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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

March 13, 2008

The Honorable Wes Suiter
Angelina County Judge
P.O. Box 908
Lufkin, TX 75902-0908

Re: Angelina County Waste Management Center - Angelina County
Municipal Solid Waste - Permit No. 2105A
Permit Modification – Alternate Final Cover Demonstration
WWC No. 11976665; RN101571131 / CN600833511

Dear Judge Suiter:

We have reviewed your application for a municipal solid waste permit modification received on January 14, 2008, requesting revisions to Part III, Attachment 12 (Final Closure Plan), to allow for an alternative final cover design. The modification included an Alternate Final Cover Demonstration and Final Cover System Quality Control Plan as appendices to Attachment 12.

Our review indicates that insufficient information has been provided to demonstrate compliance with Title 30 of Texas Administrative Code (30 TAC) Section (§)305.70. Therefore, we are unable to complete processing of your request at this time. Please review and address the following comments:

Application Form

1. The TCEQ Part I Application (Form TCEQ-0650) indicated that this modification is without public notice, although the modification included the landowners map and mailing list. This form has also been revised from the original. The form needs to be revised, without alteration from the original form, to indicate that this modification requires public notice. An Adobe PDF copy of Form TCEQ-0650 may be obtained at the following URL:

<http://www.tceq.state.tx.us/assets/public/permitting/waste/msw/forms/0650.pdf>

Final Closure Plan

2. Section 2.1.2 (Alternative Final Cover System) referenced an August 1, 2006 TCEQ rule interpretation of §330.457(d), stating "the infiltration of the standard Subtitle D design must be modeled on the basis of its soil layer and synthetic membrane together." Section 2.1.2 concurs with the referenced rule interpretation. However, this interpretation was a draft and has been subsequently withdrawn from the TCEQ web site. Please delete the reference of this rule interpretation from Section 2.1.2.
3. Section 2.2 (MSW Landfill Units With No Synthetic Liner) stated that approximately 6.9 acres are underlain with pre-Subtitle D compacted clay liners with no synthetic bottom liners. Section 2.2 also states in part:

"... Prior to initiating final closure of this area, *an average of the permeabilities for the underlying compacted clay liner system will be calculated to determine the pre-construction criteria for the final cover system.*

The final cover system for the MSW landfill unit with no synthetic bottom liner will be constructed with an infiltration layer consisting of a minimum of 18 inches of compacted clay with an *average coefficient of permeability* less than or equal to the pre-construction permeability criteria as discussed above or 1×10^{-5} cm/sec, whichever is less. *Additionally, no more than 5% of the measured infiltration layer permeabilities from individual tests will be greater than (sic) 1×10^{-7} cm/sec, with no individual results greater than 5.0×10^{-7} cm/sec.* [emphasis added]

The rule 30 TAC §330.457(a)(2) states:

"For MSW landfill units with no synthetic bottom liner, the clay-rich soil cover layer shall consist of a minimum of 18 inches of earthen material with a coefficient of permeability less than or equal to the permeability of any constructed bottom liner or natural subsoil present. The coefficient of permeability of the infiltration layer shall in no case exceed 1×10^{-5} cm/sec, even though the coefficient of permeability of the constructed bottom liner or natural subsoil is greater than 1×10^{-5} cm/sec or no data exist for the value(s) of the coefficient of permeability of the constructed bottom liner or natural subsoil."

It is unclear how the criterion proposed for the coefficient of permeability in Section 2.2 complies with the rule. Clarification is required by revising Section 2.2 to include a detailed explanation (with examples) for the criterion proposed as emphasized above.

4. Section 2.3 (Erosion Layer) referenced the rule 30 TAC §330.457(a)(3) and stated that the erosion layer must be seeded or sodded to minimize erosion. Please revise Section 2.3 to be consistent with the rule because the erosion layer must be seeded or sodded *immediately* following the application of final cover in order to minimize erosion.
5. Section 4 (Largest Area Requiring Final Cover) states that 35 acres represents the largest area of the landfill requiring final cover and the executive director will be notified if the largest area requiring final cover exceeds 35 acres.

Please understand that if the largest area ever requiring final cover increases from that stated in the final closure plan, a permit modification application must be prepared and submitted for changes in the final closure plan (*pursuant to §305.70(j)(6)*) and final closure cost estimate (*pursuant to §305.70(j)(30)*). Please revise Section 4 to reflect this requirement.

Moreover, the current cost estimate for final closure in Part III, Attachment 8, is based upon 14 acres as the largest area of the landfill ever requiring final cover. The current final closure plan states that there are approximately 610,000 square feet or 14 acres of landfill lacking final cover over a significant portion. Permit Section (§)IV.E (Financial Assurance/Modifications), states:

“If the facility’s closure or post-closure care plan is modified, the permittee shall provide new cost estimates in current dollars, which meet the requirements of §IV.C. (*relating to Closure Financial Assurance*), pursuant to 30 TAC §305.70 and shall adjust financial assurance in accordance with any financial assurance regulation that is adopted by the TNRCC subsequent to the issuance of this permit, and in compliance with the provisions contained within this permit.”

A permit modification application for changes in the final closure cost estimate must be submitted pursuant to 30 TAC §305.70(j)(30) to reflect the change in the largest area requiring final cover of 35 acres. Please know that a permit modification for changes in the final closure cost estimate must also account for any changes at the facility since the current final closure cost estimate, including changes to the groundwater and landfill gas monitoring system, which might necessitate preparing and submitting a permit modification application for changes in the post-closure care cost estimate. Please address these issues accordingly and in a separate permit modification application(s) as applicable.

6. Section 5 (Maximum Inventory of Wastes) states:

“As detailed in the site development plan, the maximum inventory of waste that will ever be on-site during the active life of the landfill is estimated to be approximately 8,000,000 cubic yards.”

Please include a specific reference in Section 5 as to where this information is detailed in the site development plan. However, please know that §II.E (Facilities and Operations Authorized/Waste Volume Available for Disposal) in the Permit states that the total available waste disposal capacity of the landfill is approximately 9,291,965 cubic yards.

Please explain the difference in the maximum inventory of waste and the total available waste disposal capacity and revise as necessary. Please know that §VII.O (Standard Permit Conditions) in the Permit states “If differences arise between these permit provisions and incorporated Parts I-IV of the Permit Application, these permit provisions shall prevail.”

7. Section 6 (Implementation Of Final Closure Plan) includes documentation describing activities and/or actions to be implemented. Applicable rule citations for these activities and/or actions need to be provided. In addition, the documentation for these activities and/or actions must be revised to be consistent with the applicable rules in Chapter 330, Subchapter K. The documentation in some instances deviates from the applicable rule, resulting in the proposed final closure plan possibly being less stringent than the rule requirements. One example includes bullet #6 that states in part:

“Within 10 days after completion of final closure activities, a certified copy of an affidavit to the public will be ...”

The rule 30 TAC §330.457(g) states in part:

“Within ten days after closure ...”

Please revise Section 6 to be consistent with the applicable rules.

8. Section 7 (Final Contour Map) references Exhibit 4.5, Sheets 1 and 2 of 2 (Final Contour Map). Sheet 2 of 2 is the final contour map for Tract 2 from the current final closure plan. Sheet 1 of 2 is a revision (11/20/07) of the final contour map for Tract 1. Please provide a marked version of this drawing (*and all other revised drawings*) that clearly shows the proposed changes, in accordance with 30 TAC §§305.70(e)(3) and 330.57(g)(6). It is noted that the contour labels (*and possibly the contours*) on the revised Sheet 1 of 1 have been changed when compared to the current drawing. Please provide an explanation or justification for these changes.
9. Section 8 (Soil Erosion Losses Computations) referenced that the computations can be found in Appendix 5.1. Appendix 5.1 contains a copy of the computations from the current final closure plan (1996). Please revisit the computations to determine if the values/assumptions used in those calculations are still valid based on the proposed final closure plan and current conditions (*e.g., percent (%) slopes, slope lengths, soil erodibility factor, etc.*). In addition, a narrative needs to be provided that explains the results of the calculations and compliance with the rule 30 TAC §330.305(d)(2) (*relating to Additional Surface Water Drainage Requirements for Landfills*). Please revise Appendix 5.1 accordingly.
10. Section 9 (Slope Stability Analysis) referenced that the slope stability analysis for the final cover can be found in Appendix 5.2. Please provide an explanation or reference of how the friction angle (degrees) for each component interface was obtained. Also, please revisit the calculations (*e.g., angle of slope (degrees), slope lengths, weight of geocomposites, geomembranes, etc.*) to verify if the values used in the calculations are consistent with the final cover design. Please revise Appendix 5.2 accordingly.

Alternate Final Cover Demonstration – Appendix 5.3

11. Section 1 (Introduction) referenced an August 1, 2006 TCEQ rule interpretation of §330.457(d). The reference of this rule interpretation needs to be deleted from Section 1 (*see comment #3 above*).
12. Section 2 (Modeling Approach) stated that the runoff curve was generated by the model using a slope of 5% and a slope length of 200 feet, and these values represents conservative runoff parameters in the final cover system. Please revisit the modeling calculations to ensure that these values are consistent with the final cover design. A discussion should be provided that substantiates these values as conservative when compared to the final cover design.
13. Section 2 states in part:

“The simulations were performed with the HELP model using the program’s synthetic weather data generation capabilities for Houston, Texas, with temperature and precipitation data adjusted with monthly normals from 1971-2000, obtained from the National Climactic Data Center (NCDC). ... The latitude of the landfill was estimated as 31.337°, the coordinates for the City of Lufkin, Texas.”

Please explain and/or justify the use of the weather data for Houston as compared to other cities in closer proximity to the landfill such as Beaumont, Tyler, or Lufkin. Also, explain and/or

justify why only the monthly normals from 1971-2000 was used and why was the data from 2001-2007 not included. Please know that the actual latitude of the landfill as stated in the permit is 31° 15.15' N (31.254°) Is there any specific reason why the actual latitude cannot be used? Please address these issues and revise accordingly.

14. Section 3 (Alternative Final Cover Performance Criteria) states in part:

“For simulation purposes, geomembrane manufacturer defects (pinholes) were assumed at one per acre and field installation defects were assumed at two per acre with a placement factor of 3 (good).”

Please provide a reference or explain how the geomembrane manufacturer defect assumptions were derived and provide documentation that justifies the validity of these values.

15. Section 4 (Alternative Final Cover Model) states in part:

“The alternative cover system was modeled using four layers, a 24-inch erosion layer, a 200 mil geonet, 40 mil linear low density polyethylene and a 0.24-inch bentonite GCL with a hydraulic conductivity of 5.0×10^{-9} cm/sec which was modeled as a barrier layer. ...” [*emphasis added*]

- Please provide justification and/or reference for the hydraulic conductivity value of the GCL used in the model.

Final Cover System Quality Control Plan – Appendix 5.4

16. Section 3 (Definitions) provides a list of definitions. Please provide references of where these definitions were obtained as applicable. Some of the definitions appear to be a quasi derivative from other sources, and it is unclear whether these definitions as proposed were intended to be redefined. Please clarify.

As an example, the proposed plan includes the following definition:

“Constructed Soil Infiltration Layer: Soil infiltration layers constructed from reworked soils from a borrow source or bentonite-amended soils.”

This definition is almost the same as the definition for constructed soils liners in the TCEQ Liner Construction and Testing Handbook dated July 1, 1994, which states:

“CONSTRUCTED SOILS LINERS - Soils liners constructed from reworked in situ soils, soils from a borrow source, or bentonite-amended soils.”

This permit modification application does not propose using bentonite-amended soils as an option for the soil infiltration layers. Please revisit all of the definitions as proposed to ensure their validity when compared to the derived sources, and their applicability for this permit modification application. Please revise accordingly.

17. Section 4 (Soil Infiltration Layer (Pre-Subtitle D Area) lists the requirements for constructed soil infiltration layer and soil infiltration layer materials. The required value for "Permeability" references "As outlined in Final Closure Plan." The required value also needs to be addressed in the final cover system quality control plan. Please revise accordingly (*see comment #4 above regarding Section 2.2 in the proposed final closure plan*).

18. The required value for "Thickness of infiltration and erosion layers" in Section 4 references "As outlined in Final Closure Plan." The required value also needs to be addressed in the final cover system quality control plan. Please revise accordingly.

19. Section 4.1 (Preconstruction Testing – Soil Infiltration Layer) states the following as item #4:

"If the permeability is less than the permeability outlined in the Final Closure Plan for a specific area of the landfill, soil infiltration layer construction may begin with that soil material over the specified area."

The following is stated in part as item #5:

"... content does not satisfy the permeability requirements outlined in the Final Closure Plan, ..."

The following is stated in part as item #6:

"... will be based on the criteria used in the permeability test which met the permeability requirement outlined in the Final Closure Plan."

All permeability requirements need to also be outlined in the final cover system quality control plan (*see comment #18 above*). Please revise accordingly.

20. Section 5.3 (Source Quality Control – Preconstruction Testing) states the following as item #5:

"The Geotechnical Quality Control Professional (GQCP) or their representative may request additional testing of individual rolls to more closely identify non-complying rolls and to qualify individual rolls at the discretion and expense of the GCL Manufacturer." [*emphasis added*]

Section 3 does not include a definition for GQCP. Is the GQCP as referenced in item #5 and elsewhere in the final cover system quality control plan synonymous with Geotechnical Engineering Professional (GEP) as defined in Section 3? If so, please revise to provide consistent terminology as defined in Section 3. Otherwise, provide a separate definition in Section 3 for GQCP.

21. Footnote #1 under Table 3 (Standard Tests on LLDPE Geomembrane Material) states that GRI Test Method GM 17 can be found in Attachment B of this plan. Please revise to state that it can be found in Attachment A of this plan.

22. Section 8 (Erosion Layer Requirements [All Areas]) states in part:

“An erosion layer, consisting of a minimum of 24 inches of earthen material which is capable of sustaining native plant growth, will be placed over the soil infiltration layer. ...” *[emphasis added]*

Please distinguish the erosion layer requirements regarding the final cover over landfill units with and without synthetic bottom liners. For constructability purposes it is recommended that for landfill units with a synthetic bottom liner, the clay-rich soil layer or GCL be overlain by the geomembrane, and the geomembrane be overlain by the erosion layer.

23. Section 9 (Documentation) states in part:

“In accordance with 30 TAC §330.253(e)(6), documented certification of closure must be submitted to the TCEQ upon completion of closure activities for a MSW site or MSWLF unit. The certification will (sic) in the form of the Final Cover System Evaluation Report (FCSER) which must be signed by the GEP and must include all documentation necessary for certification of closure.” *[emphasis added]*

The correct rule citation is §330.457(f)(5), which states:

“Following completion of all closure activities for the MSW landfill unit, the owner or operator shall comply with the post-closure care requirements specified in §330.463(b) of this title (relating to Post-Closure Care Requirements). The owner or operator shall submit to the executive director by registered mail for review and approval a certification, signed by an independent licensed professional engineer, verifying that closure has been completed in accordance with the approved closure plan. The submittal to the executive director shall include all applicable documentation necessary for certification of closure. Once approved, this certification shall be placed in the operating record.”

Please understand that the certification required by §330.457(f)(5) is a separate document than the FCSEER. The FCSEER is a report documenting the construction quality assurance/quality control testing of the final cover system, which is a part of all closure activities. The certification document can include the FCSEER as part of the applicable documentation necessary for certification of closure. Please revise Section 9 accordingly.

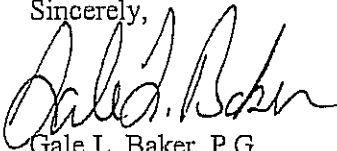
Please revise your permit modification request and submit the revisions within 30 days from the date of this letter or your request may be considered withdrawn. In accordance with 30 TAC §330.57, please ensure that each page has a header or footer that indicates the revision number and date. Your revised and/or additional pages should be in a form suitable for replacement and/or inclusion in the initial permit modification application. In accordance with 30 TAC §305.44, please include an original certification statement with the revision. Along with the original signature, the certification statement should indicate the name, title, and address of the responsible official.

The Honorable Wes Suiter
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To facilitate our review, please submit an original and two copies of the revisions, in conformance with applicable regulatory requirements referenced in 30 TAC §305.70. In addition, we are requesting that one of the two copies be marked to highlight the revisions made to the permit modification request. We suggest using a redline/strikeout format. Lastly, your response should include the WWC number that is referenced above.

Failure to submit a satisfactory response to the item(s) listed above may result in a recommendation to deny this modification request. If you have questions regarding this letter, please contact me at (512) 239-6730. When addressing written correspondence, please use Mail Code 124 (MC 124).

Sincerely,



Gale L. Baker, P.G.
Municipal Solid Waste Permits Section
Waste Permits Division
Texas Commission on Environmental Quality

GLB/fp

cc: Mr. Chris Fitzgerald, Landfill Manager, Angelina County Waste Management Center, Lufkin
Ms. Catherine A. Skurow, P.E., LNV Engineering, Corpus Christi