACM) in the asbestos monofill, although not in the C&DLF unit for disposal. Please add the operation plan for asbestos waste disposal according to Rule .0542(c)(2). The monofill location must be shown on the Operation Drawings (see Comment No. 25).
27. (Section 1.1.1) The landfill operation hours for Mon., Tue., Thur., & Fri. is from 7:30 a.m. to 4:00 p.m. according to the info shown on landfill web site. Please verify and confirm the operating hour.
28. (Section 1.3) Please address the following concerns:
- i. (Section 1.3) The landfill facility also accepts LCID in the LCIDLF unit. Please add this waste stream to this Section and indicates the Operations Plan for the LCIDLF is prepared under a separate cover and submitted the SWS for a review and approval (referring Section 1.3.2).
  - ii. (Section 1.3.1, fourth paragraph) Yard trash is not permitted for disposal in the C&DLF unit but is acceptable waste stream in the LCIDLF unit or yard waste T&P unit, if applicable as described in Section 1.3.2. Please add this clarification so that this paragraph is consistent with the description stated in the first paragraph of the Section 1.3.
  - iii. (Section 1.3.3) Add the following wastes to the Prohibited Waste List – Septage, Sludge, and Special Wastes as defined in NCGS 130A-290(a)(32), (34), and (40), respectively.
  - iv. Please address the time frame for reporting the incident stated in Rule .0542(c)((1). Additionally please update the contact info of the NCDENR:

Raleigh, NC 27699-1646  
Phone: (919) 707-8200

- v. Please address the requirements stated in Rules .0542(d) & .0542(e)(18).
29. (Section 1.4) The waste screening plan must be prepared for the operators conducting daily operation at the C&DLF, not for the waste transfer station. Please make necessary corrections throughout this waste screen plan.
30. (Section 1.5) The last paragraph on page 9 of 19, the referring Section 6.6 is likely a typo. Please make necessary correction.
31. (Section 1.6) In addition to the inspection form, please add the narrative “Landfill Inspection Plan Update” (The SWS Doc ID 8967) to this Section.
32. (Section 1.7) Please address the following concerns:
- i. Pursuant to Rule .0542(f)(1), the frequency to place the cover material over waste is not constant period but also dependent on the size of the working face (greater than one-half [0.5] acres) or at least once a week, whichever comes first. Please revise the frequency accordingly.
  - ii. The plan must provide approaches or mobile devices (such as traffic cones, stakes, concrete blocks, or the combinations) to assist the operator to size the working face of 0.5 acres.
  - iii. Pursuant to Rule .0542(f)(1), please add the record requirement of placing periodic cover over waste to this Section.
  - iv. Pursuant to Rule .0542(f)(2), the area that has been inactive for three (3) months must be placed over at least one-foot intermediate cover which must be stabilized by specified vegetation within 21 calendar days according to the approved Erosion and Sediment Control Plan. Please revise the last paragraph accordingly.
33. (Section 1.8) please describe the progression of waste landfilling incorporating the additional waste space created from the construction of proposed containment berm. The fill progression for the next 5 years must be shown on the operation drawings (see Comment No. 25)
34. (Section 1.9) Does the landfill facility require submitting US EPA Greenhouse Gas Report annually? Does the flare/blower station associated with the existing landfill gas collection and control system (LFGCCs) require a NC air quality permit? Please address these concerns. If an air quality permit is required for the LFGCCs, please provide a current copy to this Application.
35. (Section 1.10) For approval of open burning, please add the following new requirement (in italic format) to the Section. *“Prior to any burning, a request must be sent to the SWS for review and approval. In addition, the Division of Air Quality and local fire department must approve the activity prior to burning.”* Additionally, this Section must add the record keeping requirement for the approved open burning [Rule .0542(i)(2)].
36. (Section 1.11) No water can be used as a dust suppressant that is spread over working face because this practice is intentionally applied liquid onto waste (liquid waste is one of the prohibit wastes) and because this C&DLF is not constructed with rule-required base liner system and leachate collection and removal system. Please revise this Section accordingly.

37. (Section 1.12) Please address the following concerns:
- i. Are the on-site equipment and machinery (such as dozers, loaders, & compactors) around the working face of the C&DLF equipped with fire extinguishers? Please clarify.
  - ii. There is no Appendix X in this Application; however, the notification form is attached to the Operations Plan.
  - iii. The referenced Rule .0505(10)(c) is incorrect for a C&DLF; the correct Rule is .0542(i)(4).
38. (Section 1.13) Please add a sub-section to address the requirements stated in Rule .0542(j)(8).
39. (Section 1.14 & Appendix VII) Please address the following concerns:
- i. Pursuant to Rule .0542(k) and the Sedimentation Pollution Control Law (15A NCAC 4), the establishment of vegetative cover over the intermediate and final covers shall be added to the list of BMPs to control erosion and sedimentation. Please revise the first paragraph accordingly.
  - ii. Please describe how to dispose of the removed sediment and collect trash/debris from the on-site erosion/sedimentation control devices.
  - iii. This Section described that the erosion control structures are designed to handle and manage the runoff generated by a 24-hour & 10-year storm event, but the Run-off Calculations in Appendix VII were based on a 5-minute & 10-year storm event. Please clarify.
  - iv. Please provide a copy of approval letter and the approved Erosion and Sediment Control Plan covering the proposed final cover system, the proposed Sediment Basin #2, and the proposed containment berm. The approved documents issued by NC Land Quality Section must be placed in Appendix VII.
  - v. Please confirm the proposed time frame – seven (7) calendar days for accomplishing a vegetative cover upon completion of any phase of the C&DLF development.
40. (Section 1.15) Please describe the daily practices to place and compact wastes at the working face to avoid wastes from being disposed in standing water such as forming/grading a sloped working face to facilitate drainage.
41. (Section 1.16 and Appendix VI) Please address the following concerns:
- i. The “Phase 1 Leachate Management Plan” is approved for Anderson Creek C&DLF. Please delete the irrelevant information.
  - ii. Please describe the leachate management system which is a portion of the on-going corrective action plan to remediate the impacted groundwater underneath the unlined MSWLF (Phase III) overlain by the Dunn-Erwin C&DLF.
  - iii. If the leachate management system project is completed, please provide the as-built drawings to this Application
42. (Section 1.17) Please add the documents and records to the operating records at the C&DLF:
- i. Closure and Post-Closure Plan and closure and post-closure certifications and reports [Rule .0542(n)(1)(D)].
  - ii. Cost estimates for closure and post-closure care activities and financial assurance document [Rule .0542(n)(1)(E)].
  - iii. The notation of date and time of placement of cover material [Rule .0542(n)(1)(F)].
  - iv. The written document (s) approves an open burning event [Rule .0542(i)(2)].

- v. All permits and approval documents including Operations Plan, monitoring/sampling and analysis plan [Rules .0542(n)(2) & .0542(3)]
- vi. All environmental media (groundwater, surface water, explosive gas, and/or soil) monitoring data, reports, analytical results, not just groundwater alone.
- vii. All audit records and compliances records [Rule .0542(n)(1)(G)].

#### Appendix VI - CQA Plan

43. Please address the following concerns:

- i. Pursuant to Rule .0547(4)(d), the CQA Plan must also include the QA/OC requirements and material and construction specifications directly related to installation of the proposed final cover system of the C&DLF (see Comment Nos. 5 & 19). Please add sections and/or arrange the contents of the CQA Plan to address this concern.
- ii. The CQA Plan must provide survey specifications (such as chess-board survey grid/pattern, additional survey points must be provided on the topographic breakpoints - top and toe of a slope) and as-built drawing requirements for construction of both containment berm and final cover system. To avoid any confusion or potential dispute, please state that at sloped areas, the thicknesses of the final cover system are measurements perpendicular to the slopes.

44. (Section 1.2) Please address the following concerns:

- i. The Paragraph 2 is only address the requirement for the final cover system proposed in the Closure Plan in accordance with Rule .0534. This CQA Plan must be used for construction of both proposed containment berm and landfill final cover. Please revise this paragraph accordingly.
- ii. The Paragraph 4 mentioned "Section 5" detailed the documentation requirements. There is no Section 5 in the CQA Plan. Please clarify.

45. (Sections 1.4 & 3.2) Please describe the qualifications of the Quality Control Laboratory (QCL) mentioned in Section 3.2.

46. (Section 1.4.2) For this permit application, an Engineer shall certify that the construction activities for completion of both containment berm and final cover systems according to the rules and approved plans and specifications, not just Rule 15A NCAC 13B .0543(c)(7) alone. Please revise this sub-section accordingly.

47. (Section 2.1) Please address the following concerns:

- i. The Paragraph 3 requires the ERF, rather the Contractor to "conduct" a proof-roll of the subgrade. This requirement is inconsistent with ERF's duty described in Section 1.4.2. Please clarify.
- ii. The testing frequencies specified in Table 1.0 are much less than those used for preparing subgrade at other landfill facilities including Harnett County Anderson Creek C&DLF. Please explain why this proposed testing frequently can guarantee the constructed foundation meet the design requirements.
- iii. Please define the "lift" mentioned in Table 1.0.
- iv. The Table 1.0 must specify the testing methods and frequencies to establish the relationship of density and moisture content (such as Standard Proctor by ASTM D 698) of the subgrade soil underneath the proposed berm.
- v. This Section and Table 1.0 must specify the acceptable subgrade and test protocols to determine if the constructed subgrade meets the established minimum criteria, such as, but not limited to, finish grades/elevations, soil types, soil particle sizes, removal the unacceptable subgrade, the acceptable compaction effort and moisture content ranges (greater than 95% of max. dry density & +/- % of

optimum water content), minimum soil strength (cohesion and/or interface angles) according to the findings/conclusions stated in the Slope Stability Evaluation (Appendix V).

48. (Section 3.1.1 and Table 1.1, Section 3.1.2) Please address the following concerns:

- i. Soil classification method – ASTM D 2487 which is based on the laboratory soil testing results shall be used to officially confirm the types of soil used in the project. However, soil classification method – ASTM D 2488, the visual procedure can be used by a well-trained field technician to randomly examine and confirm if the on-site stockpiled soils or in-placed soils meet the material specification.
- ii. Please specify the maximum hydraulic gradient and confined pressure to be used for the hydraulic conductivity test – ASTM D 5084, which shall be mimic the field conditions.
- iii. Please specify the testing methods and minimum soil strength for the low permeability soil berm.
- iv. The SWS has no objection to use soil/bentonite mixture for the berm material as long as the product can achieve both criteria of hydraulic conductivity and soil strength. Please add the requirements to this Section.
- v. The Paragraph 4 in Section 3.1.2 shall add the soil strength to the development of the “acceptable zone” or development the correlation between the compaction effort and soil strength of the berm material. The same requirements are applicable for the soil/bentonite mixture stated in Paragraph 5, if the product is going to be used as the berm material.

49. (Section 3.2.1) Please address the following concerns:

- i. Please define QCL in Section 1.4. (referring Comment No. 45)
- ii. Please define “Keyed” mentioned in the Paragraph No. 3. A typical drawing to show the “key” of the berm into the underlying subgrade is required as well.
- iii. Paragraph 5 is irrelevant to the “Soil Berm Installation.” Please revise the specification which shall directly relate to the topic – soil berm installation. However, specifications are do required for installing each component of the final cover system – intermediate soil cover/subgrade, clay liner, vegetative layer, gas vent/well, etc. (referring Comment No. 5).
- iv. Please provide the Section 3.3 – Thickness Measurement which is mentioned in Paragraph No. 8.
- v. Please add the following requirement to the construction specification – “Prior to placement of successive lifts, the surface of the lift in place shall be scarified or otherwise conditioned to eliminate lift interfaces.”

50. (Section 3.2.2) Please address the following concerns:

- i. The QA/QC testing locations including the failed ones must be presented in the as-built drawings. Please add these requirements to the specification.
- ii. Please specify how to handle the condition that both soil test results fail to meet the minimum criterion of hydraulic conductivity stated in Section 3.1.1. Because the sampling frequency in Table 1.1 of Section 3.1.2 is one test per 20,000 ft<sup>2</sup> per 4-lifts, should all four lifts be reconstructed and retested for hydraulic conductivity? Please clarify.
- iii. The reconstructed area described in Paragraph No. 4 shall be retested according to Table 1 .1 in Section 3.1.2. If the reconstructed area is less than that specified in Table 1.1, at a minimum of one set of tests – in-place density, moisture content, hydraulic conductivity must be conducted. Please add these requirements to the specification.

51. (Section 3.2.3) The criterion (a desiccation depth is less than or equal to the thickness of a single lift) to trigger the corrective action specified in this section is inconsistent with the one specified in Paragraph No. 10 of Section 3.2.1. Please clarify.

52. (Section 4.0) The third bullet item on Page 13 should include the Rules .0539 through .0543. Please correct the typo.

#### Appendix IV, Engineering Drawings

53. (Sheet 1 of 7) Please address the following concerns:

- i. Please provide ID No of each gas well.
- ii. Since the C&D waste limits (approximately 14 acres) is less than the underlying MSW waste limits (approximately 21 acres), please provide the C&D waste limits.
- iii. Please provide detailed layout and cross-sections to illustrate the Containment Berm Construction Note No. 5.
- iv. According to the Containment Berm Construction Note No. 5, “A gap 5 feet wide at the bottom with 3 to 1 side slops through the berm from ....” The description in Note No. 5 is not consistent with description shown on the “Insert 1.” Please clarify.
- v. What are the side slopes of the interior slope (receiving waste) and exterior slope (daylight)? Insert 1 (Sheet 1 of 7) noted 4 to 1 for exterior side slope and 1.5 to 1 for interior slope; but the direct measurement on drawings (layout and cross-sections on Sheets 1, 2, & 3 of 7 and Sheet 1.2.5 of 16) the exterior slope of the berm is 3 to 1. Please ensure the consistency of the proposed berm slopes through the entire drawing sets and Application.

54. (Sheet 3 of 7) The side slopes of the proposed berm shown on Section A-A are inconsistent with those depicted in “Insert 1” of Sheet 1 of 7.

55. (Sheet 1.2.5 of 16) The “Leachate Line 2 Profile” shows the limits of waste will be relocated from the Station approximately 1 + 55 back to Station 0+80. Please explain why the realignment of leachate line requires relocating waste limits? How much wastes are subjected to removal due to modifying the leachate management plan? Where the in-place waste will be disposed of? Please provide a plan to address the waste removal and site restoration.

56. Pursuant to Rule .0544, please provide the water quality monitoring plan and explosive gas monitoring plan for both C&DLF and LCIDLF units. The document can be prepared and submitted under a separate cover.

57. Pursuant to Rule .0547(4), please describe (or A summary in a tabulate format is acceptable) the progresses of the groundwater remediation underneath the closed MSWLF (Phase III) overlain by the active C&DLF including the milestones – approval & implementation dates for ACM, final remedial section (public meeting date), CAP, the implementing remedial technologies, current sampling results, on-going modification & improvement (leachate management plan), and achievement including the construction of CAP Project 1 – Sanitary Sewer Pump Station, Force Main, & Groundwater Extraction System. If the CAP Project 1 is completed please attach the construction record report including as-built drawings to this Application.

The SWS strongly suggests Harnett County submitting a new permit amendment application by:

- Combining the Documents A & B into a single document – Permit Amendment Application according to Rule .0547(4) including the Facility Plan, Engineering Plan, CQA Plan and technical specifications, Operations Plan, Closure and Post-Closure Plans, Corrective Action Plan Update, and Water Quality and Explosive Gas Monitoring Plan.
- Incorporating all responses to the comments into the new Permit Amendment Application.

If you have questions about the above-mentioned comments or require further clarification or request a meeting to discuss the comment/response requirements, please contact myself at (919) 707-8251 or [ming.chao@ncdenr.gov](mailto:ming.chao@ncdenr.gov).

Sincerely,

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

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

cc:

Amanda Bader, P.E. Harnett County Engineer  
C. Tyrus Clayton, P.E., CT Clayton, Sr., P.E., Inc.  
Pieter Scheer, P.E., Smith and Gardner Engineers, Inc.  
Ed Mussler, Permitting Branch Supervisor  
Robert Hearn, DWM  
Dennis Shackelford, DWM  
Central Files