



MARYLAND DEPARTMENT OF THE ENVIRONMENT

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Governor

Anthony G. Brown
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Robert M. Summers, PhD
Acting Secretary

March 4, 2011

Mr. Warren Halle
National Waste Managers, Inc.
2900 Linden Lane, Suite 300
Silver Spring MD 20910

Dear Mr. Halle:

The Maryland Department of the Environment (the "Department") acknowledges the receipt of two copies of the Phase III Report, dated August 2, 2010, in response to our May 11, 2010 comment letter for the proposed Chesapeake Terrace Rubble Landfill. The document was submitted on your behalf by Century Engineering.

The following comments are presented based on the review of your revised report and on previous comments made by the Department that were not addressed in previous reports. Your Phase III report (the "Plan") will not be considered complete until all of the following comments are fully addressed and resubmitted to us for approval:

Response to MDE Comments:

1. Response to comment No.16 failed to explain in detail the working face area. Please clarify the number of working faces to be active at any given time and the size of each working face. It is unclear in paragraph 2 of your response whether there will be more than one working face at a time. Also refer to Section 12.7.7 Filling Operation - Paragraph 5, to make sure your information coincides with our comment #16.
2. You have responded to the Department's comment No. 33 on the clay dam design stating that the issue has been addressed in the April 2009 Phase III Report Addendum 1 and the March 23, 2010 slope stability analysis under Section 9.0, Appendix F, for closed rubble landfill conditions. However, you did not address side slope liner stability pore pressure that may be created due to perched water removal from the sandy silt soils behind and under the proposed clay dam and side slopes of the landfill. You state in your response that liquefaction is not a factor in the hard clay since liquefaction is typically triggered by a dynamic event that transfers significant vibration to the soils, such as earthquakes or subsurface explosions in sandy soils. The Department has commented numerous times that the Phase III Report must address in detail the clay dam design and the integrity of the landfill for short and long term conditions, taking into account continued landfill construction activities by heavy equipment and landfill operations that can equally produce liquefaction in the sandy silt soils. These activities were not included in your design justification.

3. The slope stability long term failure analysis for the closed landfill by Hardin-Kight Associates, Inc., under Section 9, Appendix F, failed to fully address all comments made by the Department, such as the landfill under perched water conditions, the impacts of continuous perched water withdrawal, and the challenges to the shear strength of the materials adjacent to the exterior side slopes of the landfill. Also, the analysis should include short term and long term stability analysis for the exterior side slopes of the clay dam with the slopes of 2:1 while withdrawing perched water under and behind the clay dam. Please note the side slope of the clay dam serves as a retaining wall for the landfill and the stress will be greater when the soils under the clay dam are subjected to excessive landfill loading, pounding from heavy landfill construction equipments, and settlement due to depressed hydrostatic conditions. Therefore, the Department requests the following comments to be fully addressed:
- i. Evaluate hydraulic gradient factors on void ratio, total stress caused by low water pressure due to perched water withdrawal in the soil mass below the clay dam, and evaluate primary, secondary and end settlement conditions within the drained soils by showing incremental stage void settlement analysis that could result for the landfill;
 - ii. Evaluate shear strength of the different materials of the soils under the side slope of the clay dam from top to bottom at different points incrementally;
 - iii. Evaluate slope stability including the unit weights and shear strength of the materials within and under the clay dam where pore pressure voids may be caused by liquid removal;
 - iv. Evaluate external loading factors such as vehicles and heavy landfill construction equipment operation;
 - v. Evaluate bottom containment systems such as liner and geotextile shear strength on the top of the side slope of the clay dam; and
 - vi. Determine the properties of all materials and layers that will affect the analysis and assess the overall stability of the landfill.
4. Drawing No. 16 of 68, Clay Dam Detail failed to show whether the drained perched water would be daylighted or drained into deeper groundwater and address the impact of plugging the perched water drain pipe on the downgradient monitoring wells.
5. Drawing 2 of 68 shows the overall site map with two optional access roads and one assumed access road. As you are aware, Anne Arundel County is only allowing one access road for this facility. If you chose the "assumed access road," the road will cross a hiker/biker trail called Baggers Road. Please explain in detail how you propose to manage this crossing.
6. Drawing 3 of 68 – detail shows a "WQv Facility Plan", but it does not define WQv.
7. Drawing 4 of 68 presents a drawing labeled "Future 5,000 S.F. Maintenance Building and Office." For clarification, please add a note stating "See Construction Note #3" under this label.

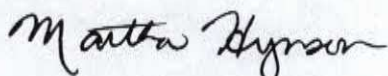
8. Drawing 4 of 68-General Note # 9 explains the operation of the wheel wash. You have stated "Landfill operator shall pump water from cleanout to tanker truck or directly to basin no. 3." Please explain how the water will be pumped to basin no. 3. Will the wheel wash have an automatic sprayer? Any liquid coming in contact with waste is considered leachate. Since basin no. 3 is a stormwater pond, leachate cannot be disposed of in this pond without a National Pollutant Discharge Elimination System permit.
9. Drawing 13 of 68 presents a detail for Storage Facility No. 1. This is mislabeled as "Section 2-2" instead of "Section 1-1".
10. Drawing 17 of 68 and 18 of 68 – detail "Sump to Pump House Section A-A" shows a 14 oz/s.y. non-woven geotextile partially on top of the No. 5 stone in the sump. The geotextile only extends 2 feet from the toe of the slope. Please give your reasoning for not extending the geotextile over the entire sump area. Also, below the 24-inch solid wall HDPE pump carrier pipe, there are two 14 oz/s.y. non-woven geotextiles; please explain the purpose of two geotextiles on top of each other. The same comment will apply for Drawing 19 of 68 – detail "Initial Rubble Waste Lift Section A-A."
11. Please add a note on Drawings 49 of 68 and 50 of 68 that says "The final cap of the landfill will be graded to a minimum 4% slope to ensure proper drainage."
12. Section 6.4, Residential Well Monitoring states "the landfill will provide mitigation measures at its expense if unreasonable impacts are determined." The word unreasonable is vague; please revise the wording and clearly state in detail under what circumstances the residents will get a replacement drinking water supply.
13. Section 12.6.3, page 12-8 describes inclement weather conditions, but fails to specify emergency closures and employee safety during an emergency event. Also, the safety plan in Section 12-Appendix C doesn't address this situation.
14. Section 12.7.3, first paragraph on page 12-9 states that "Noise levels are regulated by the State of Maryland." Please include language on personnel responsibility regarding the control of noise during the hours of operations and during construction, and provide additional detail how landfill operations will be managed to prevent excessive noise.
15. Section 12.7.7, last paragraph on page 12-12 describes fabric-type alternative daily cover information. It is not clear if you are proposing to use this alternate daily cover instead of soil; please clarify. There is also manufacturer's information provided on alternative daily covers in Appendix E. If you propose to use a specific alternative daily cover material, please indicate which one and address how the material satisfies the requirements that it will perform as well as soil cover.
16. Paragraph 3 on page 12-26 of Section 12.13 mentions that the delivery of waste will be categorized and measured by the owner. Please explain what you mean by the term "measured," and where and how the waste will be "measured." Will this be performed by the actual owner or will it be performed by an operator?

17. Please address the following comments for Section 15 regarding the Closure plan:
- i. Include a section on vegetation of the cover system including mulching and seeding. Temporary and permanent seeding must comply with Anne Arundel Soil Conservation District details and specifications for vegetative establishment;
 - ii. Explain how you will protect the integrity of the geomembrane cap from vegetative root penetration;
 - iii. Include a section on Construction Quality Assurance/Quality Control, which should include detailed information regarding cover system material, field testing, inspection, and certification;
 - iv. Add a sentence stating certification of as-built plans for the completion of the closure cap will be submitted to the Department within 90 days of completion of the cap; and
 - v. Include a statement that an updated closure plan will be provided to the Department at least 180 days prior to the cessation of the waste disposal and the landfill will be closed in accordance with the approved closure plan.
18. Please address the following comments for Section 15 regarding the Post-Closure plan:
- i. Section 15.2.4, doesn't include detailed information on the Inspection Plan regarding leachate tanks and tank levels. Please provide this information;
 - ii. Explain in more detail the leachate system repairs, as well as monitoring and inspections of the leachate collection system during post-closure care; and
 - iii. Clearly define the post-closure time period and potential extension of this time frame.
19. Section 16, page 16-4, Table 2 includes a list of chemicals and PQLs. Cadmium is listed twice and calcium is missing. Please correct this discrepancy.
20. Appendix D of Section 16 – the Department requests that there be an additional cluster well located between PMW 9 and PMW 10.
21. Section 16 – the groundwater contours in Appendix D for Areas A, TA, and TB are very similar to Figures 7, 14, and 17 of the Phase II Addendum Report dated December 22, 2004, which depict the highest predicted groundwater elevation. Recently taken water levels should have been used in the Appendix D figure. If the contours depicted are the 2004 highest predicted water levels, please revise the map with current contours. In addition, please include the locations of wells and corresponding water levels on the groundwater contour map as previously done in the Phase II report.
22. Appendix D of Section 16 should be divided into separate groundwater contour maps for each aquifer beneath the site if the confined aquifer underlying Area B is hydraulically unrelated to the other aquifers present. One of the contour maps should also depict the perched aquifer water levels.

23. Do groundwater contours shown in Section 16, Appendix D across Area TA correspond to the perched or confined aquifer? Plate 6 of the Phase II Addendum dated December 5, 2003, shows the perched groundwater elevations ranging from 95 to 115 feet across Areas B and TA. The report states a portion of Area TA is underlain by clay and perched conditions exist. If the contours are from the confined aquifer, please explain why water levels decline approximately 40 feet in Area B, but only 5 to 10 feet in Area TA adjacent to Area B.
24. Does the hydrogeologic divide depicted in Appendix D of Section 16 pertain to the shallow perched aquifer? Plate 5 of the Phase II Report dated December 5, 2003 shows the clay extending beneath Area TA. If clay is present under Areas B and TA, would the shallow hydrogeologic divide relate to the extent of the clay and not the divide that is depicted?
25. Groundwater highs typically mirror topographic highs. The Appendix D of Section 16 figure shows topographic contours of 190 feet southeast of Area B. The topographic contours near the hydrogeologic high range from 100 to 130 feet. Please explain why the hydrogeologic divide is distinct from the topographic high.
26. Groundwater wells were sampled in November 2004 and results were submitted in the Phase II Addendum dated December 22, 2004. However, a minimum of four rounds of sampling are required to fully characterize background conditions. These additional rounds of sampling must be submitted to the Department.
27. Section IV of Section 17 references Appendix D of the Stormwater Management/Sediment Control Report; it should be referencing Appendix B. Likewise, Sections VI and VII reference incorrect appendices. Please review all appendix references in Section 17 for accuracy.
28. Section 17, Section III (G) of the Stormwater Management/Sediment Control report contains Small Pond Approval Letters from the Anne Arundel Soil Conservation District (AASCD). These letters state that the approval will become "null and void if the construction under the approval has not begun one year from the date of the approval..." The approval was dated 4/12/2010. Please note if the landfill is not constructed according to the AASCD approval, you must resubmit the plans to AASCD and get approval again prior to start of the construction. A copy of the approved letter must then be submitted to Department.

If you have any questions concerning these comments, please contact Mr. Kassa Kebede, Head of the Construction & Maintenance Unit at (410) 537-3318.

Sincerely,



Martha Hynson, Chief
Solid Waste Operations Division

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cc: Mr. Horacio Tablada