

## **Chesapeake Terrace Rubble Landfill Phase III Engineering and Specifications Report (July 2020) Review Comments (Grouped)**

### **Spelling, Grammatical, and Errors of Omission (Comment 20, 22, 33, 34, 35, 43, 59, 72, 80, 95, 96, 97, 103)**

20. Section 6.4, Residential Well Monitoring, references Section 16 Appendix C instead of Attachment 16C. Revise accordingly.
22. Section 7.2.4 Intermediate Construction Stage Plan Depiction, No. 2 references Drawing 39 instead of Drawing 42.
33. Section 9, Geotechnical Considerations, the table of contents and attachments have discrepancies, there are two attachments named 9E; Attachment 9F in the electronic copy does not match with the attachment in the print copy; the table of contents shows that Attachments 9E, 9F, and 9K are “in progress”; and Attachment 9G listed in the table of contents is not included in either the hard or electronic copy. Please revise the narrative and plans accordingly, and ensure that when resubmitted both the digital and print copies are identical.
34. Section 10, Leachate Management, Tables 4 and 5, include Cell 5F. However, Cell 5F is not depicted in all of the drawings included in the report. To minimize confusion, the narrative and the drawings must show all the proposed cells listed on Tables 4 and 5 in the report. Please revise the narrative and plans accordingly, and ensure that when resubmitted both the digital and print copies are identical.
35. Section 10.3 Leachate Collection System COMAR Regulations, page 10-2, revise the typo “COMAR 26.04.07.160C(6)(a)” to “COMAR 26.04.07.16C(6)(a)”.
43. Section 12, a typo “landfill managermanager” occurs several times.
59. Section 12 Attachment 12D paragraph states, "This written plan has been developed to assist the Chesapeake Terrace Rubble Landfill in the management of emergencies that might reasonably be expected to occur at the landfill site located at (insert landfill street address here)." Revise to include the address.
72. Section 16.3.1 states, “[T]he permanent groundwater monitoring network will consist of one (1) exiting\* and fifteen (15) new wells around the perimeter....” Please revise the typo from “exiting” to “existing”.
80. Drawing 3, The East Entrance is labeled assumed future entrance (see Drawing 3). This is Drawing 3, please clarify. The North Entrance refers to Drawing 5 but should refer to Drawing 6. Please review all Drawing references for accuracy.
95. Drawing 46 Sediment Trap Details is blank. Are there Sediment Trap Details?
96. Drawings 64 and 65, revise the road labeled “assumed east entrance” to “optional north entrance”, and there is “tank overflow pipe” written on the drawing but no pipe is shown.
97. Drawings 66, 67, 68 and 69 do not include elevations on the contours.

103. Drawing 40 is not included in the full-size drawing sets. Drawings 45 and 46 are described as being “in progress”. Drawings 59, 82, 83, 84, 89, and 90 are reserved. Why are these Drawings listed in the Index?

## **Statements Fulfilling Regulatory Requirements (Comment 1, 13, 19)**

1. The Phase III Report should include a narrative stating that the landfill is not located within 200 feet of a fault that has had displacement in Holocene time.

13. Section 3.6, Solid Waste Management Plan, states that the proposed rubble landfill was included in the Anne Arundel County Solid Waste Management Plan in April 2001. Please revise it to ----in the 10-Yr Solid Waste Management Plan 2013-2023 as a proposed facility.

19. Section 6.2.1 Historical Flood Plain Analysis, states the footprint of the landfill is located approximately 5 feet above the influence of the 100-year floodplain. Please explain how the landfill does not restrict the flow of the 100-year flood, or reduce temporary water storage capacity of the floodplain.

**Cell Design, Construction and Leachate Management (Comment 2, 4, 7, 8, 9, 14, 15, 25, 29, 36, 42, 56, 57, 60, 61, 65, 67, 68, 83, 84, 85, 86, 87, 88, 89, 90, 91)**

2. Section 1, Executive Summary, page 1-1, 2nd paragraph states
  - a. That the leachate will be transported to a local leachate treatment plant for treatment and disposal: and in Section 10.11 Leachate Disposal states “We have received a favorable response from Environmental Recovery Corporation (ERC) of Maryland, located in Baltimore ... and they have provided a preliminary quote for disposal of the leachate, up to 75,000 gallons per day from our site.” Please provide a copy of a supporting document from ERC that the facility has sufficient permitted capacity to accept this volume of landfill leachate.
  - b. That the proposed landfill will have 20 Cells/Subcells. Will the landfill design have both cells and subcells? If so, clearly state which of the cells will have subcells and if there will not be any subcells, please clarify the statement to read that the proposed landfill will have 20 Cells. Furthermore, some Tables included in the report and Drawing 27 show 21 Cells, comprising of Cells 1 through 4, 5A through 5F, and Cells 6 through 16, which does not support the statement made in the Executive Summary. Please correct the discrepancy.
4. Section 3.2 Existing Site, 3rd paragraph states that “Final disposition of the leachate from the storage tank will be detailed in the Phase III Application.” This is the Phase III Application, the sentence should be revised to clarify that the final disposition of the leachate from the storage tank is addressed under Section 10.11, Leachate Disposal, of this Phase III Report.
7. Section 3.5 Proposed Rubble Landfill Description states that the landfill will consist of approximately 117 acres dedicated for landfill waste disposal, and that the total site disturbance is approximately 183 acres. Section 1.0 Executive Summary states that the proposed landfill is approximately 140 acres, as shown on Figure 1-2 (and is labeled fill boundary). Section 8.5 Soil Volume shows the West Section Cell Area is 83.8 acres, and the East Section Cell Area is 30.8 acres [114.3 acres total]. Section 8.6 Total Disturbance states that the disturbed area is 60.5 [please label unit as acres] in the East Section and 132.7 acres in the West Section [60.5+132.7 = 193.2 acres]. The information on acreage appears to be inconsistent. What is the acreage of the fill area? What is the acreage of disturbance? The acreages of the individual cells should be included in the narrative and depicted in the drawings.
8. Section 3.5.1, Liner System, page 3-6, paragraph 4, states the prepared subbase is commonly known as Geosynthetic Clay Liner (GCL). This statement is misleading. The prepared subbase is made of clay soil, while the GCL is made of geotextile layers containing a layer of bentonite clay. Please correct this statement.
9. Section 3.5.2 Leachate Management System does not need to provide information on where leachate will not be taken, please remove the extraneous information. Please discuss if pre-treatment will be necessary to meet the requirements of the receiving wastewater treatment plant, and if so discuss where the pretreatment will take place, either onsite or with an outside contractor, and what types of pretreatment may be required.

14. Figure 4-1 Landfill Bottom Grades Compared with Highest Observed Groundwater Levels

a. Figure 4-1 is included in Section 3, Project Description but should be re-organized and included in Section 4, Groundwater Separation.

b. Figure 4-1 shows Cell 5E having a groundwater separation between the bottom of the sump and the groundwater table of 3.8 ft. The sump elevation at this location is shown to be 118 ft, and the groundwater elevation is shown to be greater than 115 ft. Cell 5C has a groundwater elevation of 115 ft at the sump and a bottom of sump elevation of 118 ft but is labeled 5.0 ft separation. Please clarify and review all groundwater separations. The groundwater separation is required to be a minimum of 3' and the cell floor must be raised to meet that separation. Also, note that this separation is required from the highest anticipated occurrence of groundwater, not just the highest observed, so if circumstances occur that might cause a higher elevation of groundwater, then the proposed cell floor elevations must be increased accordingly.

c. Figure 4-1 shows that the proposed Cells 1, 2, 3, 6, 5E & 10 have two numbers for the elevation of the sump in these cells. Be advised, the sump is the lowest portion within the cell designed to facilitate leachate movement and collection at the sump. Please correct this discrepancy.

15. Section 4.0, Groundwater Separation, paragraph two, states that the proposed cell floor grading maintains a minimum of 3 feet buffer at all locations as required under Code of Maryland Regulation, COMAR 26.04.07.16(C)(6A). This statement is incorrect, as Cells 1, 2, 3, 10 and 11 did not meet the minimum vertical buffer distance of 3 feet. As noted in Comment 14, Figure 4-1 and Drawings 10 and 11, depict an insufficient vertical buffer in Cells 1, 2, and 11 between the highest observed/anticipated unconfined groundwater elevations compared with the proposed cell floor elevation. These three cell floors must be designed to be above the unconfined groundwater. In addition, Cells 3 and 10 have 0.79 and 2.2 feet vertical buffer distances. These do not satisfy the requirement of COMAR 26.04.07.16(C)(6A). Please correct this discrepancy in the narrative and all inadequate plan sheets. The cell floor design must comply with the buffer requirement at all locations.

25. Section 8.4.2 Prepared Cell Subbase Soil, lacks a detailed discussion of the subbase preparation. Please include here what is discussed in Section 13-Construction Quality Assurance Plan.

29. Section 9.1.2

a. COMAR 26.04.07.16C(3) requires the design of the liner to "Include a liner installed over a prepared subbase, free of objects which could damage the liner material, with a minimum thickness of 2 feet and having a permeability less than or equal to  $1 \times 10^{-5}$  centimeters/second" The proposed alternative liner must include 1 foot of prepared subbase in addition to the geosynthetic clay liner.

b. You have proposed to use a geosynthetic clay liner (GCL) instead of the required prepared subbase clay soil to be placed under 60 mil high density geomembrane (HDPE) synthetic liner. MDE has approved the use of GCL on a case by case basis based on site specific demonstration. Also, it is important to note that the permeability of the GCL is not the only factor of consideration for demonstrating GCL's equivalency with the required subbase clay soil. The subbase soil must be constructed of material capable of supporting the liner and be resistant to

pressure gradient above and below the liner in order to prevent failure of the liner due to settlement, compression, puncturing, tearing, or cutting during liner placement and landfill operations. MDE has observed at other sites GCL panel separation under the HDPE liner due to inadequate support of the liner composite by the subsurface materials. Please revise the liner system design in accordance with COMAR 26.04.07.16C(3).

36. Section 10.4.1 Pump Levels Sensors and Alarm Systems states that level sensor pump-off position will be 9 inches above the sump floor, pump-on position will be 6 inches above top of sump, and pump high level alarm will be 1 foot above top of sump. Please include a detail on Drawing 19 that depicts these pump control positions.

42. Section 11.8.2, Piping and Condensate Management, states that condensate sumps or leachate collection system are designed to collect and dispose of the condensate. Section 11.8.3, states that a moisture separator is an expansion chamber located just upstream of the blowers. Please show these features in a drawing.

56. Section 12.12.1.2.1 Leachate Pumps

a. The third paragraph discusses the sensor pump-off position will be set at 9-inches foot above the sump floor. Please clarify where the sensor position will be located. You are required to maintain less than one foot of leachate on the liner. Please see comment 36 above.

b. The last paragraph and Section 10.4.1 Pump Level Sensors and Alarm systems state that during landfill non-operation hours, the landfill manager will receive a high-level alarm signal, via telemetry from the Pump control Panel. Please provide, by title, a minimum of two people who will receive leachate alarm notification. Also, Section 10.4.1 states that a master control panel will be located in the leachate storage facility controls building. Please depict the building on the Drawing.

c. Please provide information on the frequency of emptying of the storage tank.

57. In Section 12.12.1.2.1.2, Force Main Access and Maintenance, the 2nd paragraph states that forcemain cleanouts are provided at minimum 400 feet intervals as noted on Drawings but Drawing 22 shows 500 feet maximum spacing. Please revise the plan and/or text to eliminate the discrepancy.

60. Section 12, the Operation Plan must include that when there is power outage a standby generator and portable pumps to pump the leachate from the sumps to the leachate storage tanks is available on site, also pumps in various capacity, lighting for emergency work.

61. Section 13, lacks a statement including the  $\leq 15\%$  carbonate content acceptance limit for the leachate sump aggregate. The testing frequency listed in Table 1 is 1 per source but it should include the frequency per stockpile.

65. Section 15.1.4 Leachate Collection System, states the leachate will be collected into the leachate collection sumps and pumped to the on-site leachate storage tanks and subsequently transported by tanker truck to a water treatment facility in the area. Please include the name of the leachate treatment plant.

67. Section 15.1.2.5.1 Erosion and Sedimentation Control Plan, states that the revised design will be submitted to AA Soil Conservation District for review and approval. The approved

erosion and sediment control plan and stormwater management plan must be submitted to MDE prior to the approval of the Phase III plan as required by COMAR 26.04.07.16A(11).

68. Section 15.2.3.1, states that once leachate is no longer detected in the cell sumps for a minimum period of 6 months, the pumps may be removed and no further maintenance/inspection is required for the leachate collection system. This practice is unacceptable. Please revise this section to address that the leachate collection system stays operational throughout the post-closure period.

83. Drawings 10 and 11:

a. These drawings are titled "Top of Subbase Grading Plan" but Drawing 14 "Liner System Details" does not show the required two feet of subbase. Also, please include a Drawing that shows the prepared subbase plan and include a note that the cell floor shall have a minimum of 2 percent slope post settlement at all locations.

b. Please label the percent slope of the cell floors. Some slope arrows are not pointing in the direction of the leachate flow and seem to have an elevation labeled that is not consistent with the cell floor, but instead the closure elevation. Also please provide the acreage of the cells.

c. The meaning of the blue lines in the drainage area, and the green, purple and orange lines are not included in the legend.

d. Cell 5C appears to be missing a contour line in the corner farthest away from the sump if the slope remains consistent throughout the cell floor. Show the 2% minimum slope in this corner.

84. Drawing 14:

a. You have proposed an alternate liner system. The report must be revised using the COMAR liner system. Please remove references to the unapproved alternate design.

b. Detail 1 shows 24-inches of select rubble waste instead of 48-inches.

c. In Detail 2/14 it is recommended that the anchor trench be 2' x 2' with geosynthetics running through the bottom of the trench, like an L shape, to prevent pullout.

d. In Detail 2/14 the geocomposite label points to the geotextile layer, please correct this misidentification.

e. It is recommended that the "protective cover" be called "select waste" to minimize confusion

f. In Detail 2/14 the 1 foot minimum temporary cover shown must be a well compacted select fill.

g. Detail 3/14 should show the 3 feet minimum buffer distance from the highest observed or predicted groundwater elevation.

h. Detail 4/14 does not label the 10 oz non-woven geotextile over the leachate collection layer.

i. Liner System Detail (Sheet 1 of 3), Detail 1-COMAR Required Liner System and Detail 2-Alternate Liner System Floor shows the 3 feet buffer requirement as part of the prepared

subgrade. This nomenclature is confusing. Please note, the 3 feet buffer should be depicted based on the maximum observed/expected groundwater elevation and not part of the cell floor subgrade preparation. The cell floor grading through excavation and/or structural fill must be above the 3 feet buffer requirement. Please correct the details to show this information.

85. Drawing 17:

- a. Cell 5E has a leachate header pipe along the crest of the cell floor - what purpose does this serve?
- b. Leachate Collection System Grading Plan & Layout West (1-10), shows two 8-inch leachate collection headers in Cell 5E. As depicted on this drawing, there are two lowest points/sumps for this cell. What is the reason for having two sumps in one cell? Should there be an intercell berm for Cell 5F that was included in Tables 4 and 5 (see comment 33 above) but not depicted in drawings? Please clarify this.

86. Drawing 18, Cell 11 has a 6" leachate collection lateral that doesn't connect to the force main. Please clarify. There is a cleanout pipe missing on the other 6" leachate collection lateral.

87. Drawing 19:

- a. Detail A/19 Section A-A' shows a 2" HDPE SDR-17 Forcemain inside 6" HDPE SDR-17 Containment. All other references to forcemain sizes are 6" pipes inside 10" containment. Please clarify if this is an error, or if the pipe changes sizes.
- b. Detail A shows a protective cover/select waste and mulch/wood chips placed on the side slope, please note the select waste should be placed on all areas of the side slope. Also, mulch/wood chips are proposed as a temporary fill; please note that a structural fill should be used as temporary fill.

88. Drawing 20:

- a. Detail 2 – How will the cleanout be supported/protected?
- b. Details 2 and 3 show the side slope at 2:1 slope instead of 3:1.
- c. Detail B does not show the type of geotextile placed on the 5' stone aggregate.

89. Drawing 22: Please provide a detail that shows the forcemain coming from the cell connecting into the forcemain that carries leachate to the storage tanks. Also, see comment 55 above for forcemain cleanouts spacing.

90. Drawing 27: sub-cells 5A through 5F are shown in the "list of pumps table" but Drawings 3, 10, 12, and 71 through 81 show sub-cells 5A through 5E. Revise the plans to eliminate these discrepancies.

91. Drawing 29, Detail 2 shows the pipe to drain spilled leachate from the leachate loading pad to the secondary containment sump but there is no further description of how and when this liquid will be pumped from this sump. Also, Detail 3, lacks a pipe connection from Tank 101 or Tank 102 to the loading pipe.



## **Landfill Operation (Comment 3, 26, 30, 44, 45, 46, 47, 49, 50, 51, 52 ,53, 55, 58, 81)**

3. Section 2.1 states that the landfill will be operated 5.5 days per week, but this is not in conformance with the zoning approval which provides for operating 5 days per week. Landfill permits generally specify the same hours and days of operation that are allowed under the zoning approval for the facility, and provide that the operating hours can be changed with written documentation that the local zoning authority does not object to the proposed change. However, at this time the approval specifies 5 days of operation. Please correct and update the stated operating hours where appropriate, and the calculations for the life of the landfill.

26. Section 8.4.4, Protective Layer, page 8-5, sentence four, states “The regulations also provide the option to place clean fill instead of select waste as the protective layer.” Please note COMAR 26.04.07.18(B) does not provide the option to use clean fill in-lieu of the minimum of 4 feet of select waste. Please correct this discrepancy in the Report.

30. Page 9-1 states that the landfill will include 4 ft of protective cover. Please clarify that the 4 ft of protective cover is select waste containing no long pipes, boards, or other materials that could damage the liner and leachate collection system. It is recommended to use the “select waste” throughout the report to minimize confusion.

44. Section 12, Operations and Maintenance Plan, the plan must describe that the disposal site shall be graded and drained to minimize runoff onto the fill area, prevent erosion and ponding within the fill areas, and drain water from the surface of the rubble landfill, as required by COMAR 26.04.07.18(I). The cell sequencing plan shall describe in detail how operations will minimize runoff onto the fill area, prevent erosion and ponding. This should include a sequence for staged land clearing.

45. Section 12.1 General, page 12-1, last paragraph states that in the event of a transfer of ownership, all responsibilities of the Operator shall remain. Please note that a permit is valid only for the permittee named and may not be transferred to another entity. The new entity must obtain a new Refuse Disposal Permit from MDE. The permittee remains responsible for fulfilling the requirements of the permit until such time as a new permit is issued.

46. Section 12.3 Service Information, page 12-3, states “The land will be operated until the design capacity has been reached” should be amended to read, “The land will be operated for no more than 12 years as required by the zoning special exception.” All other references in the document to the life of the landfill should reference the approved special exception life of 12 years.

47. Section 12.6.2.1 Hours of Operation includes information about Millersville Landfill. This is not relevant to this landfill. Also, this section states that “There may be some operational activities that are addressed for half a day for cleanup and maintenance efforts.” All landfill operations must occur during the approved hours of operation.

49. Section 12.7.1 Types of Waste states “No hazardous materials will be accepted or disposed within this landfill unless approved by the MDE.” COMAR 26.07.07.03B(5) specifically prohibits solid waste facilities from accepting controlled hazardous waste. Please change this sentence to be clear that hazardous materials will not be accepted or disposed of at the landfill. Also, the lists of solid

waste to be accepted and not to be accepted should be described in this section instead of Section 12.3 Service Information.

50. Section 12.7.7, Filling Operation, states that the select waste shall contain no long pipes, boards, or other objects judged by the operator to be detrimental to the underlying liner system or leachate collection system. Please note that the permittee must notify MDE prior to the placement of the select waste. Also, Filling Operations discusses stripping periodic and intermediate soil cover. Stripped cover material is considered contaminated and cannot be used again for cover materials. Intermediate cover should not be removed after placement. Please update soil balance calculations.

51. Section 12.7.8, Alternate Periodic Cover Material (APCM), states APCM may be in use at site, with prior approval of MDE. For this project the APCM considered are fabric type alternative cover, incinerator ash and flyash/bottom ash. You also cited the use of fly ash approved by the USEPA, PADEP, and CAL/EPA. Please be advised that the proposed landfill is a rubble landfill and COMAR 26.04.07.13B(2) and COMAR 26.04.07.13B(3) prohibit the use of industrial waste or byproducts, such as incinerator ash or coal combustion byproducts including coal fly ash. Also, incinerator ash and flyash are not permitted as cover or fill in Anne Arundel County.

52. Section 12.7.9 Handling of Special Waste should include a statement that if hazardous waste is identified in waste accepted at the facility, the permittee, shall immediately (within 2 hours) report to MDE all incidents of discovery of any unacceptable hazardous waste materials in a load of waste. The landfill shall then submit to the Department a written report within 5 working days following the discovery. When the source of waste is known, the written report shall include the source of the waste, the transporter of the waste, the circumstances of discovery, a description of efforts to secure and control the waste and any release of pollutants from the waste, the current location and if known, the final disposition of the waste. If the source of waste is unknown, the written report shall include the circumstances of discovery, a description of efforts to secure and control the waste and any release of pollutants from the waste, and the current location and final disposition of the waste. If the source of unacceptable hazardous waste is known, the permittee shall reject the waste material and advise the generator or hauler of the reason of rejection. If the source of unacceptable hazardous waste is unknown, the permittee shall separate and handle the waste material in accordance with the applicable requirements of COMAR 26.13.02 "Disposal of Controlled Hazardous Substances".

53. Section 12.9.3 Periodic Cover should include a statement that the cover will be graded to minimize infiltration and erosion, and prevent standing water at the working face.

55. Section 12.11.7, Areas Subject to Spills Inspection Plan, page 12-21, states the fuel storage area will be surrounded by an earthen containment of adequate capacity to hold the entire contents of the tanks should a spill occur. The Phase III Report should include a stormwater pollution prevention plan.

58. Section 12 Attachment 12C, Safety Precautions for Equipment Operators, 3.S, states "do not mix heavy traffic with light trucks". The operation plan must describe the procedure if separate unloading areas for pickups and other light vehicles will be provided.

81. Drawing 4, Note 9 states that the wheel wash shall have a water storage compartment with the pipe drain connected to a concrete cleanout, and that the landfill operator shall pump water from the clean out to a tanker truck. Please address where the water pumped to tanker truck will be disposed of, and the conditions for determining when the sediment in the cleanout concrete must be cleaned out (e.g., frequency, depth of sediment, etc.).

**Closure Cap & LFG Control (Comment 10, 11, 12, 16, 17, 18, 21, 23, 24, 27, 28, 31, 32, 37, 38, 39, 40, 41, 54, 62, 63, 64, 66, 69, 71, 79, 92, 93, 94, 98, 99, 100, 101, 102)**

10. Section 3.5.3, Cap/Closure System, page 3-8, the first paragraph states as waste grades attain maximum permitted filling elevations, a minimum 12-inch thick intermediate cover will be placed and shall be seeded. Please note that areas that have reached final grade must be covered with 2 feet of final cover and vegetated. Please see the distinctions between intermediate and final soil cover required by COMAR 26.04.07.18G and H, which are accessible on line at [www.dsd.state.md.us/comar/comarhtml/26/26.04.07.18.htm](http://www.dsd.state.md.us/comar/comarhtml/26/26.04.07.18.htm).

11. Section 3.5.3, Cap/Closure System, page 3-9, the first paragraph proposes the use of 20 mil synthetic material for capping, while Drawing 34 shows a 40 mil textured LLDPE liner. Please revise this section to be consistent with the Drawing.

12. Section 3.5.4, Landfill Gas Collection & Control, page 3-9, paragraph one states “Depending upon the concentration of methane in the landfill gas, a passive landfill gas management system may be used”. Section 11 of the report that discusses the landfill gas management plan does not include the details for a passive landfill gas system.

16. In Section 5 Landfill Air Space Estimate, the air space estimation does not include the 2-feet of prepared subbase, the 12 inches barrier layer shown on Drawing 14 Detail 1, and the 2-feet of soil placed over the final lift of waste. Please note that the cap thickness is four feet minimum; for final closure COMAR 26.04.07.19 E(5) and COMAR 26.04.07.21 require the components listed below:

- 2 feet of final cover placed over the waste
- A geomembrane layer or 1 foot of clay with a permeability  $\leq 1 \times 10^{-5}$
- A geocomposite drainage layer or minimum 6 inches thick drainage layer with a permeability  $\geq 1 \times 10^{-3}$ .
- 2 feet of final earthen cover (including 6-inches of topsoil)

Please amend the estimate and any appropriate plan sheets to reflect an acceptable cap design.

17. Section 5.1 Landfill Air Space Estimate, page 5-1, states that the final closure cap thickness is 3 feet. Attachment 5A, Landfill Airspace Estimate, sheet 1 of 2, does not depict the 2- feet prepared subbase layer for the cell liner system and the 2- feet of earthen cover over the waste for final cover system. Please see comment 16 above.

18. Section 5, Landfill Design Life, please check the value of 44.0 tons/cubic yard as it appears this should be 44 lbs/cubic foot as used in the calculations in Attachment 5B. Also, Attachment 5B Cell Life Summary was not included in the hard copy of the Report. Please ensure that when the revised Phase III is resubmitted, both the digital and print copies of the reports and plans are identical..

21. Section 7, page 7-1, revise the “final intermediate cover” to “final cover”. Please see comment 16.

23. Section 7.5.2 Sequence of Cell Construction and Waste Placement, No. 2 states that during the life of cell construction and waste placement, sediment basins will be constructed and dewatered per

details on Drawing 62. Please note whenever the accumulated sediment exceeds one-half of the pond's storage capacity design, a schedule must be developed for removal of the accumulated sediment to restore the pond to its design storage capacity. Please include language in the operation and maintenance plan outlining this requirement.

24. Section 8.4, Soils Description is missing a discussion of the Final Cover Soil. Final soil cover is missing throughout the report. Please see comment 16.

27. Section 8.4.6, Intermediate Cover Soil, states that Specification Section 02224 distinguishes between the general layers of intermediate cover and the "final layer" of intermediate cover. Please note that the intermediate cover should not be confused with the 2-feet of final cover placed over the waste, to minimize confusion please change the "final layer of intermediate cover" to "final cover" in the report and in the drawings. Please see comment 16.

28. Section 8.4.7.1 Closure Cap Protective Cover states that final cover soil is miscellaneous soil material. Please clarify what is meant by miscellaneous. Please see comment 16.

31. Section 9.2 Cap and Closure System, COMAR 26.04.07.18H requires a uniform compacted layer of earthen material not less than 2 feet in depth shall be placed over the final lift not later than 90 days following completion of that lift. The plans and design show the final waste lift only covered with a 1' intermediate cover. Please correct throughout the report and drawings. Please see comment 16.

32. Section 9.2 Cap and Closure System, it is recommended that the proposed 40 mil LLDPE liner clearly state that it is textured on both the top and bottom of the geomembrane.

37. Section 10.9 Develop Leachate Generation Rates, Table 2 Closure Cap (Final Cover) system configuration lacks to the 2 feet of final cover placed over the waste. Please see comment 16.

38. Table 11-1, Gas Extraction Well, the table has waste thickness errors. Revise accordingly.

39. Section 11.3.3.4: Please also record the highest methane reading in addition to the steady state reading.

40. Section 11.3.5, states "If the methane levels in the monitoring probes remain in compliance for a period of two (2) years, or eight (8) quarters, the frequency of monitoring can be scaled-back to annually with notification to MDE of the change." This language must be removed. Quarterly gas monitoring will be required throughout the life of the landfill and will continue, at minimum, until the 5-year post-closure period has ended. Sampling frequency may only be reduced after the permittee has petitioned MDE with supporting data and that petition for a reduction in frequency has been granted.

41. Section 11.4.2 Notification requirements. The gas management plan should specify that MDE will be notified in writing within 24 hours of a methane compliance level exceedance. Additionally, a remedial plan will be required within 60 days, not 90 days.

54. Section 12.9.5 Final Cover includes description of a 12-inch intermediate layer and an additional 24 inches of intermediate cover. COMAR 26.04.07.18H "Final Cover Material" requires a uniform compacted layer of earthen material not less than 2 feet in depth shall be placed over the final lift not later than 90 days following completion of that lift. COMAR 26.04.07.21G, provides that rubble landfill closure caps must have a minimum 2 feet of final earthen cover placed over the drainage layer of the capping system. Intermediate cover is not part of the final cover. This section is confusing as

it seems to be discussing both the final cover material and the capping system, but also includes intermediate cover. Please revise for clarity.

62. Section 13.1.3 Project Design, is missing the final cover layer under the landfill cap. Please see comments 16 and 54.

63. Section 14, states “intermediate cover is material used as the final grading layer on the waste prior to the installation of the geosynthetic closure capping system and Technical Specification 02224, states that the final grading layer on the waste shall consist of at least 12-inches of soil. Please see comments 16 and 54.

64. Section 15 Closure and Post Closure Plan

a. This section lacks the required provision that a uniform layer of earthen material, not less than 2 feet in thickness will be placed over the final lift of waste not later than 90 days after the completion of the final lift, and within 30 days after the final earthen cover has been installed, the area shall be vegetatively stabilized as required by COMAR 26.04.07.21(E)(4). The electronic version does not include Section 15 Closure and Post Closure Plan. Please see comments 16 and 54.

b. Deed notation should be included in the plan to indicate that the land has been used as a solid waste disposal site and that the use of the land is restricted.

66. Section 15.1.8 lacks a sentence stating that certified as-built plans for the completion of the closure cap will be submitted to MDE no later than 90 days after completion of the cap.

69. Section 15.2.4, Inspection Plan, references Table 1 instead of Table 15. Also, include a language in Table 15-1 stating the closure cap will be inspected as soon as possible after major storm events.

71. Section 15 Table 15-2, Landfill Closure Cap Inspection, includes a checklist which sets the standard for the identification of an areas of poor vegetation as being an area of >3000 square feet area with <30% vegetation. This is unacceptable. Revise the checklist to include language stating any areas of poor vegetative cover will be considered a reportable issue and require repair.

79. Prior to issue of the permit you must submit proof that the deed pertaining to the proposed site has been amended to stipulate that, upon close-out of the operation, construction or excavation on this site may not begin without first obtaining written authorization from MDE as required by COMAR 26.04.07.17B and 26.04.07.09B.

92. Drawing 34:

a. Details 1, 2 and 4 – As discussed in previous comments, 24” of final cover is required under the liner.

b. Detail 2 –How will the lower geocomposite be anchored to prevent slide? How will the upper geocomposite prevent stormwater from backflowing inward if the bench is at full capacity, the detail does not clearly show if it is at a higher elevation than at the top of the bench. Is it designed this way because there is a concern that the geocomposite will not be able to adequately manage the infiltrated stormwater conveyance, and if so, is there a different geocomposite with a greater capacity?

c. Detail 3 – Why is there an anchor trench on the flat portion of the cap and how will this trench convey stormwater off the top of the landfill if it is left in place? It does not appear that the trench would be removed after being tied into the next phase. Please explain this design feature.

d. Detail 4 – Select waste is shown directly over the prepared subgrade, without a bottom liner system present. The cap liner system must be tied into the bottom liner system.

93. Drawing 35:

- a. Detail 2, see comment 15.
- b. the geocomposite drainage net is labeled as “turf reinforcement matt”
- c. a 12-inch intermediate cover is labeled “AASHTO No. 57 stone”.

94. Drawings 36 and 37 show the proposed maximum grade elevation is 270 feet above mean sea level (ft-amsl), please confirm that the max elevation for the landfill will not exceed 30 feet above the natural grade of the surrounding to conform with the Anne Arundel County Code § 18-11-131. Drawing 36, Note 4, revise the typo “time of concentration”.

98. Drawings 71 and 72 show stockpiles on the Cells 3 and 4 prepared subgrade. Notes on Drawings 72 through 81 state that place intermediate cover on portions of Cells which have achieved maximum filling grades. Please see comment 16 above.

99. Drawing 85 – The gas probes are too far away from the landfill. By the time gas migration is detected, the gas will be leaving the property boundary. The gas detection wells should be located closer to the landfill. What are the arrows being depicted on this drawing? Please provide more information about this drawing.

100. Drawing 86 West Section Landfill Gas Collection Control System Plan shows Flare Paddock A and Flare Paddock B (See Drawing 85). Drawing 85 does not provide information about the Flare Paddocks. Does the gas collection system piping connect to the Flare Paddocks? The drawing does not show a connection to either flare paddock.

101. Drawing 87, the top of the landfill has a significant area that is void of gas collection system’s area of influence. The gas collection system must be able to capture the gas that rises to the top of the landfill. Also, Flare Paddock B, depicted in Drawing 86, is not included in the same location on this drawing. Please clarify.

102. Drawing 88:

- a. Details 2, 5, and 6 show 12” intermediate cover as the top layer. Detail 4 shows 16” of intermediate cover. Is the gas header pipe tying into the leachate collection system? Please provide a detail of the proposed header piping connection to the gas collection wells for collection, or vents to release the gas.
- b. Detail 2 shows a 14- foot depth from top of final cover to top of screen, and states that screen length is usually the well depth minus 16-feet. Is this always true?
- c. and this detail lacks to show the depth between bottom of boring and bottom of screen.

## **Groundwater Monitoring (Comment 70, 73, 74, 75, 76, 77, 78)**

70. Section 15.2.5.1 Water Quality Monitoring, states that the sampling of the surface water sedimentation basins are described in the facilities NPDES Permit. Please include a copy of this permit in the Report.

73. Section 16.4.3 Groundwater Sampling and Analysis, states that “Groundwater from the permanent groundwater monitoring network wells will be sampled a minimum of 4 consecutive events prior to the start of waste placement within their respective areas (e.g. Area A wells will be sampled a minimum of 4 time prior to the start of waste placement in Area A disposal cells, and Area B wells will be sampled a minimum of 4 times prior to the start of waste placement in in Area B disposal cells). The results from the 4 initial sampling events (plus any previous results from PMW-6) will be used to establish a statistical database for groundwater quality. Each sampling event shall be no less than 6 weeks after the end of the previous event and no greater than 20 weeks after the end of the previous event.” The 4 consecutive sampling events collected prior to waste placement should occur through all seasons throughout the year to help interpret any seasonal variability. The permittee may elect to collect samples at minimum every six weeks; however, please be advised that frequency of sampling may not capture yearly seasonality, and so MDE may require more than 4 samples. Also, this requirement must be met at all wells.

74. Section 16.8 The permit will require MDE be notified of a Maximum Contaminant Level exceedance in writing within 24 hours of receipt of the laboratory report detecting the occurrence. Please note this requirement in this section.

75. Section 16.10 and Attachment 16C regarding the evaluation of residential well water levels states: “Quarterly water level measurements at wells PMWs-120, 121, 122 and 123 will continue through the operating life of disposal cells 5A through 5D and cells 6 through 10.” Monthly water level readings for all site wells and piezometers will be required upon issuance of a refuse disposal permit regardless of which cells are in operation. Section 16.10 and Attachment 16C must be revised to reflect that requirement.

76. Section 16, Table 1 Note includes the following, “The screened interval for the typical Unconfined WBZ wells will begin at approximately one foot above the highest observed/predicted groundwater level as presented on Table 1 (above) or a minimum of 7 feet below the ground surface (whichever is greater). When the interval from one foot above the highest observed/predicted groundwater level to the top of the MCU is less than 10 feet but greater than 8 feet, utilize the full 10 ft screen length and set the bottom of the screen into the MCU. When the interval is less than 8 feet, set the bottom of the screen 2 feet into the MCU and set the top of the screen at greater than 1 foot above the highest observed/predicted groundwater level, as necessary to maintain the 10 foot screen length. Where the 7 feet of separation between the top of the screen and ground surface cannot be maintained using a 10 foot screen length, reduce the screen length as necessary to maintain the minimum 7 feet of separation.” MDE recommends a smaller screen length to reduce oxidation and reduction potential due to water level fluctuations which can impact groundwater chemistry.

77. Section 16, Table 2: The lead Practical Quantitation Limit (PQL) for lead is listed as 10 ug/L. This does not meet the PQL of 2 ug/L which was provided in previous correspondence and will be part of an issued permit. Please amend the proposed PQL, or include documentation from the laboratory as to why the PQL listed in Table I cannot be achieved.

78. Section 16 Attachment 16D Please include a map for the groundwater plan that only depicts groundwater contours and removes the cross-section lines.



## **Zoning Requirements (Comment 5, 6, 46, 48, 82)**

5. Section 3.4 Access/Site Entrances, Section 7.11 and elsewhere proposes three possible entrances for the site. The letter from Anne Arundel County dated July 27, 2005, states that the zoning of the rubble landfill was approved in the form of a “special exception” and the condition stipulated allows only the use of Conway Road as the entrance to the landfill. Alternate landfill entrances may be permitted but the landfill must be operated in accordance with the local zoning special exception.

6. Section 3.4.1 Site Entrance Infrastructure and Queue Lanes - Please clearly state that no queuing onto public roads will be allowed.

46. Section 12.3 Service Information, page 12-3, states “The landfill will be operated until the design capacity has been reached” should be amended to read, “The landfill will be operated until the design capacity has been reached or the life allowed under the special exception has expired.” All other references in the document to the life of the landfill should reference the life allowed under the approved special exception.

48. Section 12.6.2.3 Optional North and South Entrances discusses daily waste acceptance rates, vehicle arrival and processing times. Additional information should be provided regarding the vehicular traffic needed for recycling of materials salvaged in accordance with Section 12.7.6. Section 12.6.2.3 refers to Section 3.6.3 and 3.6.4 of the Phase III Report, but these sections do not exist in the report. Please include the missing information.

82. Drawing 6 shows a three lane entrance road (39-feet wide) with 15-feet wide ‘queue lane” and a 24-feet wide egress/ingress for the Optional North Entrance but the width of the entrance road shown on Drawing 8 is 24-feet. Also, on Drawings 64 and 65, the optional north entrance is labeled as the East Entrance. Please revise the plans to eliminate these discrepancies