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August 21, 2012

Mr. Arten J. Avakian, Project Manager
MSW Permits Section – MC-124
Waste Permits Division
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Re: Waste Management Skyline Landfill – Dallas and Ellis Counties
Municipal Solid Waste (MSW) – Permit No. 42D
Permit Amendment Application – First Technical Notice of Deficiency
Tracking No. 15821429; RN100542232/CN603572132

Dear Mr. Avakian:

This response to the first technical notice of deficiency, dated June 21, 2012, is submitted on behalf of Waste Management of Texas, Inc. The permit amendment application has been revised as appropriate and one original and three copies of the revisions are enclosed with this letter. The revision number and date are noted on each revised page and the revisions are highlighted as requested. Responses to the Texas Commission on Environmental Quality's (TCEQ's) comments are presented below in the order listed in the notice of deficiency.

Responses to comments provided by Mr. Arten Avakian on June 21, 2012:

General

1. Please note that all parts of the application are subject to the requirements of 30 TAC Chapter 330, Section (§) 330.57(d), regarding the requirement that the applicant provide the executive director data of sufficient completeness, accuracy, and clarity to provide assurance that operation of the site will pose no reasonable probability of adverse effects on the health, welfare, environment, or physical property of nearby residents or property owners.

RESPONSE: Noted. The permit amendment application has been prepared in accordance with 30 TAC Chapter 330, §330.57(d).

2. To facilitate our review, please provide a master table of contents that lists the volumes and page numbers for the major sections (parts, attachments, and appendices) of the application.

RESPONSE: *As requested, a master Table of Contents is provided in Volume 1 of the application. The Table of Contents is located following the Volume 1 cover page, prior to the Part I Form.*

3. Please ensure that all drawings in the application have a drawing number and a page number, as required by 30 TAC §330.57(h)(4).

RESPONSE: *Noted. The permit amendment application is prepared in accordance with §330.57(h)(4). All pages of this application have a distinct page number. There are some sections of the application where the drawing (or figure) number and page number are identical, such as Part I, Appendix IA – General Location Maps. Revisions to the application have been incorporated as appropriate.*

4. Please indicate the contour interval(s) in the legends of all drawings depicting contours.

RESPONSE: *We have revised appropriate drawings to improve clarity and depict drawing information in accordance with §330.57(d). As requested, the contour interval is included in the legend of the drawings depicting contours.*

Part I Form

5. On the Part I form, in the Operator Name block on page 1, please check the area code for the FAX number (shown as "942") and revise as needed.

RESPONSE: *As requested, the area code for the fax number has been checked and corrected.*

6. On the Part I form, in the Waste Management Units block on page 2, please include entries to document the facility processing units and storage units that are covered by the application, including the citizen's convenience center, leachate storage facility, mud grate facility, large item storage area, construction and demolition recycling and re-use area, liquid stabilization area, and bioremediation treatment pad.

RESPONSE: *As requested, the noted processing and storage units have been added to the Part I form.*

7. Please confirm whether the address is correct for the Ferris Public Library, indicated on page 3 of the Part I form as the public place where a copy of the administratively complete application is available to the public. The form gives the address "301 E. 10th," whereas the City of Ferris website indicates "514 S. Mabel Street," and the U.S. Postal Service zip code lookup tool (https://tools.usps.com/go/ZipLookupAction_input) indicates "514 South Mable Street" (different spelling of street name).

RESPONSE: The address listed for the Ferris Public Library in the Part I form is correct. A phone call to the library confirmed that the Ferris Public Library recently relocated to the address included in the Part I form.

8. On page 4 of the Part I form, please provide a location description that includes direction and distance from a major intersection that is shown on area maps. Please also provide a detailed description of the access route from the major intersection to the facility, including street names, directions, and distances.

RESPONSE: As requested, the location description and the detailed description of the access route have been revised.

9. Please compare the list of active authorizations on page 7a of the Part I form with the list of permits and approvals in Section 1.1 (Permit History) of the Part I narrative, and revise as needed. According to our agency records, Air Registration No. 25101 and Sludge Registration No. 710865, which are listed in Section 1.1, are active but are not included in the list on page 7a of the Part I form.

RESPONSE: Page 7a of the Part I Form has been updated to reflect all active authorizations.

Part I of the Application (Site and Applicant Information)

10. Please include references to drawings in Part I of the application that illustrate the information discussed in the various sections of the Part I narrative. For example, in the second and third paragraphs of Section 1.2 (Supplementary Technical Report), please include references to drawings which show the areas and acreages discussed.

RESPONSE: As requested, drawing references have been added to Part I of the application in various sections of the narrative.

11. For completeness, please include in Section 1.1 (Permit History) any nationwide permits which apply to the facility; for example, U.S. Army Corps of Engineers Nationwide Permit 39 (SWF-2009-00138) mentioned in Section 13.2 (Wetlands) in Part II of the application.

RESPONSE: As requested, the Nationwide Permit has been added to Section 1.1 of Part I.

12. Please revise the description of landfill areas in the second paragraph of Section 1.2 to address the following items (also reference drawings that show the areas described in the text):
- a. Clarify in the second sentence that the 286.4 acres of permitted waste disposal footprint does not include the 68.3 acres of pre-Subtitle area with final cover.

- b. Clarify whether the waste cells in 286.4 acres are entirely Subtitle D cells, or a mix of pre-Subtitle D and Subtitle D, and the amounts.
- c. Clarify in the third sentence that the waste disposal footprint consisting of approximately 146.5 acres of active waste disposal area and 139.9 acres of future disposal area does not include the pre-Subtitle D part of the footprint.

RESPONSE: As requested, Section 1.2 has been revised to clarify the description of landfill areas.

13. In the fourth sentence of the third paragraph of Section 1.2, please correct the statement that the permit boundary will remain at approximately 667 acres (according to the beginning of the paragraph, the area within the permit boundary will be reduced).

RESPONSE: As requested, Section 1.2 is revised to reflect the revised permit boundary of 661.74 (662) acres.

14. Please clarify whether any of the locations for waste processing or related activities described in the fourth paragraph of Section 1.2 are proposed to be within the buffer zone for the facility. Please reference a drawing that shows the locations along with the permit boundary and buffer zones. According to 30 TAC §330.141, no solid waste unloading, storage, disposal, or processing operations may occur within any easement, buffer zone, or right-of-way that crosses the site.

RESPONSE: The fourth paragraph of Section 1.2 has been revised to state that no solid waste unloading, storage, disposal, or processing operations will occur within any easement, buffer zone, or right-of-way. A reference to Appendix IA, Drawing IA.9 – Buffer Zone Plan has been added to Section 1.2. Drawing IA.9 has been added to clarify the location of the solid waste unloading, storage, disposal, and processing operations in relation to the buffer zone requirements and to demonstrate that the Skyline Landfill meets the requirements of §330.141.

15. Please reconcile the proposed condition projected site life information in the third paragraph on page I-3 in Section 1.2 (33 years) with that in the Permit Condition Summary table on the same page (32 years).

RESPONSE: The site life information has been revised in Section 1.2., as requested.

16. In the footnotes to the Permit Condition Summary table in Section 1.2, please include a reference to drawings that show the areas mentioned in the footnotes.

RESPONSE: As requested, a reference to drawings depicting the areas mentioned in the footnotes has been added.

17. Section 2.1 (Location Description) indicates that the facility is located at 1201 North Central Avenue, whereas the Part I form and our records indicate 1201

North Central Street. Please determine which is correct and revise the application accordingly.

RESPONSE: As requested, the facility address has been corrected in the application. The correct address is 1201 North Central Street.

18. During the technical review period for this application, please monitor property ownership in the area and update the land ownership map and landowners list in Part I of the application with any ownership changes that occur.

RESPONSE: The Skyline Landfill Permit Amendment Application has been prepared to identify property ownership within ¼ mile of the facility, in accordance with §330.59(c)(3) and §281.5. Per §330.59(c)(3)(B), the landowners' list must include property and mineral interest owners' names and mailing addresses derived from the real property appraisal records as listed on the date that the application was filed. There is no requirement to continue to monitor property ownership in the area and update the landowners' list after the application has been filed.

19. In Section 3.1 (General Location Maps), please note that the information regarding intake and discharge structures, which is required by 30 TAC §305.45, is presented in the notes on Drawing IA.3 (General Topographic Map) and that the notes (Note 7) indicate no such structures exist.

RESPONSE: Section 3.1 clearly states that the general location maps "collectively, as a group" comply with the rule requirements of §330.59(c)(1) – (2) and §305.45. No revisions have been made in response to this comment.

20. Please revise the property owner information in Section 4.1 (Legal Description) to address the following items:
- a. Please clarify whether the land records for Dallas County and the land records for Ellis County are part of the same record set, and whether the reference to a single volume (88124) and page (3068) is correct.
 - b. Please explain why the volume, page number, and record set identified in Section 4.1 are different from that in the legal description in Appendix IC (Legal Description and Permit Boundary Map).

RESPONSE: As requested, Section 4.1 has been revised to refer to the legal description for the county, volume, and page number of the permit boundary included in Appendix IC.

21. Section 4.2 (Drainage, Pipeline, and Utility Easements) presents information that is required in Part II of the application. It is acceptable to include the information in Part I, as long as it is also included in Part II. If the information is not already included in Part II of this application, please add the information to Part II.

RESPONSE: *The drainage, pipeline, and utility easement locations and descriptions have been verified and are included in Appendix IC – Legal Description and Permit Boundary Map. These easements are also shown in Appendix IA on Drawing IA.6 – Site Plan, Drawing IA.7 – General Site Plan and Drawing IA.8 – Entrance Road and Entrance Facilities Plan. Further, as required by §330.61(c)(10), these easements are shown in Appendix IIA, Drawing IIA.13 – General Site Plan, and Drawing IIA.20 – Entrance Road and Entrance Facilities Plan. As requested, applicable narrative sections included in Part I and Part II have been revised as needed to reference the appropriate drawing.*

22. The entry for Mr. Donald J. Smith in Section 6.2 (Management and Personnel) mentions “Mr. Myhan.” Please revise the text to indicate Mr. Smith, if that was the intent, or explain the role of Mr. Myhan.

RESPONSE: *As requested, the text in Section 6.2 has been revised.*

23. In the description of management and personnel experience in Section 6.2, please spell out at least once each of the initialisms (for example, “BFI” and “CEOS”) that have not been defined in Part I.

RESPONSE: *As requested, we have clarified Browning Ferris Industries, Inc. (BFI) and CECOS International, a wholly owned subsidiary of BFI in Section 6.2.*

24. Please add a longitude grid line to Drawing IA.1 (General Highway Map, Dallas and Ellis County), connecting the 96°40' longitude tick marks.

RESPONSE: *As requested, a second latitude/longitude reference mark has been added to all appropriate drawings.*

25. Please add a second, distinct latitude and longitude reference mark to Drawings IA.3 (General Topographic Map), IA.4 (Water Well Location Map), and IA.5.

RESPONSE: *As requested, a second latitude/longitude reference mark has been added to all appropriate drawings.*

26. Some of the information (contour lines, labels, text) on the topographic base maps for Drawings IA.3 and IA.4 is faint and not legible. Please use a fully legible copy of the base for these drawings.

RESPONSE: *Drawing IA.3 and Drawing IA.4 use the United States Geological Survey (USGS) 7½-minute quadrangle sheet for Ferris, Texas as the base map, to depict the requirements of §305.45 and §330.59. This quadrangle sheet was originally prepared by the USGS in 1959 and was last “photorevised” in 1968. We have downloaded the applicable USGS base map from the USGS website and we have included updated drawings throughout the application that use the USGS quadrangle sheet as a base map to improve the legibility of all features included in the base map.*

27. Please provide the complete state identification number for water wells listed in the notes on Drawing IA.4. Please also show the quadrangle numbers for the state well grid on the drawing, for reference.

RESPONSE: *The complete state well identification numbers for water wells and the TWDB water well grids have been added to Drawing IA.4. The title for Drawing IA.4 has been changed to more accurately reflect the information required by §305.45(a)(6)(A). It is now named, Drawing IA.4 – Wells, Springs and Water Bodies Location Map.*

28. Please describe within Part I the methods and criteria used to identify water wells within one mile of the facility, shown on Drawing IA.4, and specific data sources. Please also explain if you determined what areas are potentially served by public water systems, whether all water users within the service areas are supplied by the water systems, and what you determined about the likelihood of water wells at residences and other structures or features that are not within service areas.

RESPONSE: *The additional information requested by this comment is a duplication of information that is provided in this application, as required by §330.61, in Part II – Existing Conditions and Character of the Facility and Surrounding Area, Section 8.1 – Wells within 500 Feet and by §330.63(e) in Part III – Facility Investigation and Design, Attachment E – Geology Report, Section 3.5 – Area Water Wells; both sections have been revised to include the requested text. A note has been added to Drawing IA.4 to reference the appropriate sections of the application for complete information on water wells.*

29. The image in Drawing IA.5 (Aerial Photograph) is dark and has low contrast, and may be difficult to read when photocopied. Please provide a better quality image for this drawing.

RESPONSE: *As requested, Drawing IA.5 – Aerial Photograph has been updated. Contrast has been adjusted to provide a more legible image.*

30. Please revise drawings IA.1 through IA.5, and IA.7 to clarify whether the permit boundary and landfill footprint shown on the drawings are for the existing facility or the proposed facility.

RESPONSE: *The permit boundary and waste disposal footprint depicted on Drawings IA.1 through IA.5, and Drawing IA.7 depict the permit boundary and waste disposal footprint proposed with this application. Drawing IA.6 depicts the existing and proposed permit boundary and waste disposal footprint to clearly define the proposed changes in the permit boundary and waste disposal footprint with this permit amendment application. Additional clarification is not necessary; there are no revisions required as a result of this comment.*

31. Please include the owners of public roadways in the landowners list and land ownership map in Appendix IB, and notify those owners along with other landowners.

RESPONSE: Appendix IB includes the Land Ownership Map and Land Owners List. This information reflects the current property ownership within ¼ mile of the permit boundary, and all mineral interest ownership under the facility, as required by §305.45(a)(6)(D) and §330.59(c)(3). The property ownership and mineral interest owners' names and mailing addresses are derived from the real property appraisal records as listed on the date the application was filed. These records were obtained on April 11, 2012, and were reviewed following submittal of the application in accordance with §330.59(c)(3)(B). There are no public roadways included in the Dallas or Ellis County Appraisal District records. No additional revisions are required to the landowners list and land ownership map in Appendix IB as a result of this comment.

32. Please address the following items in Appendix IC (Legal Description and Permit Boundary Map):
- a. Document whether the description and map are for the existing facility, or the proposed facility.

RESPONSE: The legal description and permit boundary drawing have been revised to include a reference to the proposed facility (Permit No. 42D).

- b. If the description and map are for the proposed facility, include a legal description of the 5.21 acres that will be removed from the permit by the amendment.

RESPONSE: There is no regulatory or legal requirement for including a legal description of the area of the existing permit boundary to be removed.

- c. According the final statement of the legal description, the total acreage within the described boundary is 662.74 acres, exactly 1 acre greater than the acreage for the proposed facility stated earlier in the application (661.74 acres). Please explain the discrepancy and revise the application as needed.

RESPONSE: The legal description has been revised to accurately include the acreage of the proposed permit boundary as 661.74.

Part II of the Application (Existing Conditions and Character of the Facility and Surrounding Area)

Part II Narrative

33. Please include references to drawings in Part II of the application that illustrate the information discussed in the various sections of the Part II narrative. For example, in the third and fourth paragraphs of Section 1.1 (Existing Conditions), please include references to drawings which show the areas and acreages discussed.

RESPONSE: As requested, drawing references have been added to Part II of the application in various sections of the narrative.

34. Please revise the description of landfill areas in the third paragraph of Section 1.1 to address the following items (also reference drawings that show the areas described in the text):
- a. Clarify in the second sentence that the 286.4 acres of permitted waste disposal footprint does not include the 68.3 acres of pre-Subtitle area with final cover.
 - b. Clarify whether the waste cells in 286.4 acres are entirely Subtitle D cells, or a mix of pre-Subtitle D and Subtitle D, and the amounts.
 - c. Clarify in the third sentence that the waste disposal footprint consisting of approximately 146.5 acres of active waste disposal area and 139.9 acres of future disposal area does not include the pre-Subtitle D part of the footprint.

RESPONSE: As requested, Section 1.1 has been revised to clarify the description of landfill areas.

35. In the fourth sentence of the fourth paragraph of Section 1.1, please correct the statement that the permit boundary will remain at approximately 667 acres.

RESPONSE: As requested, Section 1.1 is revised to reflect the revised permit boundary of 661.74 (662) acres.

36. Please clarify whether any of the locations for waste processing or related activities described in the fifth paragraph of Section 1.1 are proposed to be within the buffer zone for the facility. Please reference a drawing that shows the locations along with the permit boundary and buffer zones. According to 30 TAC §330.141, no solid waste unloading, storage, disposal, or processing operations may occur within any easement, buffer zone, or right-of-way that crosses the site.

RESPONSE: The fifth paragraph of Section 1.1 has been revised to state that no solid waste unloading, storage, disposal, or processing operations will occur within any easement, buffer zone, or right-of-way. A reference to Appendix IIA, Drawing IIA.21 – Buffer Zone Plan has been added to Section 1.1. Drawing IA.9 has been added to clarify the location of the solid waste unloading, storage, disposal, and processing operations in relation to the buffer zone and to demonstrate that the Skyline Landfill meets the requirements of §330.141. Please note the dimensional call-outs to the landfill footprint depicted on Drawing IIA.21. Please note the dimensional call-outs to storage and processing facilities located outside the landfill footprint are also included on Drawing IIA.21.

37. Please revise the second paragraph of Section 2.1 (Properties and Characteristics of Waste) to clarify that it is not because of 30 TAC §330.15 (relating to General Prohibitions) that you will not accept Class 1 nonhazardous

industrial waste, but rather it was your own decision to not accept the waste. (Note that 30 TAC §330.15 does not specifically prohibit Class 1 nonhazardous industrial waste.) Please also clarify that Class 1 waste has not been accepted in the past, and that there are no existing Class 1 cells at the facility.

RESPONSE: As requested, the second paragraph of Section 2.1 has been revised.

38. Please revise the discussion of waste acceptance rate in the first paragraph on page II-4, in Section 2.2 (Volume and Rate of Disposal) to acknowledge that in accordance with 30 TAC §330.125(h) the executive director (of the Texas Commission on Environmental Quality) may require permit conditions that are different from or absent in the existing permit.

RESPONSE: As requested, additional language from §330.125(h) has been added to Section 2.2.

39. The estimate of remaining waste disposal capacity in the second paragraph on page II-4 in Section 2.2 apparently is based on an aerial survey flown March 6, 2011, and differs from the estimate reported in Section 1.2 in Part I of the application which is based on a survey flown March 4, 2012. Please provide the most current information in both parts of the application.

RESPONSE: As requested, Section 2.2 has been revised to reflect the remaining capacity based on the aerial survey flown March 4, 2012.

40. Please explain the source of the annual disposal rate for year 2044 (1,600,330 tons/year) in the calculations of population equivalent on page II-4 in Section 2.2. Note that the value differs from the anticipated maximum rate reported in Section 1.2 in Part I of the application (1,622,740 tons/year).

RESPONSE: The anticipated maximum waste acceptance rate has been revised to be consistent throughout the application. A reference to the capacity and site life calculations provided in Part III, Attachment D4 has been added to Part II, Section 2.2.

41. In Section 7 (Land Use Map), please clarify whether it is Figure LU-3 (Land Use), rather than Drawing IIB.3 that shows the information discussed in Section 7.

RESPONSE: As requested, Section 7 has been revised to show the correct labeling of the Land Use drawing.

42. Please summarize in Section 7 and/or Section 8 (Impact on Surrounding Area) the major data (for example, types and proportions of land uses) and conclusions of the land use analysis detailed in Appendix IIB.

RESPONSE: The information required by §330.61(g) and (h) are included in appendices within Part II as referenced within Section 7 and 8. No additional duplication of information is necessary or required. The complete studies,

conclusions and major data can be found in the referenced appendix listed in each section.

43. Please address the following items regarding Section 8.1 (Wells Within 500 Feet):

- a. Please describe within Section 8.1 the methods and criteria used to identify water wells, and specific data sources. Please also explain if you determined what areas are potentially served by public water systems, whether all water users within the service areas are supplied by the water systems, and what you determined about the likelihood of water wells at residences and other structures or features that are not within service areas.

RESPONSE: Section 8.1 has been revised to include the requested information.

- b. In the second paragraph of Section 8.1, please indicate where in the application the documentation may be found that confirms wells 33-27-501 and 33-27-601 were plugged and abandoned.

RESPONSE: Copies of the TWDB records for the known wells found within one mile of the facility have been added to Attachment E, Appendix E1 and references to the page numbers of the copies have been included in Section 8.1, as well as in Attachment E, Section 3.4.

- c. In the last paragraph of Section 8.1, on page II-11, please explain whether there are any oil or gas wells within 500 feet of the facility that are not producing (including exploratory wells, shut-in wells, and plugged wells or abandoned wells), and show any such wells on Drawing IIA.5.

RESPONSE: The last paragraph of Section 8.1 has been revised to explicitly state that there are no existing producing or abandoned wells or dry holes known to exist within 500 feet of the facility and that should any be found during facility development they will be handled as described in Section 12.2 – Oil & Gas Wells and in Section 8.16 – Oil, Gas, and Water Wells of Part IV, Site Operating Plan.

44. Please detail in Note 4 on Drawing IIA.5 exactly where in Attachment E of Part III that oil and gas well information may be found.

RESPONSE: Since there are no such wells, there is no information regarding oil/gas wells in Part III, Attachment E. Note 4 on Drawing IIA.5 has been revised to state that no known existing or abandoned crude oil or natural gas wells or other wells associated with mineral recovery are located within the Skyline Landfill permit boundary or within 500 feet of the permit boundary.

45. Please address the following items regarding Section 9 (Transportation):

- a. Please summarize the key data (for example, number of landfill vehicle trips now and in the future) and conclusions of the

transportation study detailed in Appendix IIC to show compliance with the provisions of 30 TAC §330.61(i).

RESPONSE: *The Transportation Study included as Appendix IIC – Transportation Study has been prepared consistent with the requirements of §330.61(i)(1)–(4). Section 9 properly references Appendix IIC – Transportation Study for the required information. No revisions are required as a result of this comment.*

- b. Please acknowledge that the application proposes to change the facility operating hours (mentioned in the Future Traffic Analysis section, on page II.C-46 of Appendix IIC), state what the proposed changes are, and indicate where the proposed changes are detailed in the application.

RESPONSE: *As requested, Part I, Section 1.2, and Part II, Section 2 have been revised to acknowledge that the permit amendment application proposes changes to the facility operating hours. The transportation study evaluates the impact of facility operations on the transportation network in the vicinity of the site. Transportation network operations are evaluated based on the peak hour(s) of network operations, not necessarily the peak hour of facility operations. Extending facility hours to non-peak hours would not result in a negative impact on peak hour network operations. Therefore, the existing facility hours of operation were used as the basis for the transportation study.*

- c. Please document whether you have received a response from the City of Lancaster Airport to your letter dated September 30, 2011 (copy in Appendix IIH). If so, include a copy of the response in Appendix IIIH.

RESPONSE: *Notification was provided to the Federal Aviation Administration (FAA) and the City of Lancaster Airport regarding the proposed expansion of the Skyline Landfill in accordance with §330.545(b), in correspondence dated September 21, 2011 to FAA, and in correspondence dated September 30, 2011 to the City of Lancaster. The FAA responded on February 22, 2012, indicating that they had no objection to the proposed expansion provided the facility continues to submit monthly and annual bird monitoring reports. The Skyline Landfill will continue its bird control program with monthly and annual bird monitoring reports submitted to FAA and TCEQ as required by the procedures included in Part IV - Site Operating Plan.*

46. Please clarify that the two counties referred to in the first sentence of the second paragraph in Section 10.1 (General Geology) are Dallas County and Ellis County.

RESPONSE: *As requested, the two counties are now named in the first sentence of the second paragraph of Section 10.1.*

47. We suggest that you delete the third paragraph of Section 10.1, consisting of one sentence regarding surface water bodies. Surface water bodies are addressed later in Section 11.3 of Part II.

RESPONSE: *The requested deletion is relevant to the general geology summary. No change was made to the third paragraph of Section 10.1.*

48. Please explain the meaning of the references to "Layer IV" in the discussion of Stratum II (unweathered Taylor Marl) in the last paragraph on page II-16 and the second paragraph on page II-17 in Section 10.1.

RESPONSE: *The reference has been corrected to read "Stratum II" instead of "Layer IV".*

49. Please include in Section 10.3 (Fault Areas) a summary of the information presented in the fault study that appears in Part III of the application.

RESPONSE: *Section 10.3 – Fault Areas has been updated to include a summary of the fault study described in Part III, Attachment E.*

50. Please include in Section 10.4 (Seismic Impact Zones) a summary of the information presented in the seismic impact analysis in Part III of the application, and reference Drawing IIA.10 (Seismic Impact Map) in Appendix IIA. Please also regenerate Drawing IIA.10 using the same coordinates used elsewhere in the application for the facility (the coordinates indicated on Drawing IIA.10 appear to represent a point southeast of the landfill).

RESPONSE: *Section 10.4 – Seismic Impact Zone has been updated to include the requested information and Drawing IIA.10 – Seismic Impact Map has been updated as requested.*

51. Section 11.2.1 (Paluxy Formation) reports that the depth to the top of the Paluxy Formation ranges from about 830 feet in northwestern Ellis County to more than 2,950 feet to the east, but also states that the depth to the Paluxy in the landfill area is approximately 610 feet. Please determine whether the information is correct, and explain why the Paluxy might be at a shallower depth in the area of the landfill.

RESPONSE: *The reference to the depth to the Paluxy beneath the landfill has been corrected.*

52. Please revise Table II-11.2 (Hydraulic Properties of Regional Aquifer) to reference drawings within Part II for any information needed to address the groundwater information requirement of 30 TAC §330.61(k). Please add drawings (for example, for the regional water table) that are not already included in Part II.

RESPONSE: Table II-11.2 is revised to include a specific and complete reference to the water table map provided in Part III, Attachment E. The water table map is not duplicated in Part II.

53. Please address the following items in Section 11.3 (Surface Water):

- a. In the second and third sentences, please correct "unmanned" to "unnamed."

RESPONSE: As requested, the typographical error has been corrected.

- b. Please discuss in the text the depths and purpose(s) of the ponds on the site.

RESPONSE: As requested, the following sentence has been added to the last paragraph in Section 11.3: "The detention and retention ponds are designed to provide the necessary storage and outlet control to mitigate impacts to the receiving channels downstream of the Skyline Landfill."

- c. Please indicate which Texas river basin contains the Ten Mile Creek watershed, and into which fork of the river the watershed drains.

RESPONSE: As requested, additional narrative has been added to identify that Ten Mile Creek is within the Trinity River Basin.

- d. The facility named on the TPDES permit (Permit No. TXR05U147, Skyline Recycling and Disposal Facility, copy in Appendix IIG of the application) does not match the current name of the facility as indicated in our records and in the application (Skyline Landfill).

RESPONSE: TPDES Permit No. TXR05U147 is valid for this facility regardless of name. The RN number and CN number referenced on the TPDES permit are the same number referenced in this permit application for the Skyline Landfill. The Skyline Landfill, in some regulatory correspondence and permits is referred to as the Skyline Recycling and Disposal Facility.

54. In Section 12.1 (Water Wells), please identify by number the well that was plugged and indicate where in the application the documentation may be found that confirms the well was plugged and abandoned.

RESPONSE: As requested, Section 12.1 has been revised to list the well ID and to reference the copies of the plugging record provided in Part III, Attachment E, Appendix E1.

55. Section 13.2.2 (Permits Required) states that an individual permit (IP) is currently under review, whereas the last sentence states that an IP was issued. Please review and clarify this information.

RESPONSE: As requested, Section 13.2.2 has been revised to clarify that the IP (SWF-2009-00371) was issued on January 18, 2012.

56. The third paragraph of Section 13.2.3 (Demonstration of Compliance with Location Restrictions) states that "As detailed above, approximately 20.37 acres of wetlands. . ."; however, we were not able to easily compare the acreages and areas described in the paragraph with an earlier discussion "above." Please provide a straightforward accounting of the wetlands and water bodies here and/or earlier in Section 13.

RESPONSE: Section 13.2.3 has been revised to provide the requested summary information for the wetlands and water bodies.

57. Please clarify in the third-to-last paragraph on page II-29, in Section 13.2.3, that it is not because of 30 TAC §330.15 that you will not accept Class 1 nonhazardous industrial waste, but rather it was your own decision to not accept the waste. (Note that 30 TAC §330.15 does not specifically prohibit Class 1 nonhazardous industrial waste.)

RESPONSE: As requested, Section 13.2.3 has been revised as noted above.

58. Please address the following items regarding Section 14 (Endangered or Threatened Species):
- a. Please acknowledge the summary statement in the September 22, 2011, memorandum by Halff Associates, Inc., in Appendix IIE (Endangered or Threatened Species Documentation) that a number of threatened, endangered, or rare species could occur in the study area, and summarize the measures the facility will take to address these concerns.

RESPONSE: As requested, Section 14 has been revised to include the referenced summary statement that is in Appendix IIE.

- b. Please reference the section of the Site Operating Plan (Part IV of the application) that discusses the measures to address threatened, endangered, or rare species.

RESPONSE: As requested, Section 14 has been revised to include a reference to Part IV, Section 8.14 – Endangered Species Protection.

- c. Please document whether you have received a response from the Texas Parks and Wildlife Department (TPWD) to your request for information, communicated to TPWD in a letter from Halff Associates, Inc., dated October 17, 2011 (copy in Appendix IIE). If so, include a copy of the response in Appendix IIE.

RESPONSE: No response from Texas Parks and Wildlife Department (TPWD) has been received to date. The public notice review of the Section 404 permit is also

an opportunity for TPWD to provide comments regarding threatened and endangered species. Although TPWD did provide project specific comments during this period, there were no comments regarding impacts to threatened and endangered species. This was noted on page IIE-8 of Appendix E.

- d. Please document whether you have received a response from the U.S. Fish and Wildlife Service (USFWS) to your request for information, communicated to USFWS in a letter from Halff Associates, Inc., dated October 17, 2011 (copy in Appendix IIE). If so, include a copy of the response in Appendix IIE.

RESPONSE: No response from the U.S. Fish and Wildlife Service (USFWS) has been received to date. The public notice review of the Section 404 permit is also an opportunity for USFWS to provide comments regarding threatened and endangered species. The USFWS did not provide comment during this period.

59. In accordance with 30 TAC §330.61(o), please obtain a review letter from the Texas Historical Commission documenting compliance with the Natural Resources Code, Chapter 191, Texas Antiquities Code, include a copy in Appendix IIF (Archaeological Survey), and reference the document in Section 15 (Texas Historical Commission Review) of Part II.

RESPONSE: A letter was sent to the Texas Historical Commission (THC) on December 19, 2008 requesting a review and recommendations for the project. This letter, a copy of which is provided in Part II, Appendix IIF, is in reference to Section 106 of the National Historic Preservation Act because the correspondence was also in support of a federal Clean Water Act Section 404 permit application. The letter was returned with a "No Historic Properties Affected, Project May Proceed" stamp signed by a representative for the State Historic Preservation Officer (SHPO). In Texas, the executive director of the Texas Historical Commission (THC) acts as the SHPO, and Section 106 encompasses more potential effects than the Texas Antiquities Code. No project could ever be cleared for Section 106 that does not also satisfy the requirements of the Texas Antiquities Code. This stamp is the typical response of the THC with regards to projects that do not need further investigation.

60. In Section 16 (Council of Governments and Local Government Review Request), please explain why the permit conditions stated in the review request to the North Central Texas Council of Governments (documented in Appendix III, North Central Texas Area Council of Governments Documentation; pages III-13 and III-19), differ from those in the Supplementary Technical Report in Section 1.2 in Part I of the application.

RESPONSE: Section 16 and Appendix III document coordination with the North Texas Council of Government (NCTCOG). Consistent with §330.61(p), a copy of the transmittal letter dated April 12, 2012 is included in Appendix III that documents submittal of Parts I and II of the application to NCTCOG for their review.

Appendix III also includes documentation of earlier submittals made to NCTCOG on October 13, 2011 and on November 8, 2011. Portions of the October 13, 2011 submittal (pages III-13 and III-19) were based on the March 6, 2011 aerial topography. This resulted in a larger remaining disposal capacity than was ultimately included in the permit amendment application which is based on the March 4, 2012 aerial topography. The site life reported in the October 13, 2011 is based on a 0% increase per year in waste acceptance rate; the site life included in the permit amendment application is based on a 1.4% increase per year in waste acceptance rate, resulting in a site life of approximately 32 years. Further, the permit boundary has been revised to remove 5.21 acres from the previous permit boundary for the resulting 661.74 acre permit boundary.

These revisions are documented to NCTCOG in the submittal of Parts I and II of the application on April 12, 2012. A revised submittal will be made to NCTCOG that documents the revisions to Parts I and II required by this NOD.

61. Please review the rule citations in the introductory paragraph of Section 17 (Location Restrictions), determine if they are the intended citations, and revise as needed.

RESPONSE: The introductory paragraph of Section 17 has been revised to clarify the rule citations listed.

62. Please acknowledge in Section 17.5 (Endangered or Threatened Species) the statement in the summary in the September 22, 2011, memorandum by Halff Associates, Inc., in Appendix IIE (Endangered or Threatened Species Documentation) that a number of threatened, endangered, or rare species could occur in the study area, and summarize the measures the facility will take to address these concerns. Please also reference the section of the Site Operating Plan (Part IV of the application) that discusses the measures.

RESPONSE: As requested, Section 17.5 has been revised to reference Part IV, Site Operating Plan, Section 8.14 – Endangered Species Protection. In addition references to Part II, Section 14 and Appendix IIE are included.

63. In Section 17.10 (Coastal Areas), please expand the discussion to acknowledge compliance with 30 TAC Chapter 335, §335.584(b)(4), and to clarify that the facility will not be managing Class 1 nonhazardous industrial solid waste (except that which is designated Class 1 only because of asbestos content).

RESPONSE: The Skyline Landfill is not located within a coastal area or within 5,000 feet of an area subject to active coastal shoreline erosion. However, as requested, we have added a reference to §335.584(b)(4) as noted above.

Part II, Appendix IIA (Maps and Drawings)

64. Please add a second, distinct latitude and longitude reference mark to Drawings IIA.2 (General Topographic Map), IIA.3 (General Land Use), and IIA.7 (Aerial Photograph).

RESPONSE: As requested, latitude/longitude reference marks have been added to Drawings IIA.2, IIA.3 and IIA.7.

65. Please add two distinct latitude and longitude reference marks to Drawings IIA.6 (Airport Map) and IIA.8 (Geologic Vicinity Map).

RESPONSE: As requested, latitude/longitude reference marks have been added to Drawings IIA.6 and IIA.8.

66. Some of the information (contour lines, labels, text) on the topographic base maps for Drawings IIA.2, IIA.3, IIA.4 (Water Well Location Map), and IIA.5 (Locations of Oil and Gas Producing Wells) is faint and not legible. Please use a fully legible copy of the base for these drawings.

RESPONSE: As requested, Drawings IIA.2, IIA.3, IIA.4, and IA.5 use the United States Geological Survey (USGS) 7½-minute quadrangle sheet for Ferris, Texas as the base map. This quadrangle sheet was originally prepared by USGS in 1959 and was last "photorevised" in 1968. We have downloaded the applicable USGS base map from the USGS website and have included updated drawings throughout the application that use the USGS quadrangle sheet as a base map to improve the legibility of all features included in the base map.

67. Please provide the complete state identification number for water wells listed in the notes on Drawing IIA.4. Please also show the quadrangle numbers for the state well grid on the drawing, for reference.

RESPONSE: As requested, Drawing IIA.4 has been updated to include the referenced information.

68. The image in Drawing IIA.7 is dark and has low contrast, and may be difficult to read when photocopied. Please provide a better quality image for this drawing.

RESPONSE: As requested, Drawing IA.7 – Aerial Photograph has revised. Contrast has been adjusted to provide a more legible image.

69. Please show and label the location of the permanent benchmark for the site on Drawing IIA.13 (General Site Plan).

RESPONSE: As requested, Drawing IIA.13 has been revised to depict the location of the site benchmark.

70. On Drawing IIA.14 (Site Layout Plan), which shows distances between the landfill disposal units and the permit boundary, please label the locations of the various

waste processing and related activities. As a reminder, according to 30 TAC §330.141, no solid waste unloading, storage, disposal, or processing operations may occur within any easement, buffer zone, or right-of-way that crosses the site.

RESPONSE: *No solid waste unloading, storage, disposal, or processing operations will occur within any easement, buffer zone, or right-of-way. Drawing IIA.21 – Buffer Zone Plan has been added to clarify the dimensions from the permit boundary to the waste disposal or landfill footprint. Facility unloading, storage and processing facilities located within the landfill footprint are also noted on this drawing. Please note the dimensional call-outs to the waste disposal footprint depicted on Drawing IIA.21. The dimensional call-outs to storage and processing facilities located outside the waste disposal footprint are included on Drawing IIA.21 – Buffer Zone Plan. Drawing IIA-21 has been added to clarify the location of the solid waste unloading, storage, disposal and processing operations in relation to the buffer zone requirements and demonstrate that the Skyline Landfill meets the requirements of §330.141.*

71. Section 17.1.2 (Buffer Zones) of the Part II narrative states that the buffer distances from the permit boundary to each storage or processing facility are shown on Drawings IIA.14 and IIA.20 (Entrance Road and Entrance Facilities Plan); however, on Drawing IIA.14 the storage or processing facilities are not labeled, and on Drawing IIA.20 the buffer distances are not marked. Please revise both drawings to show the information described in the text.

RESPONSE: *The dimensional call-outs to storage and processing facilities located outside the waste disposal footprint are included on Drawing IIA.21 – Buffer Zone Plan. Section 17.1.2 has been revised to reference Drawing IIA.21.*

72. Drawing IIA.15 (Groundwater and Landfill Gas Monitoring Plan) does not appear to show all of the existing groundwater monitor wells that are shown on Figure F1-2 (Existing Groundwater Monitoring System) in Part III of the application. As Part II contains the existing conditions summary, the drawing showing groundwater and landfill gas monitor wells should show all of the existing wells. Please revise Drawing IIA.15 accordingly.

RESPONSE: *Drawing IIA.15 has been revised to include all existing gas monitoring probes and groundwater monitoring wells.*

73. Please expand the legend in Drawing IIA.20 to include all of the symbols that appear on the drawing within the facility property (for example, circles cut by vertical or diagonal lines; circles with central dots; circles with short radial lines on the outside).

RESPONSE: *As requested, the legend in Drawing IIA.20 has been revised to include the pertinent information depicted on the base map. The legend shows items that are applicable to the drawing.*

Part II, Appendix IIB (Land Use Analysis)

74. Please reference Figure LU-1 (Metropolitan Context) in the appropriate place in the text of Appendix IIB.

RESPONSE: As requested, reference to Figure LU-1 has been included in the text of Appendix IIB.

75. Please provide a legend on Figure LU-1 that identifies the meaning of shaded areas in the figure.

RESPONSE: As requested, Figure LU-1 has been revised to clarify the shaded areas included in the figure.

76. Please explain the meaning of the "City of Wilmer 5' Strip" shown on Figure LU-2 (Zoning – 2 Mile).

RESPONSE: As requested, Figure LU-2 has been revised.

77. Please revise the legend of Figure LU-2, or the "Zoning" section in the text to indicate the correct meaning of "SUP" (legends indicates "unit," whereas text indicates "use").

RESPONSE: As requested, the correct definition of "SUP" has been included throughout Appendix IIB.

78. Please check the bar scale (graphic scale) on Figure LU-2, which does not seem consistent with the scale of the illustration, and revise as needed.

RESPONSE: As requested, the bar scale on Figure LU-2 has been revised.

79. Please explain whether zoning maps more recent than those indicated on Figure LU-2 for the City of Ferris (2007) and the City of Wilmer (February 2006) are available.

RESPONSE: The current zoning maps available for the City of Ferris and the City of Wilmer have been used. The zoning maps in the study are applicable and accurate.

80. Please provide a bar scale (graphic scale) on Figure LU-3 (Land Use).

RESPONSE: As requested, a bar scale has been added to Figure LU-3.

81. Please provide exact references for the information in the population growth trends table on page IIB-4 of Appendix IIB, and the population change figures on Figure LU-4 (Population Change).

RESPONSE: The references provided are sufficient to identify the source.

82. Please provide a bar scale (graphic scale) on Figure LU-4.

RESPONSE: As requested, a bar scale has been added Figure LU-4.

83. Please show on Figure LU-3 the location of the historic church described in the text on page IIB-5 in the "Proximity" section of Appendix IIB.

RESPONSE: As requested, Figure LU-3 has been revised to depict the location of the historic church.

84. The copy of City of Ferris Ordinance No. 349 is heavily shaded and partly unreadable. Please provide a legible copy of the ordinance.

RESPONSE: As requested, Ordinance No. 349 has been reprinted for better legibility.

85. The stated scale (1 inch = 6,000 feet) on Figure LU-5 (Population Change ... 5 Mile Radius) is not consistent with the bar scale.

RESPONSE: As requested, Figure LU-5 has been revised to clarify the scale of the drawing.

Part II, Appendix IIC (Transportation Study)

86. Please provide drawings that identify all of the roadways discussed in the *Roadway System in Proximity to the Site* section of the text on pages II.C-3 through II.C-11.

RESPONSE: As requested, Drawing IIC-1 has been revised to show all roads included in the Roadway System in Proximity to the Site section of Appendix IIC.

87. Parts of Drawings II.C-2 and II.C-3 are barely legible because lines are heavy and fuzzy and run together, or because shading on the drawing has darkened rendering details unreadable. Please provide better copies of these drawings.

RESPONSE: As requested, Drawings II.C-2 and II.C-3 have been reprinted for better legibility.

88. Please revise the text to clarify whether "S Dallas Avenue/BR 45 (Central Street)" on page II.C-4 refers to exactly the same road segment as "Millers Ferry Road/BR 45 (Central Street)" on page II.C-8.

RESPONSE: As requested, text has been revised to clarify the two road names.

89. Please include information in the *Data Collection* section on pages II.C-12 and II.C-13 explaining what types of vehicles are included in each of the vehicle classifications (heavy vehicles, waste vehicles, and other vehicles).

RESPONSE: As requested, information has been included to further describe vehicle classifications.

90. Please explain why the vehicle totals in Tables II.C-14 through II.C-24 (Existing Vehicle Classification) do not match the totals in Tables II.C-2 through II.C-13 (Hourly Traffic Volumes) for the same road segments during the same days and hours.

RESPONSE: Existing vehicle classification data were derived from visual counts of traffic at adjacent intersections and are considered more accurate than the pneumatic tube count data presented in the hourly traffic volumes. In addition, clock synchronicity, tube malfunction, and human error potentially create minor discrepancies between the data. Noting this potential, the tube and visual data were compared to validate the data, significant discrepancies were noted, and recounts were conducted if required. However, the data were reported as collected, choosing not to adjust numbers to force convergence. Refer to page II-C-12 for discussion. No revisions are required as a result of this comment.

91. Please explain in the Future Traffic Analysis section of Appendix IIC why the year 2044 projected average daily traffic volume for the landfill presented in Table II.C-28 is less than the sum of daily landfill trips in the forecasted volumes in Table II.C-29.

RESPONSE: The daily landfill trips reported in Table II-C-29 represent all landfill trips expected to use the facility. A single landfill trip may use multiple roadway segments to complete its route. One example would be a vehicle originating on FM 983, west of BR 45, which would travel on FM 983 and on BR 45, south of the landfill en route to the landfill. Both of these routes would record one trip, resulting in a total of 2 trips if all rows were summed. No revisions are required as a result of this comment.

92. Please note in the References list that reference 8 (Skyline Landfill Traffic Projection) is provided as Appendix 12 to Appendix IIC.

RESPONSE: As requested, the References list has been reviewed and updated.

93. Please indicate the starting page number for each of the appendices in the Appendix list on page II.C-55 of Appendix IIC.

RESPONSE: As requested, appendices in the Appendix list have been numbered.

94. The tables for unsignalized intersection capacity analysis on pages II.C-149 through II.C-192 in the Appendix have shading that obscures information, which will be illegible if photocopied. Please provide versions of the tables that are fully legible, even if copied.

RESPONSE: As requested, tables on pages II.C-149 through II.C-192 have been reprinted for better legibility.

Part III of the Application (Facility Investigation and Design)

Part III, Attachment A (Site Development Plan Narrative)

95. Please clarify whether any of the locations for waste processing or related activities described in the last paragraph of Section 1.1 (Site Location and History) are proposed to be within the buffer zone for the facility. Please reference a drawing that shows the locations along with the permit boundary and buffer zones. According to 30 TAC §330.141, no solid waste unloading, storage, disposal, or processing operations may occur within any easement, buffer zone, or right-of-way that crosses the site.

RESPONSE: Section 1.1 has been revised to state that no solid waste unloading, storage, disposal, or processing operations will occur within any easement, buffer zone, or right-of-way. A reference to Appendix IIA, Drawing IIA.21 – Buffer Zone Plan has been added to Section 1.1. Please note in the dimensional call-outs to the waste disposal footprint depicted on Drawing IIA.21. Please note the dimensional call-outs to storage and processing facilities located outside the waste disposal footprint are included on Drawing IIA.21.

96. Please identify in Section 4 (Waste Management Unit Design) the various storage, processing, and transfer units mentioned in Section 1.1, and reference the parts of the application that provide the details for those units.

RESPONSE: As requested, Section 4 has been revised to identify the storage, processing, and transfer units as well as a reference to the parts of the application where details can be found.

Part III, Attachment B (General Facility Design)

97. The third paragraph of Section 2 (Waste Movement) indicates that Drawing B.2 depicts the collection, separation, processing, and disposal areas at the facility. Please modify Drawing B.2 to clearly identify and draw attention to those items.

RESPONSE: Section 2 is revised to clarify the reference to collection, separation, processing and disposal areas at the facility.

Drawing B.2 depicts the waste disposal and processing areas that are located within the landfill footprint. Drawing B.3 depicts the location of processing facilities that are located outside the landfill footprint.

98. In Drawing B.2, some of the symbols in the legend do not appear to match those used in the drawing itself. Please review and revise the drawing accordingly.

RESPONSE: As requested, Drawing B.2 has been revised.

99. In the third paragraph of Section 2, please list the processing facilities that are depicted on Drawing B.3. Please also list the facilities on the drawing (in addition to the labels).

RESPONSE: As requested, Section 2 has been revised to include the processing facilities depicted on Drawing B.3.

100. In Section 2, in the last paragraph on page B-3, please clarify the meaning of the sentence "A composite final cover will be constructed over the remainder of the landfill." Has part of the landfill already received final cover? If so, is the design of existing cover different from that proposed in the application?

RESPONSE: As requested, Section 2 has been revised to clarify the proposed final cover system. Reference is provided to drawings that identify the location and limits of previously constructed final cover areas.

101. The list of inert materials in the Reusable Materials Staging Area subsection of Section 2, on page B-4, includes asphalt and shingles. Asphalt and shingles are not ordinarily considered inert. Please revise the text to clarify that asphalt and shingles are not inert materials, and to acknowledge that they will be managed in a manner that will prevent runoff of contaminated water, discharge of waste, or the creation of nuisance conditions. Please also revise the text to preclude the use of shingles in road base (some shingles may contain asbestos).

RESPONSE: As requested, Section 2 has been revised to clarify the reusable materials staging area and the reference to asphalt and shingles.

102. Please clarify that the citizen's convenience center shown on Drawing B-3 is the same as the citizen's convenience area referred to in the text.

RESPONSE: As requested, the text and Drawing B-3 have been clarified.

103. In the Liquid Stabilization subsection of Section 2, please give examples of wastes that would fit into the category "Class 3 liquid industrial waste."

RESPONSE: Section 2 has been revised to delete the use of the term "Class 3 liquid industrial waste".

104. Please acknowledge in Section 5 (Endangered Species Protection) the statement in the summary in the September 22, 2011, memorandum by Half Associates, Inc., in Appendix IIE that a number of threatened, endangered, or rare species could occur in the study area, and indicate that the operational requirements for endangered species protection are contained in the Site Operating Plan, in Part IV of the application.

RESPONSE: As requested, Section 5 has been revised to include the referenced summary statement in Part II, Appendix IIE.

Part III, Attachment D (Waste Management Unit Design)

105. The list of inert materials in Section 2.2 (Reusable Materials Staging Area) includes asphalt and shingles. Asphalt and shingles are not ordinarily considered inert. Please revise the text to clarify that asphalt and shingles are not inert materials, and to acknowledge that they will be managed in a manner that will prevent runoff of contaminated water, discharge of waste, or the creation of nuisance conditions. Please also revise the text to preclude the use of shingles in road base (some shingles may contain asbestos).

RESPONSE: *As requested, Section 2.2 has been revised to clarify the reusable materials staging area and the references to asphalt and shingles.*

Part III, Attachment E (Geology Report)

106. Please clarify in Section 1.1 (Regional Physiography and Topography), in the discussion of the nearest surface water body, whether a branch of Ten Mile Creek is located right at the northern boundary of the site.

RESPONSE: *The sentence has been revised to state: "The nearest surface water body in the area is a branch of Ten Mile Creek, which is located adjacent to the northern boundary of the site."*

107. In Section 1.2 (Regional Stratigraphy and Lithology), please briefly explain the connection between the stratigraphic terms "Taylor" and "Ozan" (which appear together in other parts of the application).

RESPONSE: *The lower Taylor Marl is also known as the Ozan Formation. This statement has been added to the second paragraph of Section 1.2.*

108. Please clarify that the two counties referred to in the first sentence of the third paragraph in Section 1.2 are Dallas County and Ellis County.

RESPONSE: *As requested, the two counties are now named in the first sentence of the third paragraph of Section 1.2.*

109. This first sentence in Section 3 (Regional Aquifers) of the narrative for Attachment E states that "Regional Cretaceous aquifers that supply groundwater to wells in Dallas and Ellis counties are the Paluxy and Woodbine formations." Please clarify in Section 3 whether there are any other regional aquifers in addition to the Cretaceous aquifers.

RESPONSE: *The sentence has been revised as follows: "Regional aquifers that supply groundwater to wells in Dallas and Ellis counties are the Paluxy, Woodbine and Twin Mountain formations, all of which are Cretaceous in age." Section 3.3 – Twin Mountains Formation has been added to describe the characteristics of these aquifers.*

110. The second sentence of Section 3.1 (Paluxy Formation) states that the "Depth to the top of the Paluxy ranges from about 830 feet in northwestern Ellis County to more than 2,950 feet to the east" is contradicted by the third sentence which states that "Depth to the Paluxy in the landfill area is approximately 610 feet (Thompson, 1967)." Please review and revise accordingly.

RESPONSE: *The reference to the regional depth to the top of the Paluxy (830 to 2950) in Ellis County is correct. We have corrected the specified depth to the top of the Paluxy at the site. The sentence now states: "Depth of the top of the Paluxy in the landfill area is approximately 1600 feet."*

111. Please revise Table E-2 (Hydraulic Properties of Regional Aquifer) to include the information that the areas of recharge to the Woodbine and Paluxy aquifers are 30 and 60 miles to the west, respectively, to help demonstrate compliance with 30 TAC §330.63(e)(3)(I), which requires identification of areas of recharge to the aquifers, within five miles of the site.

RESPONSE: *Table E-2 has been revised to include the direction and distance to the recharge areas of the two aquifers.*

112. Please revise the first paragraph of Section 3.4 (Area Water Wells) to acknowledge that two of the reported wells (6(1) and 6(2)) are completed at relatively shallow depth (118 to 120 feet, rather than 1,360 to 1,500 feet), as indicated in Table E-3 (Water Wells Within One Mile).

RESPONSE: *The last sentence of the first paragraph of Section 3.4 (formerly Section 3.3) states "Only a few shallow domestic and livestock wells tap the weathered Taylor Marl in Ellis County and yield small quantities of fresh to slightly saline hard water". A similar statement, repeating this information, has been added in the first paragraph of Section 3.5 in response to this comment.*

113. In Section 3.4, please identify the specific data sources reviewed to find water wells within one mile of the facility. Please also describe the methods for conducting the "windshield search," exactly which road segments were included in the search, and the criteria for judging whether a well was present. Please also explain if you determined what areas are potentially served by public water systems, whether all water users within the service areas are supplied by the water systems, and what you determined about the likelihood of water wells at residences and other structures or features that are not within service areas.

RESPONSE: *Section 3.5 (formerly Section 3.4) has been updated to include the specific data sources reviewed, the windshield search methodology, distance covered, and well identification observations. A brief discussion has been added that includes the area served by public water systems and a statement that homes in the area, whether or not there is a public water system available and whether or not any visible evidence or public record can be located, could have a water well.*

114. In Section 4.1 (Biggs and Mathews Environmental – 2011), please clarify that 22 borings were drilled as close as possible to earlier borings, but to a greater depth than the earlier borings. The existing text may be misunderstood to mean that the former boreholes were reentered and advanced to greater depths.

RESPONSE: The sentence has been revised as follows: "New borings were drilled as close as possible to previous borings but to a greater depth than the earlier borings."

115. Figure E2-1 (a copy of the May 3, 2011, soil boring plan approval letter) is not conspicuously labeled as a figure. In Section 4.1 and in Section 4.3 (Soil Boring Plan), please revise the references to Figure E2-1 to clarify that the figure is found on pages E2-1.1 and E2-1.2 in Appendix E2 (Site Exploration Data).

RESPONSE: As there are no other pages with this identifying figure number, and rather than make numerous reference and table of contents revisions, we have simply changed the page numbering system on Figure E2-1 to read E2-1 (page 1 of 2) and E2-1 (page 2 of 2) to clarify that there is only one figure but it comprises two pages.

116. Please reference Table E-4 (Historical Borings) in the discussions of the various subsurface investigations and sets of boring.

RESPONSE: References to Table E-4 have been added to Section 4 – Subsurface Investigation Report, as requested.

117. Section 4.2.1 (McBride-Ratcliff – 1987-1990) reports 27 borings and 23 piezometers were completed during the 1987-1990 investigation; however, Table E-4 lists 26 borings for that study. Please revise the table to include the missing boring.

RESPONSE: There were actually only 26 borings. The text in Section 4.2.1 has been revised to say that 26 borings were drilled. No changes were made to Table E-4 as a result of this comment.

118. Please explain whether the 55 borings referred to in Section 4.2.3 (HDR Engineering – 1993) are listed in Table E-4, or shown on Figure E2-2 (Boring and Well Location Map).

RESPONSE: Clarifying sentences were added to the first paragraph of Section 4.2 that state the following: "Figure E2-2 illustrates the locations of these 55 soil borings. Boring logs for these borings are included in Appendix E2."

119. Please add coordinates to Table E-4 for each of the borings listed in the table, to aid in locating the borings on figures. For the borings completed in 2011 to greater depths at earlier locations, please provide the actual coordinates of the 2011 borings.

RESPONSE: The coordinates of the borings have been added to Table E-4.

120. Please add a column to Table E-4 indicating the elevation of the top of the unweathered Taylor in each boring where it was encountered.

RESPONSE: *The elevation of the top of the unweathered Taylor has been added to Table E-4.*

121. Please include a note on Figure E2-2, Figure E3-1 (Geologic Cross Section Location Map), and Figure E3-6 (Structural Contour Map, Top of the Unweathered Taylor) that refers to parts of Section 4 (Subsurface Investigation Report) for information explaining the various sets of soil borings.

RESPONSE: *A note has been added to Figure E2-2 and Figure E3-1 that refers to parts of Section 4 for additional information regarding the borings. The top of the unweathered Taylor is now Figure E3-8 and the note has been added to that map as well.*

122. We were unable to find boring CB-15 on Figure E2-2. Please direct us to the location on the figure, or add the boring if it is not currently shown.

RESPONSE: *The drawing has been revised to show CB-15, which is located adjacent to MW-25.*

123. The last sentence of Section 4.3 mentions piezometer installations. Please discuss whether piezometers were installed as part of the 2011 subsurface investigation. If piezometers were not installed as part of the 2011 subsurface investigation, please move the sentence to other sections where piezometers are discussed.

RESPONSE: *The last sentence of Section 4.3 has been removed, as piezometers were not part the investigation for this permit amendment. A sentence which states that, "Piezometer installation is discussed in Section 5.5.3," has been added to Section 4.2.1, 4.2.2, and 4.2.3.*

124. Please revise the footnote to Table E-5 (Generalized Site Stratigraphy) to clarify that TCEQ regards the weathered Taylor marl as an aquifer for groundwater monitoring purposes, but not a *regional* aquifer as the footnote may imply.

RESPONSE: *As requested, a footnote was added in Table E-5 which states: "The TCEQ regards the weathered Taylor marl as an aquifer for groundwater monitoring purposes, but not as a regional aquifer."*

125. In Section 4.4.1 (Stratum I – Weathered Taylor Marl), please clarify that the previous stratigraphic description in the 1993 permit application had divided the weathered Taylor marl (rather than "this stratum") into two strata.

RESPONSE: *The sentence has been revised to say "weathered Taylor marl" instead of "this stratum."*

126. The last sentence on page E-17 states that “from a hydrogeologic perspective, this identification [subdividing the weathered Taylor] is not ultimately useful in describing the hydrogeology of the site.” Please clarify whether the different parts of the weathered Taylor are represented in the technical discussions and shown on boring logs and cross sections.

RESPONSE: *The 1993 subsurface study, published by HDR in 1994, included in the permit application, subdivided the weathered Taylor into two strata (Stratum I and II). The 1993 stratigraphic descriptions assigned a separate description (Stratum I) to the upper few feet of material that was the soil profile. In effect this is the most weathered of the weathered Taylor interval. However, the identification and differentiation of this zone cannot be consistently repeated. Therefore, we have included the borings and have simply noted in Section 4.4.1 that this earlier interpretation existed and that we are not using it. Except for that mention a subdivision of the weathered Taylor is not included in the technical discussion nor shown on any cross sections. A sentence has been added to the end of the first paragraph of Section 4.4.1 to state that these subdivisions are not used in this application.*

127. In the discussion of field permeability test results in Section 4.4 (Site Stratigraphy), please reference Section 5.6.1 (Hydrogeologic Units) and Table E-13 (Hydraulic Conductivity Values) for further information.

RESPONSE: *A reference to Section 5.6.1 – Hydrogeologic Units and Table E-13 – Hydraulic Conductivity Values has been added to Section 4.4 – Site Stratigraphy, as requested.*

128. Please indicate the number of samples that contributed to each average property listed in Table E-7 (Average Properties of On-Site Materials).

RESPONSE: *Table E-7 has been revised to indicate the number of samples that contribute to each average property listed.*

129. Please include coordinates for each of the monitor wells listed in Table E-9 (Piezometer and Groundwater Monitoring Well Details) to aid in locating the borings on figures. For the borings completed in 2011 to greater depths at locations drilled earlier, please provide the actual coordinates of the 2011 borings.

RESPONSE: *The coordinates for each of the monitoring wells have been included in Table E-9.*

130. There appear to be discrepancies between the water elevations reported in Table E-10 (Historic Water Levels – Monitoring Wells) in Attachment E and the elevations that appear on Drawing D7A-1 (Highest Recorded Groundwater Elevations) in Appendix D7-A (Highest Measured Water Levels) to Attachment D (Waste Management Unit Design). Please examine the data in both attachments and reconcile the differences; please also revise the ballast evaluation in Attachment D accordingly.

RESPONSE: *The water level data included in Attachment E and Appendix D7-A have been reviewed and revised. Appendix D7A has been revised to include all of the historical boring and piezometer water level data. The data are presented on Pages D7-A-2 and D7-A-3 and Drawing D7A-1 has been revised to include these data as well. Calculations for temporary dewatering and ballast in Appendices D7-B and D7-C have been revised using the revised water level data.*

131. The water level elevations reported for piezometer P-7 for March 1988 (436.9 feet), and for piezometer P-19 for December 18, 1990 (456.2 feet) appear to be greater than the surface elevations for these piezometers in Table E-4. Please examine the data and make corrections as needed.

RESPONSE: *The reported water levels for piezometer P-7 for March 1988 and for P-19 for December 18, 1990 were included in the original 1995 permit. We believe these two data points to be in error. The water level reported for P-7 could be a typographical error and should possibly instead read 406.9, however we cannot confirm that. Piezometer P-19 had months of consistent water level readings in the 390s; therefore, we believe the reference to a 456 feet water elevation is in error. We have modified Table E-11 with a note suggesting that these data points are errors and not valid. As such, these data points were not used in the design of the facility.*

132. Please include monitor well and piezometer surface elevations on Tables E-10 and E-11 (Historic Water Levels – Piezometers) to aid in review of the water level elevation data.

RESPONSE: *The surface elevations for monitoring wells and piezometers have been added to Table E-10 and E-11.*

133. Some of the historic water levels in piezometers and borings reported in Tables E-11 and E-12 (Groundwater Observations During Drilling) appear to be higher than the highest recorded groundwater elevations represented in Drawing D7A-1 in Appendix D7A to Attachment D7. Please explain why these higher groundwater elevations are not included in the evaluation of seasonal high water table and ballast requirements in Attachment D7.

RESPONSE: *Appendix D7-A has been revised to include all of the historical boring and piezometer water level data. The data are presented on Pages D7-A-2 and D7-A-3 and Drawing D7A-1 has been revised to include these data as well.*

134. Some of the data in Table E-12, for depth to water and groundwater elevation appear to be in the wrong columns. Please review the table and revise as needed.

RESPONSE: *Table E-12 has been revised to switch the data to the correct column.*

135. In the discussions of hydraulic conductivity in Section 5.6.1 (Hydrogeologic Units) for Stratum I and Stratum II, please provide arithmetic means in addition to

geometric means, and reference Table E-13 (Hydraulic Conductivity Values) which lists individual test results.

RESPONSE: Although we believe the geometric mean to be an appropriate methodology, the arithmetic means for both Stratum I and Stratum II have been added to the discussion in Section 5.6.1, as requested. Also, a reference to Table E-13 has been added to that section.

136. Please revise Table E-13 to include arithmetic means of the hydraulic conductivity values for Stratum I and Stratum II.

RESPONSE: The arithmetic means for Stratum I and Stratum II have been added to Table E-13.

137. Please revise the first sentence in Section 5.6.1.2 to clarify that the discussion is about groundwater in the fractures of the unweathered marl immediately beneath the weathered marl, if that is the case. The sentence as currently written may be misconstrued to mean that it addresses fractures *deep* within the unweathered marl, and not fractures occurring in the upper part of the unweathered marl.

RESPONSE: The sentence has been revised as follows: "Groundwater occurring in the fractures of the unweathered marl immediately beneath the weathered marl would be recharged by the slow, downward movement of groundwater from the overlying shallow, weathered marl zone."

138. The third- and second-to-last sentences in the third paragraph of Section 5.6.1.2 present information about groundwater flow in Stratum I. Please include that information in Section 5.6.1.1 (Stratum I – Weathered Taylor Marl/Uppermost Aquifer).

RESPONSE: As requested, the language has been duplicated in Section 5.6.1.1.

139. The last sentence in the third paragraph of Section 5.6.1.2 appears to present the [geometric] mean hydraulic conductivity for Stratum I (4.23×10^{-9} cm/sec) rather than the value indicated for Stratum II in Table E-13 (2.59×10^{-9} cm/sec). Please revise the text accordingly.

RESPONSE: The geometric mean for Stratum I has been revised in Section 5.6.1.2. Consistent with previous comments we have included both the geometric and arithmetic means in Sections 5.6.1.1 and 5.6.1.2.

140. Please explain in Section 5.6.3.1 (Groundwater Flow Direction) whether the groundwater in the upper part of the unweathered Taylor marl flows within the unit and whether the upper part of the unweathered marl will be monitored by the facility's groundwater monitoring system.

RESPONSE: The first paragraph of Section 5.6.3.1 has been revised to state the following: "Groundwater occurs beneath the site at the interface of the weathered Taylor Marl and upper part of the unweathered Taylor Marl. The groundwater

monitoring network is designed to monitor the interface of the weathered and the unweathered Taylor Marl."

141. Please revise the third sentence in the first paragraph of Section 5.6.3.1 to clarify that it refers to the structural contour map of the top of the unweathered Taylor (rather than the top of the unweathered *map*).

RESPONSE: The third sentence of the first paragraph of Section 5.6.3.1 – Groundwater Flow Direction has been revised as suggested.

142. Please provide a scale, plan-view drawing that shows the outlines of existing and planned excavations, their depths, and whether and where the Stratum I/Stratum II boundary intersect the excavations. Please also show flow paths, including those that may pass beneath cells and those that are diverted around cells. Please reference the drawing in the sentence in the middle of the first paragraph of Section 5.6.3.1, which states that "Groundwater flow from the south is diverted around the composite lined excavation."

RESPONSE: As requested, a scale plan view drawing has been included as Figure E6-12 in Appendix E6. This figure has been referenced in Section 5.6.3.1. Groundwater flow arrows were not included on the figure because most of the weathered has been removed on the existing facility. However where the weathered still remains, it only exists in isolated discontinuous areas cutoff from infiltration and lateral recharge and therefore groundwater would be unable migrate.

143. A sentence in the second half of the first paragraph of Section 5.6.3.1, and also in the last paragraph on page E-33 state that the excavations extend well into the unweathered Taylor. Please revise the discussions to acknowledge that in some places (for example, areas shown on geologic cross sections B-B' and C-C' in Figures E3-3 and E3-4) the excavation does not extend down into the unweathered Taylor, and that some thickness of weathered Taylor remains beneath some cells. Please also explain the meaning of the next sentence which states that "As such, a leachate leak is unlikely to migrate into the unweathered Taylor groundwater." To the contrary, it seems the unweathered marl is exactly where leachate would migrate if it leaked from a cell founded within the unweathered marl.

RESPONSE: The correlations on cross sections B-B' and C-C' have been revised to show the correct top of the unweathered Taylor Marl as confirmed by the boring logs for those borings and monitoring wells represented on those cross sections. The excavation in the expansion area is extended down into the unweathered Taylor Marl where placement of composite liners will cut off normal groundwater flow in the permeable parts of the Taylor. On the existing facility, most of the weathered Taylor Marl has been removed. Where the weathered portion still remains, it only exists in isolated discontinuous areas cutoff from infiltration and lateral recharge and, therefore, is unable to migrate any leachate leak. Areas where the unweathered Taylor still remains after excavation are shown on Figures

E3-1 and E6-12. *The referenced sentence in Section 5.6.3.1, has been modified to state: "Due to the low permeability of the unweathered Taylor Marl (and the permeability contrast with the weathered clay), a leachate leak is unlikely to migrate vertically into the unweathered Taylor." A reference to the figures has also been added.*

144. The third-to-last sentence in the first paragraph of Section 5.6.3.1 states that "Wells MW-2R, MW-3R, MW-4, and MW-5 on the west side of the site are frequently dry." The statement appears inaccurate, as according to Table E-10 monitor well MW-2R has always contained groundwater, and MW-3R has contained groundwater during 9 of the 12 observations documented.

RESPONSE: *In response to this comment, we reviewed the table and source data for the table and found a problem in the spreadsheet that resulted in inaccurate data; water levels were reported erroneously for the June 2011 event for MW-4, MW-5, MW-6, MW-7 and MW-13 when the wells were actually dry. Elevations have been confirmed by field data and Table E-10 has been corrected.*

Section 5.6.3.1 has been revised as follows: "Monitoring well MW-4, on the west side of the site, has only had groundwater in the well one time in the last eleven years, while monitoring well MW-5, also located on the west side of the site has never had groundwater in the well. Monitoring well MW-7 has contained water only three times in the last eleven years and has been dry since September 2010. Monitoring well MW-13 on the northeast side of the site was installed in December of 2001 and has never contained water. The lack of water in these wells on a consistent basis indicates that normal recharge and thus groundwater flow in those areas have been cut off."

Monitoring wells MW-2R and MW-3R have had water levels during recent events. As such, we have added monitoring wells MW-27 and MW-28 in the vicinity of MW-2R and MW-3R as discussed in Attachment F to address the 600-foot spacing requirement. In addition, MW-29 and MW-30 have been added on the either side of MW-13 due to recent water levels in MW-12 and in new MW-25 to comply with the 600-foot well spacing requirement.

145. The first full sentence on page E-33 in Section 5.6.3.1 states that the areas near MW-4, MW-5, MW-7, and MW-13 are now *consistently* dry. However, Table E-10 documents that groundwater was recently encountered in each of those wells. Please revise the text to accurately represent the findings of the groundwater investigations.

RESPONSE: *As stated in response to Comment 144, Table E-10 has been corrected to show confirmed water occurrence. Erroneous water levels were reported for the June 2011 event for MW-4, MW-5, MW-6, MW-7 and MW-13 when these wells were dry. Section 5.6.3.1 has been revised to state: "As shown in the table, the areas near MW-5 and MW-13 have never contained groundwater." Monitoring wells MW-4 and MW-7 have been removed from the discussion because they have contained water in past events.*

146. Please reference a drawing that illustrates the cells discussed in the first full paragraph on page E-33 (which begins "Initial development occurred ...")

RESPONSE: *As requested, Figure E6-13 showing the cell development sequencing has been added to Appendix E6.*

147. In the discussions of monitor wells on page E-33 in Section 5.6.3.1, please reference a drawing that shows the locations of the monitor wells.

RESPONSE: *A notation has been added in Section 5.6.3.1 that the monitoring well locations are also depicted on Figure E3-8.*

148. Please document the calculations, including all input values, for the groundwater flow rate (2.01×10^{-4} ft/yr) presented in Section 5.6.3.2 (Groundwater Flow Rate). Please also present a calculation based on arithmetic mean hydraulic conductivity of Stratum I.

RESPONSE: *The input values and calculations to determine groundwater flow velocity using both geometric and arithmetic mean are shown on Figure E6-6.*

149. Please review the list of references in Section 7 and remove those that are not cited; as an alternative, indicate in the list that they are not cited in Attachment E and provide notes indicating why they are included and what they are contributing to the application.

RESPONSE: *The references that were cited in the text have been identified with a footnote notation. The remaining references, while not specifically referenced, contribute to our understanding of regional or local geology and hydrogeology and remain listed.*

150. Please explain in an introduction to the boring logs that moisture content and other geotechnical information determined from core samples from the 2011 borings is tabulated in Appendix E5 (Laboratory Tests). Please also indicate where in the application the laboratory data sheets for the tests may be found. In addition, please explain whether you obtained information regarding degree of compaction, and where those data may be found.

RESPONSE: *Section 4.1 on page E-12 of Attachment E has been revised to include a reference to Appendix E5 for geotechnical laboratory test data.*

151. We did not find a monitor well data sheet for monitor well MW-1 in Appendix E2 (Site Exploration Data). Please add a data sheet for that well.

RESPONSE: *The data sheet for monitoring well MW-1 has been included. The data sheet was included in the original permit document; however, it must have been skipped during copying and was omitted from some copies.*

152. Monitor well data sheets for MW-4, 6, 10, 11, 14, 16, 17, and 18 in Appendix E2 appear fuzzy, and may worsen in quality when copied. Please provide sharper copies if they are available, or prepare fresh data sheets for those wells.

RESPONSE: Sharper copies of the monitoring well data sheets for MW-4, MW-6, MW-10, MW-11, MW-14, MW-16, MW-17, and MW-18 are included in this submittal.

153. Please address the following comments regarding Appendix E3 (Site Geologic Data):

- a. The vertical scale of cross section A-A' is smaller than the vertical scale of the other three cross sections (B-B', C-C', and D-D'). Please redraw cross section A-A' using the same vertical scale as the other three cross sections.

RESPONSE: Cross section A-A' was split in order to draw it at the same scale as the other cross sections and is included as Figure E3-2A. While still at a smaller scale cross section A-A' is still included as Figure E3-2.

- b. The boring log for CB-26 on cross section D-D' appears to be positioned 20 feet higher than the surface elevation documented for the borehole. Please verify the boring data and revise the cross sections as needed.

RESPONSE: The elevation for boring CB-26 on cross section D-D' has been revised.

- c. Please modify the labeling on the cross sections to distinguish between excavations for landfill cells and excavations for other purposes (for example, the shallow excavations at the northeast ends of cross sections C-C' and D-D').

RESPONSE: The detention pond excavation has been labeled at the northeast ends of cross sections C-C' and D-D'.

- d. Please explain why the original ground surface on cross section A-A' at the location of boring CB-19 is approximately 20 feet higher than the surface elevation documented for the boring.

RESPONSE: The ground surface shown on cross section A-A' is the current ground surface which has changed since boring CB-19 was drilled in 1987.

- e. Please revise the cross sections to include the current ground surface and the features shown on the cross section location map in Figure E3-1 that have modified the original ground surface (for example, the pre-Subtitle D landfill area at the east end of cross section B-B', dirt stockpiles, etc.).

RESPONSE: The cross sections have been revised to include the current ground surface and features, as requested.

- f. Boring log CB-12 on cross section B-B' appears to be positioned too far west.

RESPONSE: The location of CB-12 on cross section B-B' has been revised.

- g. Please mark and label the locations of monitor wells MW-8 and MW-11 in Figures E3-1 and E3-6 (Structural Contour Map, Top of the Unweathered Taylor).

RESPONSE: The locations of monitoring wells MW-8 and MW-11 in Figures E3-1 and E3-6 have been labeled.

- h. The point representing MW-7 in the inset on Figure E3-2 (showing the location of cross section A-A') appears to be labeled as MW-6.

RESPONSE: The point representing MW-7 in the insert on Figure E3-2 has been correctly labeled.

- i. Please show MW-23 on cross section A-A'.

RESPONSE: Monitoring well MW-23 has been added to cross section A-A'.

- j. Please include MW-24 on cross sections A-A' and D-D'.

RESPONSE: Monitoring well MW-24 has been added to cross section A-A' and D-D'.

- k. Please show on cross section B-B' borings LD-1 and B-3, and the piezometers that were at the location of boring CB-6.

RESPONSE: Boring B-3 and piezometers P-5, P-6, and P-10 located at boring CB-6 have been added to cross section B-B'. Only the location of LD-1 was added to cross section B-B'. No lithological description was included in the 1995 permit document for LD-1, only the construction detail. The construction detail for boring LD-1 is included as Figure E2-159 in Appendix E-2.

- l. Please include boring LD-2 on cross section D-D'.

RESPONSE: The location of LD-2 was included on cross section D-D'. As discussed in the above comment (153.k.), no lithological descriptions were included in the 1995 permit document, only construction detail. The construction details for boring LD-2 are included as Figure E2-160.

- m. The symbol marking the location of boring CB-28 appears to be covered over by the end point label of cross section D-D'.

RESPONSE: Figure E3-1 has been revised to show the location of CB-28 on cross section D-D'.

- n. Please provide two or more cross sections (one approximately north-south, the other approximately east-west) through the pre-Subtitle D area and Phase 5 area, showing the geologic units, the bottom(s) of the excavation(s), and any other information that will aid in the understanding of the subsurface conditions in that area. Please also explain in the text whether the Phase 5 area is a Subtitle D cell or pre-Subtitle D cell.

RESPONSE: Cross section E-E' and F-F' have been included as Figures E3-6 and E3-7. Section 1.2 has been added to Attachment F to discuss liners and groundwater flow direction in these areas.

- o. Please include piezometer water levels on the cross sections.

RESPONSE: Piezometer water levels for June 12, 1991 have been included on all cross sections.

- p. Please review the cross sections and maps and advise us of any other corrections or modifications that you make.

RESPONSE: All cross sections have been reviewed and no additional revisions or modifications have been made.

- q. Please explain the meaning of the letters "NDE" which precede the top-of-unweathered-Taylor elevation value (370 feet) at boring CB-29 in Figure E3-6.

RESPONSE: On Figure E3-6, the term "NDE" was an inadvertent typographical error and has been removed from the drawing. The value 370 feet is the correct top-of-the-unweathered-Taylor at boring CB-29.

- r. Please examine the area around CB-47 in Figure E3-6 to determine if the elevation of the top-of-unweathered-Taylor (shown as 437.3 feet) is labeled correctly, and if so, add or reinterpret contours as needed so that the data point will be below the 440-foot contour (rather than above).

RESPONSE: The contour lines on Figure E3-6 in the vicinity of CB-47 have been revised.

- s. Please reinterpret the contours in the area of CB-22 in Figure E3-6 so that the data point (which indicates top-of-unweathered-Taylor at 403.3 feet) will be above the 400-foot contour (rather than below).

RESPONSE: The contour lines on Figure E3-6 in the vicinity of CB-22 have been revised.

- t. Please indicate the elevation of the top-of-unweathered Taylor at the groundwater monitor well locations in Figure E3-6.

RESPONSE: Figure E3-6 has been revised to show the top of the unweathered Taylor at each well location. The contour lines have been revised accordingly.

154. Please regenerate Drawing E4-1 using the same coordinates used elsewhere in the application for the facility (the coordinates indicated on Drawing E4-1 appear to represent a point southeast of the landfill).

RESPONSE: Figure E4-1 was regenerated using the coordinates elsewhere in the application.

155. Please address the following items regarding Appendix E5 (Laboratory Tests):
- a. In the Geotechnical Laboratory Test Summary, please indicate the Stratum (I or II) from which each sample was taken.
 - b. Please identify the location and depth from which the sample reported on page E5-10 was taken, and show the location on a map.

RESPONSE: The Geotechnical Laboratory Test Summary in Appendix E5 has been revised to include a column indicating the Stratum from which each sample was taken. Also, Atterberg limits, moisture content, and unit dry weight test values were inadvertently shown for the Biggs and Mathews Environmental, Inc. laboratory test results; these results have been removed from the summary in appendix E5. The location of the sample reported on page E5-10 has been labeled TP-1 and has been added to the Boring and Well Location Map included as page E2-2.

156. Please address the following items regarding the potentiometric surface maps in Figures E6-1 through E6-5 in Appendix E6 (Site Hydrogeologic Data):
- a. The figures are labeled to indicate that the weathered Taylor has been or will be removed in the area of the waste footprint; however, according to the geologic cross sections (Figures E3-2 through E3-5), parts of the weathered Taylor remain or will remain beneath the landfill liner. Please modify the label on Figures E6-1 through E6-5 to acknowledge that fact, or if all of the weathered Taylor has been or will be removed, modify the geologic cross sections accordingly.

RESPONSE: The labeling has been removed from Figures E6-1 through E6-5.

- b. Please add potentiometric contours in the southern and southeastern areas of the maps to complete the interpretation of the potentiometric surface. (Some contours seem to be missing.)

RESPONSE: Potentiometric contours have been added to the southern and southeastern area of the potentiometric surface maps.

- c. Please extend potentiometric contours beyond the data points in the northern and northeastern areas of the maps to complete the interpretation of the potentiometric surface.

RESPONSE: Potentiometric contours have been added to the northern and northeastern areas of the potentiometric surface maps.

- d. Please interpret and extend potentiometric contours beneath the pre-Subtitle D area where any weathered Taylor remains.

RESPONSE: Potentiometric contours have been extended beneath the pre-Subtitle D area.

- e. Please verify that all contours are labeled correctly (for example, the 480-foot contour in the area of MW-1 in Figure E6-4).

RESPONSE: The 480 contour was corrected on Figure E6-4. All potentiometric maps were reviewed for accuracy. No other revisions were made.

157. Please include a potentiometric surface map in Appendix E6 for the June 2011 monitoring event, which appears to be the most recent event with complete data.

RESPONSE: A potentiometric surface map for June 2011 is included as Figure E6-6 in Appendix E6.

158. Please provide groundwater velocity calculations in Appendix E6 based on arithmetic mean hydraulic conductivity. Please also verify the existing calculations (the result may be too low by an order of magnitude).

RESPONSE: Groundwater velocity calculations based on arithmetic mean hydraulic conductivity are shown on Figure E6-7 in Appendix E6. In addition, the existing calculation was revised. The earlier geometric mean calculation has been corrected on the same figure.

159. Please examine the potentiometric contours and data values to verify whether the contours are drawn and labeled as intended according to the geologist's interpretation (for example, contours near piezometers P2/30 and P-25/26 appear to pass on the wrong sides of the data points).

RESPONSE: Potentiometric contours on Figure E6-8 have been revised.

160. Please address the following items regarding Figure E6-9 (Conceptual Hydrogeologic Cross Section):

- a. Label the landfill excavation and containment components.

RESPONSE: The landfill excavation and containment components have been labeled on Figure E6-9.

- b. Determine whether you intended to shade the area in the bottom of the landfill excavation, and if so what it signifies.

RESPONSE: The area in the bottom of the landfill excavation was inadvertently shaded; the shading has been removed on the figure.

- c. Provide approximate compass directions to help orient the reader.

RESPONSE: Approximate compass directions have been included on Figure E6-9.

- d. Identify the apparent surface drainage feature just to the right of the line representing the permit boundary.

RESPONSE: The surface drainage feature has been identified on Figure E6-9.

- e. Indicate whether precipitation infiltration can occur in the area upgradient of the landfill.

RESPONSE: It has been noted on the figure that surface infiltration can occur in the area upgradient of the landfill.

161. In Figure E6-10 (Conceptual Hydrogeologic Groundwater Flow Model), please indicate that the contours in the drawing are groundwater elevation contours representing the conceptual potentiometric surface.

RESPONSE: A note has been added to the Conceptual Hydrogeologic Groundwater Flow Model indicating that the contours represent a conceptualized potentiometric surface.

Part III, Attachment F (Groundwater Monitoring Plan)

162. The second paragraph of Section 1 (Site Hydrogeology) states that infiltration recharge still occurs on the downgradient parts of the site. Please add that recharge also occurs on the upgradient parts of the site and/or areas further upgradient, or explain why recharge does not occur in those areas.

RESPONSE: A statement was added to Section 1 that states: "Recharge also occurs on the upgradient parts of the site and/or areas further upgradient."

163. Please clarify in the first paragraph of Section 1.1 (Groundwater Flow Direction and Rate) that Figure E3-6 is a structural contour map of the top of the unweathered Taylor (rather than the top of the unweathered map).

RESPONSE: Clarifying language was added to Section 1.1 that Figure E3-6 is a structural contour map of the top of the unweathered Taylor.

164. The second paragraph of Section 1.1 (on page F-2) states that "The excavation is extended well into the low permeability unweathered Taylor." However, according to the geologic cross sections in Appendix E3, some parts of the

excavation extend only to the *top* of the unweathered Taylor, and in some areas part of the weathered Taylor remains or will remain beneath the excavation. Please review the site data and revise the discussion in Section 1.1 (also in Sections 1 and 2.1) accordingly.

RESPONSE: *Clarifying language has been added to Sections 1, 1.1, and 2.1. Those sections discuss the excavation as follows: "The excavation in the expansion area is extended down into the unweathered Taylor where placement of composite liners has cut off normal groundwater flow in the permeable parts of the Taylor. In the existing cell most of the weathered has been removed. Where it still remains, it only exists in isolated discontinuous areas cutoff from infiltration and recharge. Areas where the unweathered Taylor still remain after excavation are shown on Figure E3-1 and E6-12 in Appendices E3 and E6 of Attachment E."*

165. Please add a paragraph discussing groundwater flow in the pre-Subtitle D area and Phase 5 area.

RESPONSE: *Section 1.2 has been added to discuss the groundwater flow in the pre-Subtitle D area and the Phase 5 area.*

166. The last two sentences of the second paragraph on page F-2, in Section 1.1, report that Table in E-10 shows that the areas near MW-4, 5, 7, and 13 are now consistently dry. However, according to Table E-10, groundwater elevations were measured in those wells during the June 2011 event (the second most recent event shown on the table).

RESPONSE: *As discussed previously in the response to Comments 144 and 145, data input errors have been corrected in Table E-10; erroneous water levels were entered for the June 2011 event for MW-4, MW-5, MW-6, MW-7 and MW-13 when these wells were dry. Section 5.6.3.1 has been revised to state: "As shown in the table, the areas near MW-5 and MW-13 have never contained groundwater." Monitoring wells MW-4 and MW-7 have been removed from the discussion because they have contained water in past events. Section 1.1 has been revised to state: "As shown in the table, the areas near MW-5 and MW-13 are now consistently dry." MW-4 and MW-7 have been removed from the discussion because they have contained water in past events.*

167. Please add a drawing or reference an existing drawing that shows the cells discussed in the third paragraph on page F-2. Please also explain what cells are currently being developed or filled.

RESPONSE: *Figure E6-13 shows the sequence of cell development as discussed in Section 1.1. A reference to Figure E6-13 in Appendix E6 has been added in that paragraph.*

168. Please clarify in the fourth paragraph on page F-2 that it is recharge to the Taylor beneath the liner that is prevented by the liner (recharge to the Taylor still can occur in other areas).

RESPONSE: *That sentence has been revised to state: "Also, when the liner is installed, recharge by infiltration of precipitation to the Taylor beneath the liner is prevented by the liner."*

169. The second-to-the-last paragraph on page F-2 reports that MW-13 has been dry since December 2001 (apparently the first monitoring event after installation). According to the site geologic data (for example, geologic cross section A-A') MW-13 is not screened deeply enough to intercept the target monitoring zone (the lower part of the weathered Taylor and uppermost unweathered Taylor).

RESPONSE: *An inadvertent drafting error has been corrected on cross section A-A'. The cross section has been revised to show the correct correlation to the top of the unweathered Taylor as confirmed by the boring log for MW-13 included as Figure E2-202. The screen interval is also set to monitor the interface of the weathered/ unweathered contact.*

170. Please acknowledge in the first paragraph on page F-3 that some areas in the southern part of the site (buffer zones and areas between waste management and processing units) are open ground still capable of receiving precipitation and infiltration.

RESPONSE: *A sentence has been added to the paragraph stating that some areas in the southern part of the site are open ground still capable of receiving precipitation and infiltration.*

171. Please provide a scale, plan-view drawing that shows the outlines of existing and planned excavations, their depths, where the Stratum I/Stratum II boundary intersects excavations, and where any thickness of Stratum I remains. Please also show flow paths, including those that may pass beneath cells and those that are diverted around cells. Please reference that drawing in Section 2.1 (Relationship of Excavation Bottom to Uppermost Aquifer).

RESPONSE: *As requested Figure E6-12 in Attachment E, Appendix E6 has been referenced in Section 2.1. Groundwater flow arrows were not included on the figure because most of the weathered Taylor has been removed on the existing facility. However, where the weathered Taylor still remains, it only exists in isolated discontinuous areas cut off from infiltration and lateral recharge; therefore, groundwater would be unable to migrate. Note the corrections to Table E-10 discussed in responses to Comments 144 and 145. Areas where the unweathered Taylor still remain after excavation are also shown in Attachment E, Appendix E3, Figure E3-1 – Cross Section Location Map.*

172. Please revise Section 2.3 (Critical Receptors) to clarify that the top of the Woodbine is about 1,100 feet below the surface at the landfill site (according to information elsewhere in the application).

RESPONSE: *A sentence has been added to Section 2.3 which states: "The top of the Woodbine is about 1,100 feet below the surface at the landfill site."*

173. Please address the following items regarding Figure F1-1 (Monitor Well Water Level Elevations Compared with Nearby Original Piezometer Water Level Elevation):
- a. Please add a note explaining what water levels are represented on the figure. Are they the highest recorded water elevations, average elevations, or water elevations at a particular time?

RESPONSE: A date is indicated for the water levels shown.

- b. It appears the information in the figure is no longer current. All of the wells represented as dry in Figure F1-1 have recently exhibited measurable groundwater levels according Table E-10. Please update or eliminate the figure.

RESPONSE: As discussed in previous responses, spreadsheet errors have been corrected in Table E-10. Erroneous water levels were reported for the June 2011 event for MW-4, MW-5, MW-6, MW-7 and MW-13 when these wells were dry.

Areas described as dry on Figure F1-1 have been revised to include only the monitoring wells that always have been dry (MW-5 and MW-13) and one monitoring well that has been predominately dry, MW-4, according to Table E-10. As described in previous responses and in the response to Comment 175.b. below, additional monitoring wells have been added.

174. Please remove some of the topographic contours from Figures F1-2 and F1-3 (such as done for Drawing D1.2 in Attachment D) to lighten the drawings and improve legibility.

RESPONSE: In order to improve legibility, some of the contours have been removed from Figures F1-2 and F1-3.

175. Please address the following items regarding Figure F1-3 (Proposed Groundwater Monitoring System):
- a. Please indicate the distance between adjacent groundwater monitor wells along the entire point of compliance (POC).

RESPONSE: The distance between all monitoring wells has been shown between the monitoring wells along the POC.

- b. Please provide a technical demonstration for POC monitor well spacings that exceed 600 feet. You may submit the demonstration that was provided for the existing permit; however, please be aware it will be subject to further review as part of this permit amendment application, and that we may have comments upon further review.

RESPONSE: A demonstration of groundwater monitoring well spacing greater in some places than 600 feet was originally submitted in March 2008 and approved in

April 2009. While we did not include the Subchapter J modification in the appendices, the information and conclusions are included in parts of Attachments E and F.

The demonstration included evaluation of water levels and the occurrence of groundwater in the weathered Taylor near its contact with the unweathered Taylor. This groundwater occurrence is consistent with the hydrogeologic model used in the Subchapter J modification and in the original permit amendment that explained that the landfill excavation was extended through the weathered Taylor and was thus cutting off localized recharge. This interruption of recharge results in some areas being continually or frequently dry and justifies the spacing between wells capable of sampling to greater than 600 feet in some areas.

Since the approval, however, two wells previously considered dry (MW-3R and MW-12) have now shown the presence of groundwater (although it is not clear that this condition may be temporal in nature and not indicative of localized groundwater flow at the weathered and unweathered contact). To be consistent with the technical approach implemented with the approved Subchapter J technical demonstration, four additional wells (MW-27, MW-28, MW-29, and MW-30) have been added to the proposed groundwater monitoring system in the areas that previously were predominately dry but now show groundwater occurrences. In addition, a fifth new well, MW-31, has been added to the southeast flank of the POC between MW-15 and MW-19 to comply with the 600-foot spacing requirement. All monitoring wells are spaced 600 feet or less along the POC, except in two areas (MW-5 and MW-13), which have been historically dry.

176. Please discuss whether monitor wells MW-12 and MW-13 are properly designed. According to the site geologic data (for example, geologic cross section A-A'), MW-13 appears not to be screened deeply enough to intercept the target monitoring zone (the lower part of the weathered Taylor and uppermost unweathered Taylor), and MW-12 appears to be too deep as it is screened entirely within the unweathered zone.

RESPONSE: As discussed in response to Comment 169, an inadvertent drafting error has been corrected on cross section A-A'. The cross section has been revised to show the correct correlation of the top of the unweathered Taylor as confirmed by the boring log for MW-13 included as Figure E2-202.

The filter pack for monitoring well MW-12 does reach into the weathered Taylor as evidenced by consistent water level readings in this well. This well was most likely not screened any shallower to prevent surface infiltration. We have examined sustained water levels relative to screen interval and found that approximately thirty percent of the time the water level is above the top of the screen.

Both monitoring wells, MW-12 and MW-13 are located on topographically high areas of the unweathered Taylor based upon stratigraphic interpretation of soils boring logs.

177. Please explain whether any of the monitor wells are in the 100-year floodplain, and discuss how they will be operated and maintained so that they perform at least to design specifications through the life of the groundwater monitoring program.

RESPONSE: *All monitoring wells are located outside the bounds of the 100-year floodplain. And, all monitoring wells are located above the elevation of the 100-year floodplain. All monitoring wells are constructed with concrete pads that slope away from the well to allow for water to drain away from the well.*

178. Please delete footnote 2 from the table of wells in Figure F1-4. The footnote presents old information about an approval under MSW Permit No. 42A, which does not seem relevant to this application.

RESPONSE: *Footnote 2 has been removed from Figure F1-4.*

Part III, Attachment F, Appendix F2 (Groundwater Sampling and Analysis Plan)

179. Please revise Section 2.2.3 (Purging/Bailing) to allow up to 7 days recovery time for slowly recovering wells, before declaring a well dry.

RESPONSE: *The targeted monitoring zone at Skyline is the contact zone of the weathered and unweathered Taylor Marl, which comprises low permeability Cretaceous clay and clayey shales. As established in previous correspondence and discussions with the TCEQ, Waste Management believes that to allow for recovery times up to 7 days at a site where monitoring wells are screened in a non-aquifer (clay) formation could be problematic and cause unnecessary multiple trips to the site to check for recovery and does not provide a reasonable benefit to cost ratio. At Skyline Landfill, the wells that are purged dry, typically will not recover during a week-long sampling event. Observations from field personnel suggest that the wells would not recover for several weeks. No change has been made in response to this comment.*

180. Please discuss in Section 2.4.1 (Chain of Custody) how you will ensure that the contents of a sample shipping container are not tampered with. Please explain whether you will use a lock or some type of custody seal to detect if a container has been opened.

RESPONSE: *Section 2.4.1 – Chain of Custody has been revised as requested.*

181. Please expand the discussion in the fourth paragraph of Section 4 (Establishment of Background Groundwater Quality) to explain what you will use as background for wells that remain dry for a period of time so long that it becomes difficult to determine if sample results that eventually are obtained are representative of background groundwater quality not affected by the facility.

RESPONSE: *The characterization of background groundwater quality is only applicable for wells and permeable units that produce sufficient water for*

sampling. Wells measured as "dry" represent no data point therefore are not considered in statistical comparison in detection monitoring to computed background values no matter the period of time required to collect the data. The existing GWSAP provides a mechanism for evaluation and TCEQ approval of background datasets for productive wells/units, regardless of the length of time required to obtain the data, in the last paragraph of the introductory narrative of Part III, Attachment F2, Section 4 – Establishment of Background Groundwater Quality as follows: "On completion of background and during background updates, the facility will evaluate the background data to ensure that the data are representative of background groundwater constituent concentrations unaffected by waste disposal activities or other sources of contamination. The evaluation will be documented in a report and submitted to the TCEQ before the next subsequent groundwater monitoring event following the collection of a sufficient number of data points to facilitate statistical computation (typically 8 samples)." The evaluation of the background data set would be dependent on the suite of constituents, concentrations and frequency detected at the future point when they are known.

182. We suggest you replace the example Chain of Custody form presented in Figure 2-2 with an example form that does not show the name of any particular laboratory.

RESPONSE: Part III, Attachment F2, Figure 2-2 has been revised to remove the laboratory name from the heading of the example form.

Part III, Attachment G (Landfill Gas Management Plan)

183. Please explain in Section 2.1 (Introduction) why you propose to relocate some gas probes, and also why you propose to replace some gas probes. It appears the probes that are to be relocated will be farther from the waste management unit (in some cases significantly farther), which may increase the potential health hazard by increasing the time to detection of landfill gas migration.

RESPONSE: Section 2.1 has been revised to provide a discussion of the relocation and replacement of gas probes that is included in Section 3.1. Through this submittal, we have provided additional gas probes along the permit boundary. Note that the proposed gas probes have been renumbered. The proposed maximum gas probe spacing does not exceed 1) 600 feet along the southern half of the permit boundary between gas probes GP-44 through GP-64 or 2) 1,000 feet along the remaining northern portion of the permit boundary. This conservative probe spacing provides for further landfill gas monitoring of Phase I and the pre-Subtitle D area. Attachment G has been revised to reflect these additional gas probes.

Title 30 TAC §330.371(a)(2) identifies the facility boundary as the point of compliance for landfill gas monitoring. The proposed monitoring network meets the requirements of §330.371(a)(2) since the proposed gas probes will be located along the facility boundary.

184. Please explain in Section 2.6 (Underground Utilities) what is meant by the qualifying phrase "within the vicinity of the perimeter of the active waste fill area." As a reminder, 30 TAC §330.371(f) requires that any underground utility trenches that cross the landfill facility boundary be vented and monitored regularly.

RESPONSE: Section 2.6 has been revised to expand on the qualifying phrase listed in this comment.

185. Sections 2.1 and 3.1.1 (Perimeter Monitoring Network) indicates that the perimeter monitoring network consists of 24 gas probes; however, Drawings G1.1 (Landfill Gas Monitoring Probe Plan) and G1.2 (Monitoring Probe Detail) indicate the network will consist of 28 probes. Please revise the discussions to clarify the number of probes in the existing network and the proposed network.

RESPONSE: Sections 2.1 and 3.1.1 have been revised to clarify the number of probes in the existing and proposed landfill gas monitoring network.

186. The application does not contain sufficient information to evaluate the adequacy of the landfill gas perimeter monitoring network. Please address the following items to clarify the details of the monitoring network and aid in our review:

- a. Identify the constructed features surrounding the landfill units on Drawing G1.1 (for example, the apparent basins in the southwest area of the site, soil stockpiles, etc.).

RESPONSE: Drawing G1.1 has been revised to identify the constructed features surrounding the landfill units. The "basin" referred to is an existing soil stockpile area, located inside existing screening berms.

- b. Prepare and submit good quality boring logs and installation logs for all gas monitoring probes.

RESPONSE: The boring and installation logs for all gas probes included in Appendix G3 are the best available quality. Note that the installation logs prepared in 1995 are hand-written, which impacts the legibility of the log.

- c. Discuss how each probe is located and screened to intercept all potential gas migration pathways.

RESPONSE: Section 3.1.2 – Landfill Gas Monitoring Probes has been revised to discuss how the probes are located and screened to intercept all potential gas migration pathways.

- d. Explain the reasons for choosing the locations for relocated gas probes, especially those that will be farther from waste than probes in the existing network (for example, probes GP-29, 30, 31RR, 31RRA, 32RR, 32RRA, 36R, 37RR, 38R, 39R, and 40R).

RESPONSE: Section 3.1.2 has been revised to include the discussion noted in the response to comment 183, regarding landfill gas monitoring at the permit boundary.

- e. Expand the table of probe information on Drawing G1.2 to include depth and elevation of the lowest current or future waste within 1,000 feet of the monitoring point, top of the unweathered Taylor, and lowest groundwater elevation.

RESPONSE: Drawing G1.2 has been revised to include the elevation of the lowest current or future waste within 1,000 feet of the monitoring point, top of the unweathered Taylor, and lowest groundwater elevation.

- f. Please clarify the meaning of Note 4 ("Existing gas probes. ...") on Drawing G1.2.

RESPONSE: Drawing G1.2 has been revised to clarify Note 4.

- g. Please clarify the meaning of Note 5 ("Proposed probes. ...") on Drawing G1.2. Will probes be installed to monitor all the way down to the bottom of waste, or to some elevation *above* the bottom of waste?

RESPONSE: Drawing G1.2 has been revised to clarify Note 5. A discussion of the design of the landfill gas monitoring probe depths and screened interval is included in Section 3.1.2.

- h. Provide cross sections extending from within the waste disposal footprint, through the gas probes, and into the surrounding land in areas of complex topography (such as the area of apparent basins in the southwest part of the site, the surface drainage feature on the west side of the site, and the uneven terrain on the north and northeast sides of the site) to illustrate the conditions in each area.

RESPONSE: Geologic cross sections provided as Figures E3-2 through E3-7 have been revised to provide additional data outside the waste footprint.

- i. Show gas probe locations on Drawing G1.4 (Structures Within 1/4 Mile of Waste Footprint).

RESPONSE: Drawing G1.4 has been revised to include gas probe locations.

- j. The image in Drawing G1.4 has low contrast, and may be difficult to read when photocopied. Please try to obtain a better quality image for this drawing.

RESPONSE: Drawing G1.4 has been updated. The contrast has been adjusted to provide a more legible image.

- k. Discuss whether gas probe density around the pre-Subtitle D area is sufficient to assure detection of any gas migration toward structures in the City of Ferris immediately to the south.

RESPONSE: *Refer to the response to Comment 186.c. above.*

- l. Discuss whether gas probe density in the area between the landfill and the cemetery just south of the landfill is sufficient to assure detection of any gas migration toward the cemetery.

RESPONSE: *Refer to the response to Comment 186.c. above.*

- m. Discuss the history of gas monitoring and the gas monitoring results to the present. Has methane ever been detected in gas probes or other monitoring points?

RESPONSE: *Section 5 – Remediation Plan has been revised to include the history of gas monitoring and gas monitoring results to the present.*

187. Please identify all symbols on Drawing G1.3 in the legend of the drawing.

RESPONSE: *The purpose of the drawing is to show the structures within the permit boundary. With that purpose, the legend identifies all necessary items. The drawing has been revised to remove those symbols and other items that are not necessary to the intent of the drawing.*

188. Please change the order of the bullets in Section 3.1.3 (Monitoring Procedures) to place static pressure first, consistent with the procedure described in the first paragraph of Section 3.1.3.

RESPONSE: *Section 3.1.3 – Monitoring Procedures is now Section 3.1.4 and has been revised as requested.*

189. In Section 3.1.3, please include a bullet for measuring temperature, which is mentioned in text following the bullet list. Please also clarify whether you intend to measure temperature of the gas in the probe, the temperature of the air outside the probe, or both.

RESPONSE: *A bullet for “measuring temperature” is not necessary. The text following the bullet list reads “ambient temperature” which by definition is the air temperature. If we were measuring the temperature of the gas in the probe, it would have been written as “gas temperature”. Ambient temperature is not a required parameter for the Gas Probes section of the Landfill Gas Monitoring Report. Ambient temperature is simply taken as an additional piece of information to go along with time and barometric pressure for example. Ambient temperature is listed in this paragraph, which discusses the portable instrument, among the field data that are gathered with the portable instrument.*

190. Please revise Section 4.1.2 (Verification Procedures) to specify that methane detection will be considered verified if the immediate recheck of methane concentration confirms the presence of methane. (Verification of methane levels above the regulatory limit at the facility boundary should be completed the same day that methane is initially detected.)

RESPONSE: Section 330.371(c) requires the owner or operator to immediately take all necessary steps to ensure protection of human health if methane gas levels exceed the regulatory limit. The necessary steps are immediately taken as discussed in Section 4.1.1 – Emergency Action, which provides discussion on the initial actions to occur in the event that methane is detected at levels above regulatory limits. Once emergency measures have been taken to protect human health, notification consistent with procedures in Section 4.2 will be conducted immediately. As discussed in Section 4.2 – Notification Procedures, notification will be immediately made once the methane levels are detected.

191. Please revise the second paragraph of Section 4.2 (Notification Procedures) to clarify the nature and timing of events. The rules in 30 TAC §330.371(c) require information to be placed in the operating record within seven days of detecting methane.

RESPONSE: No change to the second paragraph of Section 4.2 is necessary as the paragraph clearly states, in accordance with §330.371(c)(2), that within seven (7) days of detection of methane, the requisite information is to be placed in the operating record.

192. Please revise Section 4.2 to clarify that notification to the public, pursuant to 30 TAC §330.371(c)(1) will include all residents, tenants, and owners of property out to a specified distance from the probe(s) in which methane has been detected above the action level and from the line connecting adjacent probes that exhibit detections above the action level. Please also specify the notification distance.

RESPONSE: Section 4.2 has been revised to state that notification will be made to the above requested individuals within 500 feet of the gas probe reading with methane concentrations above the regulatory limit.

193. In Section 6 (LFG Control System), please identify the state and federal rules and regulations that apply to the landfill gas collection and control system (GCCS) at the facility.

RESPONSE: As requested, rule references have been added to Section 6.

194. Please clarify the description of the areas where the GCCS has been installed (for example, the phrase “Pre-Subtitle D area with final cover and active waste disposal area” is potentially misleading as it suggests that part of the pre-Subtitle D area is active).

RESPONSE: As requested, Section 6 has been revised to clarify the location of the existing active GCCS system.

195. Please revise Section 6 to indicate that upon completion of each phase of GCCS installation you will submit a report that documents the work and provides updated drawings titled and numbered to insert in place of, or in addition to existing GCCS drawings in the Landfill Gas Management Plan.

RESPONSE: As requested, Section 6 has been revised to include text indicating that a report will be sent upon completion of each new phase of the GCCS.

196. Please revise Section 6 to acknowledge that monitoring of the GCCS will be performed in accordance with applicable federal and state air rules. Please also cite the applicable air rules.

RESPONSE: As requested, Section 6 has been revised to state that monitoring of the GCCS will be in accordance with state and federal rules and regulations.

197. Please revise the second-to-last sentence of the first paragraph of Section 6 to indicate that the registration for the landfill gas to energy facility is an MSW Type IX registration-by-rule (rather than a Type IV registration).

RESPONSE: As requested, Section 6 has been revised to reflect the proper registration type.

198. Please address the following items regarding the example Landfill Gas monitoring Report in Appendix G2:

- a. Revise the form to indicate that field calibration will be in accordance with instrument manufacturers' recommended procedures (rather than +/- 3% of factory calibration).

RESPONSE: Although the manufacturers' recommended procedures are +/-3% of factory calibration the requested changes have been made.

- b. Clarify the meaning of the on-site structures "Maintenance (LF)" and "LFM Office."

RESPONSE: The requested changes have been made.

- c. Ensure that each of the on-site structures on the report form is identified in Drawings G1.1 and/or G1.3.

RESPONSE: All buildings are shown in Drawing G1.1 and/or G1.3.

- d. Clarify the meaning the heading "Continuous LFG Alarm Activated (LEL>25%) During Previous Quarter." Would it be correct to assume it means "Continuous LFG Alarm Activated (*Methane*>25% of LEL) During *This* Quarter "?

RESPONSE: *This is a step to ensure that the alarm was activated previously upon checks of the structures. However, one can assume that this is also a check for re-activating the alarm for the current quarter in which the report is generated.*

- e. Add columns to the table on page 2 of the report to record oxygen concentration (noted in Section 3.1.3) and for groundwater level expressed as elevation (for ease of comparison with surface and bottom elevation data in existing columns).

RESPONSE: *Oxygen is not a required parameter for reporting. Therefore, oxygen has been added as an optional measurement.*

- f. Determine whether footnote 2 to the table on page 2 should instruct the user to record ">100%" in the "% LEL" column if percent methane is greater than 5 percent (not less than), and revise accordingly.

RESPONSE: *The footnote in question has been revised to show >5%.*

199. Note 2 on Drawing G4.1 (Landfill Gas Collection System Layout – Existing Conditions) indicates that the information is current as of June 2011. Please explain whether the information is current as of the date of the application, and revise the note accordingly. If it is not current, please provide an updated drawing that shows current conditions.

RESPONSE: *Note 2 on Drawing G4.1 has been revised to state that the information is current as of the date of the application.*

Part IV of the Application (Site Operating Plan) (SOP)

Part IV, SOP Narrative

200. Please ensure that the application part (that is, Part I, II, or III) is included when referencing information in parts of the application other than the SOP.

RESPONSE: *As requested, we have reviewed the application and clarified references as appropriate.*

201. Please acknowledge in the first paragraph of Section 1.1 (Introduction) that the SOP also includes provisions to meet the requirement of 30 TAC Chapter 330, Subchapter E (relating to Operational Standards for Municipal Solid Waste Storage and Processing Units).

RESPONSE: *As requested, a reference to 30 TAC Chapter 330, Subchapter E has been added.*

202. Please include in the last sentence of the second paragraph the MSW registration number (MSW 48018) for the mentioned landfill gas to energy facility.

RESPONSE: As requested, the MSW registration number for the LFGTE facility has been added.

203. The current daily waste acceptance rate (3,330 tons/day) reported in the third paragraph of Section 1.1, and the second paragraph of Section 2.7 (Annual Waste Acceptance Rate) is not consistent with the current daily rate (3,333 tons/day) reported in Parts I, II, and III of the application. Please review the waste acceptance rate information throughout the application and revise as needed.

RESPONSE: As requested, Section 1.1 and 2.7 are clarified to reflect the current daily waste acceptance rate throughout the application.

204. In Section 2.4 (Record Retention), please indicate the time within which records stored at a third-party document storage facility will be retrieved upon request and furnished to the executive director for inspection.

RESPONSE: Section 330.125(c) states that the operating record must be maintained in an "organized format which allows the information to be easily located and retrieved". No time is specified for the timing of document retrieval for inspection. However, as requested, Section 2.4 has been revised to state that documents will be retrieved upon request within 72 hours.

205. Please delete the qualifying phrase "if applicable" from the entries in Table 2-1 (Records to be Maintained in the Site Operating Record). All of the records identified in 30 TAC §330.125 are required to be retained in the operating record.

RESPONSE: As requested, Table 2-1 has been revised to remove the qualifying phrase for selected entries.

206. Please clarify in the last paragraph of Section 4 that landfill equipment may be cleaned at *the working face* of the landfill (rather than at "the active area").

RESPONSE: As requested, Section 4 has been revised to clarify cleaning of landfill equipment at the working face.

207. The proposed random inspection schedule in Section 5.2 (Load Inspection Procedure) of one inspection per week seems inadequate. Please revise the text to indicate at least one random inspection will be conducted per operating day, and that the inspection will be conducted by properly trained and qualified personnel.

RESPONSE: As requested, text has been revised to state that properly trained and qualified personnel will perform the inspection. In addition, the random inspection schedule has been revised to 6 times per week.

208. Please identify the "the two stockpiles" mentioned in the first bullet on page IV-26 in Section 7.1 (Fire Prevention Procedures).

RESPONSE: As requested, the two soil stockpiles have been further clarified as a soil stockpile for daily cover and fire protection. The two soil stockpiles mentioned in the Fire Prevention Procedures are dynamic and move along with the working face. "Identification" is stated within the section and includes, distance in relation to the working face, sizing and material.

209. Please revise the first sentence in Section 8.2 (Unloading of Waste) to clarify that the facility will accept Class 2 and Class 3 industrial wastes under 30 TAC §330.173 (but not Class 1 waste).

RESPONSE: The first sentence of Section 8.2 is a general statement of what is to be unloaded at the landfill. Further descriptions and types and classes of wastes are discussed and referenced in the following sentences of the paragraph. However, as requested, the first sentence of Section 8.2 has been clarified as noted above.

210. Please include a drawing in the SOP that shows the locations of the storage and processing areas described in Sections 8.2 and 8.25, and reference the drawing in those sections.

RESPONSE: The storage and processing areas in Sections 8.2 – Unloading of Waste and 8.25 – Storage and Processing Unit Operations have been revised to include a specific reference to Part III, Attachment B, Appendix B, Drawings B.2 and B.3.

211. In the fourth paragraph on page IV-32, in Section 8.2, please note that the citizen's convenience area is further discussed in Section 8.25.3.

RESPONSE: As requested, the fourth paragraph has been revised to reference further discussion in Section 8.25.3.

212. Please clarify in Section 8.3 (Facility Operating Hours) what are the current waste acceptance hours and operating hours for the facility under MSW Permit No. 42C, what you are proposing in the application, and whether the hours you are proposing are different from those in the current permit, and how.

RESPONSE: Further clarification of operating hours is not necessary in Section 8.3. The hours of waste acceptance as well as the operating hours are clearly listed. This Site Operating Plan is for the proposed condition of Permit 42D, there is no regulatory requirement to compare a change in operating hours to existing Permit 42C. Please note, in a previous comment, additional language has been added to Part I and Part II that compares the existing 42C operating hours to the 42D operating hours.

213. Please include a drawing in the SOP that identifies the easements and buffer zones at the facility, and the location of the site permanent benchmark. Please reference the drawing in Sections 8.6.1 (Easements), 8.6.2 (Buffer Zones), and 8.7 (Landfill Markers and Benchmark).

RESPONSE: *Section 8.6 – Easements and Buffer Zones, Section 8.6.1 – Easements, and Section 8.6.2 – Buffer Zones have been revised to include a specific reference to Part II, Appendix IIA, Drawing IIA-21 – Buffer Zone Plan for a drawing that depicts the easements and buffer zones. Section 8.7 – Landfill Markers and Benchmark has been revised to reference Part II, Appendix IIA, Drawing IIA.13 – General Site Plan for a drawing that depicts the location of the permanent site benchmark.*

214. Please provide a drawing that identifies precisely which road segments you will be responsible for at least once per day cleanup on days when the facility is in operation, and reference the drawing in Section 8.8 (Materials Along the Route to the Site).

RESPONSE: *Section 8.8 has been revised to reference Part II, Appendix IIA, Drawing IIA.1 for a drawing that depicts the location of road segments that the facility is responsible for at least once per day cleanup. Section 8.8 has been revised to clarify distances along these road segments.*

215. Please indicate in Section 8.11 (Disease Vector Control) whether the facility is required to submit bird control reports, to whom they are submitted, their content, and their frequency.

RESPONSE: *Section 8.11 has been revised to clarify that bird control reports are required to be submitted monthly and annually to the FAA and TCEQ.*

216. In Section 8.14 (Endangered Species Protection), please acknowledge the summary statement in the September 22, 2011, memorandum by Halff Associates, Inc., in Part II of the application, Appendix IIE (Endangered or Threatened Species Documentation) that a number of threatened, endangered, or rare species could occur in the study area, and summarize the measures the facility will take to address these concerns.

RESPONSE: *As requested, Section 8.14 has been revised.*

217. In Section 8.16.1 (Water Wells) of the SOP, please acknowledge the existence of the plugged and abandoned water well described in Part II of the application, Section 8.1.

RESPONSE: *Section 8.16.1 – Water Wells has been revised to include a description of the plugged and abandoned water well and a reference to the location of the plugging information in Part III, Attachment E, Appendix E1.*

218. Please indicate in Section 8.17 (Compaction) the minimum number of passes that the compactor will make to achieve compaction of waste under ordinary circumstances, and the minimum number of passes when waste will be used as ballast.

RESPONSE: *Compaction of waste will vary as waste is received; therefore, “how many passes” the compactor will make will vary depending on actual conditions.*

Further, there is no regulatory requirement for a minimum number of passes to achieve waste compaction. However, we have revised Section 8.17 to state that incoming waste will be "thoroughly compacted by repeated passages of compaction equipment", under ordinary circumstances and when waste will be used as ballast.

219. Please clarify in Section 8.18.5 (Temporary Waiver) that if the facility were to seek a temporary waiver, it would do so in accordance with 30 TAC §330.165(e).

RESPONSE: As requested, Section 8.18.5 has been revised to reflect further information regarding the temporary waiver.

220. Please include in Section 8.18.7 (Erosion of Cover) the criteria specified in 30 TAC §330.165(g) for determining when erosion gullies or washed-out areas are deep enough to require prompt repair.

RESPONSE: As requested, Section 8.18.7 has been revised to further specify the depth at which to begin repair.

221. Please revise the second paragraph of Section 8.21 (Disposal of Industrial Wastes) to reference procedures in Appendix IVC (rather than Section 8.20.1) for handling asbestos containing materials.

RESPONSE: Section 8.21 has been revised to clarify the reference for RACM.

222. Please clarify in Section 8.25.1 (Large Item Storage) that surface water runoff from the large item storage area will be managed as contaminated water.

RESPONSE: Section 8.25.1 describes that surface water from the large item storage area will be contained and managed as contaminated water in accordance with Part III, Attachment D6 – Leachate and Contaminated Water Plan. However, as requested, Section 8.25.1 has been revised as requested.

223. Please revise Section 8.25.2 (Reusable Materials Staging Area) to exclude asphalt and shingles from the list of inert materials. Asphalt and shingles are not ordinarily considered inert. Please revise the text to acknowledge that they will be managed in a manner that will prevent runoff of contaminated water, discharge of waste, or the creation of nuisance conditions.

RESPONSE: As requested, Section 8.25.2 has been revised to clarify the reusable materials staging area, as specifically related to asphalt and shingles.

224. Please indicate in Sections 8.25.2 and 8.25.3 that storage of source-separated recyclable materials will be in accordance with 30 TAC §330.209.

RESPONSE: As requested, Sections 8.25.2 and 8.25.3 have been revised.

225. Please revise the first sentence of Section 8.25.5 (Bioremediation Treatment Pad) to indicate that the pad is shown in Drawing D1.2 (rather than D1.5) in Part

III, Attachment D1. Please also reference a drawing within the SOP that shows the location of the pad.

RESPONSE: *As requested, Section 8.25.5 has been revised to reference the appropriate drawing. No drawing is proposed to be added to this section or the SOP. This section is intended to display operational procedure, not site information, design, location, etc. The reference to the Bioremediation Treatment Plan in Appendix IVD includes information pertinent to the operation of the pad. For the location of the pad, the reference has been revised to Part III, Attachment B, Drawing B.2.*

226. Please clarify the frequency of fence/gate inspection listed in the table in Section 8.26 (Site Inspection and Maintenance Schedule). Does the term "bi-monthly" mean twice per month, or once every two months?

RESPONSE: *As requested, Section 8.26 has been revised to describe the frequency of inspection for the fence/gate as twice per month.*

Part IV, Appendix IVC (Regulated Asbestos-Containing Material Plan)

227. Please revise Item A(3) in Section 4 (Recordkeeping) to clarify that disposal-facility-copies of manifests will be retained for a period of three years in accordance with 30 TAC §330.173(g), and to acknowledge that the time period is automatically extended if any enforcement action involving the owner, operator, or landfill facility is initiated or pending by the executive director.

RESPONSE: *As requested, the text in Section 4, A(3) has been revised to reflect the correct amount of years as well as a potential extension as stated in §330.173(g).*

Part IV, Appendix IVD (Bioremediation Treatment Plan)

228. The Bioremediation Treatment Plan appears to be a collection of historical documents, including several permit modifications, and bears multiple dates that are confusing. In addition, some pages are fuzzy or entirely illegible (for example, pages IVD-25 and IVD-26). Please prepare and submit a new consolidated plan for review (historical documents may be included as appendices).

RESPONSE: *As requested, Appendix IVD has been revised.*

Part IV, Appendix IVE (Liquid Stabilization Plan)

229. Please discuss how you will manage bulking materials that will be used in the liquid stabilization process, including volumes and storage. Materials should be managed in a manner that does not create a nuisance; runoff from materials that are wastes must be managed as contaminated water.

RESPONSE: *As requested, Appendix IVE has been revised to address management of bulking materials to be used in the liquid stabilization process.*

Part IV, Appendix IVF (Alternative Daily Cover Operating Plan) (ADCOP)

230. Please include copies of the supporting documents and authorization(s) to use petroleum contaminated soil as alternative daily cover (ADC). Note that if the facility is not currently authorized to use contaminated soil as ADC, you will need to pursue authorization according to 30 TAC §330.165(d).

RESPONSE: *As requested, copies of TCEQ approvals to use petroleum contaminated soil as ADC are included.*

231. Please delete the last sentence of Section 1 (Introduction) that states "Petroleum contaminated soils may be used to cover waste for periods of time greater than 24 hours since they provide coverage equivalent to clean soil." In accordance with 30 TAC §330.165(d), use of alternative daily cover is limited to a 24-hour period after which either waste or daily cover as defined in §330.165(a) must be placed.

RESPONSE: *As requested, Section 1 has been revised to clarify ADC placement and timing.*

232. Please specify how much volume of petroleum contaminated soil material may be stockpiled and how long. Please also provide procedures for operation of the stockpile (for example, control of contaminated runoff or discharge of soil).

RESPONSE: *Once the contaminated soil satisfies the requirements of §330.165(4), it is considered as ADC, no longer a special waste. Stockpiled amounts will vary as incoming loads are accepted at the facility in accordance with the special waste acceptance plan. Once the soils are received, they will be placed over a lined area in the active working face in the same manner as daily cover. Control of contaminated water or discharge of soils is accomplished via the working face run-off control berms. No changes will be made to this section.*

Response to comments provided by Mr. Frank Zeng:

Part II of the Application (Existing Conditions and Character of the Facility and Surrounding Area)

Part II Narrative

233. Section 11.4 states that Waste Management of Texas, Inc. (WMTX) received stormwater discharge Permit No. TXR05U147 for coverage under the Texas Pollutants Discharge Elimination System (TPDES) General Permit No. TXR050000. Appendix IIG contains a copy of the Permit No. TXR05U147 cover page. Please discuss how requirements of §330.61(k)(3) are satisfied and verify

that none of the conditions under which the Permit No. TXR05U147 was obtained has been changed in this application. Please clarify whether a new TPDES permit is required, if MSW Permit No. 42D is approved, and provide information regarding the plan to obtain the new TPDES permit, as applicable.

RESPONSE: *The proposed Skyline Landfill (Permit No. 42D) has been designed to comply with applicable Texas Pollutant Discharge Elimination System (TPDES) stormwater permitting requirements and the Clean Water Act §402. Further, the existing Skyline Landfill (Permit No. 42C) conducts its operations in accordance with its TPDES multi-sector stormwater general permit number TXR05U147, a copy of which is provided in Appendix IIG. This TPDES permit is valid through August 14, 2016. The proposed Skyline Landfill (Permit No. 42D) does not change the conditions under which TXR05U147 was issued and will comply with all conditions stipulated in this TPDES permit. Should conditions change, the Skyline Landfill certifies that it will amend its current permit. The requirements of §330.61(k)(3) are satisfied in Section 11.4. The current TPDES permit is valid and will continue to be so during the application process. At this time, no new permit is required. Section 11.4 has been revised to include this additional discussion.*

234. Section 13.1 refers to Part III, Appendix C2 for the Federal Emergency Management Agency (FEMA)'s approval for the proposed landfill development. Appendix C2-D consists of copies of correspondence between the applicant and the City of Ferris. Please specifically clarify whether the city has the FEMA's authorization to issue the approval and no other involvement by the FEMA is required. The drawings included in Appendix C2-D for the 100-year floodplain under the pre- and post-development conditions are illegible; please revise Appendix C2-D to include legible drawings. Please also clarify whether the site development (including the floodplain changes) depicted in Appendix C2-D is consistent with the rest of the application. Please revise Section 13.1 and Appendix C2-D of Part III as necessary.

RESPONSE: *The Federal Emergency Management Agency (FEMA) has delegated its authority to the City of Ferris as Floodplain Administrator for the City of Ferris. As noted in the letter from the City of Ferris dated February 28, 2012, the floodplain administrator is responsible for floodplain management. Therefore further coordination with FEMA is not required. Additional narrative has been added to Section 13.1 as requested. Also as requested, drawings in Appendix C2-D have been reprinted for better legibility. No changes are required in regards to the site development depicted in Appendix C2-D as it is consistent with the remainder of the application.*

Part II, Appendix IIA (Maps and Drawings)

235. Please confirm whether contents of Drawing IIA.11 are consistent with the current FEMA Flood Insurance Rate Map (FIRM) for the project area.

RESPONSE: *As requested, Drawing IIA.11 is consistent with the current FEMA FIRM. The FIRM Community Panel Number has been corrected*

236. Drawing IIA.12 is titled "Current Permitted 100-Year Floodplain." Please clarify whether Drawing IIA.12 is consistent with the 100-year floodplain depictions included in the current permit 42C. Please explain the differences between Drawing IIA.11 and Drawing IIA.12 with respect to the depicted 100-year floodplains. Please discuss the relationship between the wetlands (including the open waters) shown on page IID-76 and the 100-year floodplains depicted in Drawings IIA.11 and IIA.12 of Part II, and Drawings A-3 and A-4 of Part III, Appendix C2-D. Please revise the application as necessary.

RESPONSE: *The floodplain elevations were inadvertently left off of Drawing IIA.12. Drawing IIA.12 has been revised to show the 100-year floodplain elevations, and the title has been clarified. Drawing IIA.12 is consistent with the 100-year floodplain shown in the current permit. In the flood studies of Ten Mile Creek since July 19, 1982, the flood studies have only modified the limits of the 100-year floodplain based on more recent topographic data. Hydraulic analyses to re-establish the 100-year floodplain elevations have not been performed. Therefore, the 100-year floodplain shown on Drawing IIA.12 and throughout this permit amendment application is consistent with the current permit. Drawing IIA.11 is the current FIRM for this portion of Ten Mile Creek. The only difference between Drawing IIA.11 and Drawing IIA.12 are the limits of the 100-year floodplain. The 100-year floodplain limits shown on Drawing IIA.11 do not reflect the most recent topographic data. Features identified as SS-1, SS-2, SS-3, FW-1, FW-2, FW-3, FW-4, FSW-1, ES-2, EW-2, and EW-3 are within the limits of the floodplain depicted on Drawing IIA.12. The other features identified on page IID-76 are not located within the floodplain identified on Drawing IIA.12.*

237. Rule §330.547(b) states, "New municipal solid waste management units, existing municipal solid waste units, and lateral expansions located in 100-year floodplains shall not ... result in washout of solid waste so as to pose a hazard to human health and the environment." Please revise Section 17.3 to discuss how this requirement is satisfied or to refer to locations in the application where relevant information is included.

RESPONSE: *No changes to Section 17.3 will be made. However, additional narrative has been added to Section 13.1 to clarify the floodplain location restriction.*

238. Please revise Drawing IIA.14, Site Layout Plan, to show the permanent benchmark and the coordinates (if the required information is already shown in other drawings, please state their locations within the application).

RESPONSE: *As requested, Drawing IIA.14 has been revised to reference the location of the permanent benchmark and its information.*

239. Drawings IIA.14 and many other drawings include notes that are not directly related to the graphic contents; for example, Note 6 to Drawing IIA.14 concerning deposited waste visual screening, and Note 6 to Drawing IIA.16 regarding uncontaminated water management. Please remove this type of notes from the drawings and incorporate the contents of the removed notes into text portions at

pertinent locations of the application, or revise the drawings to add references to the pertinent text portions of the application.

RESPONSE: *Drawing IIA.14 is one of the drawings included within the Appendix IIA drawings that meet the requirements of §330.61(d). As stated in Section 4, "These facility layout maps, collectively as a group, specifically show the items identified in §330.61(d)(1)-(9)." The facility layout maps are referenced as Drawing IIA.14 through IIA.20. Information on these drawings, including all notes, is necessary to meet this rule. No revisions are necessary as a result of this comment.*

240. The drawings (including maps) included in Appendix IIA contain a note "Issued For Permitting Purposes Only" under the P.E. seal and signature. Please explain the meaning of this note and justify its use or revise the application to include more details sufficient for actual construction.

RESPONSE: *The drawings prepared in support of this permit amendment application have been prepared to provide suitable information and details for permitting. These drawings have been prepared by the responsible engineer or geoscientist and have been signed and sealed in accordance with the Texas Engineering Practice Act and the Professional Geoscientist Practice Act. In accordance with these applicable requirements, it is appropriate to identify the purpose for issuing these drawings.*

241. Some areas are designated as "Excavation In Progress" in Drawings IIA.16, IIA.17, and IIA.18; and parts of these designated areas are clearly within the footprint to be added through this application. Please revise these drawings to better define or explain their development stage/sequence.

RESPONSE: *The areas that are designated as "Excavation in Progress" depict the ongoing excavation operations that are conducted as waste disposal operations are conducted. The excavation and waste disposal operations are clearly depicted in the drawing and defined in the notes of the drawings. As such, no changes are necessary to the drawings.*

242. Please clarify if Drawing IIA.20, Entrance Road and Entrance Facilities Plan, includes any changes from the current permitted conditions.

RESPONSE: *No changes to the Entrance Road and Entrance Facilities Plan are taking place from the current permitted conditions. No changes are required to Drawing IIA.20. However, an additional note has been added to clarify that all features are existing.*

Part II, Appendix IID (Wetlands Documentation)

243. The individual wetland permit number listed on page IID-ii is different from the one specified in the actual permit. Please explain the discrepancy or revise the application as necessary.

RESPONSE: *As requested, the IP numbers have been revised to reflect the same number.*

244. Appendix IID includes copies of letters from the TCEQ and the Texas Parks and Wildlife Department (TPWD) regarding the landfill in the wetlands. Appendix IID also includes a copy of the October 21, 2011 letter that Halff Associates, Inc. wrote to the U.S. Army Corps of Engineers (USACE) regarding the comments from the TCEQ and the TPWD. Please clarify if the comments and revision requests were satisfied or addressed in the USACE permit issued on January 18, 2012; and, if not, please clarify the jurisdictions over the wetlands in question. It was noted that the USACE permit cover letter states that "it does not authorize ... any infringement of federal, state, or local laws or regulations."

RESPONSE: *Clarification that the comments were addressed is already provided in the documents contained in Appendix IID. As to addressing the TCEQ comments, page IID-130 is the first of three pages of the TCEQ Section 401 Water Quality Certification that is issued concurrent with the Section 404 permit. It specifically references the November 23, 2011 Environmental Assessment and Statement of Findings (EA/SOF) which is an internal decision document prepared by the USACE. The EA/SOF includes a discussion of comments received during the public review and how the comments were addressed by the applicant. The TCEQ has an opportunity to review the EA/SOF prior to granting Section 401 certification. If the TCEQ felt that their comments had not been addressed, they would have denied the certification. The fact that a Section 401 certification was issued should sufficiently demonstrate that TCEQ's comments were addressed.*

After preparation of the EA/SOF, the USACE makes a determination in the issuance of the permit that comments of other coordinating agencies have been addressed. Although we do not have a letter from the TPWD that their public notice comments were addressed, a review of the mitigation plan shows that the comments were addressed. Page IID-112, (Section 5.0) discusses functional assessments that were used to justify the use of low-quality debit ratios. Page IID-112 and page IID-113 demonstrate that two mitigation banks are being used to mitigate for impacts to waters of the U.S. The Trinity River Mitigation Bank is used solely to mitigate for impacts to streams.

245. Please clarify if any of the information included in this application constitutes a change for which the USACE requires to be notified in light of the wetland permit.

RESPONSE: *No information in this application constitutes or warrants a modification to the existing Section 404 permit. No changes, additional information or notification is necessary or will be made.*

Part II, Appendix IIJ (Location Restriction Certifications)

246. Depending on the response to the previous comment regarding compliance with §330.547(b) on waste washout, please update the certification on page IIJ-3.

RESPONSE: No change or update to the certifications are necessary or will be made.

Part III of the Application (Facility Investigation and Design)

Part III, Attachment B (General Facility Design)

In making the following comments, it was assumed that all wastes handled and types of activities/operation areas are or will be authorized and are consistent with other portions of the application.

247. Page B-3 specifies the hydraulic conductivities for the compacted clay in the liner and the infiltration layer in the final cover to be 1×10^{-7} cm/s, respectively. Please consider revising the hydraulic conductivity specified for the liner system on page B-3 to be no more than 1×10^{-7} cm/sec. Please consider a similar revision to the hydraulic conductivity specified for the final cover system on the same page.

RESPONSE: As requested, page B-3 has been clarified.

248. Page B-3 states that the excavation side slopes will not be steeper than 5H:1V. Some of the excavation side slopes specified or depicted in Drawings IIA.16, IIA.17, and IIA.18 are steeper than 5:1. Please explain the discrepancies or revise the application for consistency (or including necessary definitions).

RESPONSE: The reference to excavation side slopes on page B-3 is correct as stated. Drawing IIA.16, IIA.17, and IIA.18 have been revised to clarify the excavation side slope of 5H:1V and the waste fill sideslope of 4H:1V.

249. Page B-3 states that "a composite final cover will be constructed over the remainder of the landfill." Please revise this page to define "remainder" and discuss the final cover system for the portions of the landfill that are not included in the "remainder." Drawing B.2 lists the waste burial areas as Phase 1, Phase 2, Phase 3, Phase 5, and the pre-Sub D area (with final cover). Please specify the final cover system(s) for each of the phases and the pre-Sub D area. Please also revise Attachment H, Closure Plan, and other pertinent portions of the application, as appropriate.

RESPONSE: As requested, page B-3 has been revised to clarify the final cover system. Reference is provided to Part III, Attachment H for detailed information on the proposed final cover system and constructed final cover areas.

250. The composite final cover system described on page B-3 does not appear to include a synthetic membrane as required by §330.457(a)(1). If the drainage geocomposite layer contains a synthetic membrane that meets the requirement of §330.457(a)(1), please revise the description to so clarify and to describe the drainage geocomposite layer's configuration. Or please justify the lack of a synthetic membrane in the final cover system and/or revise this page as appropriate. The current permit document indicates that the final cover has a

geomembrane beneath the drainage geocomposite (double sided with geotextiles). Please also revise Attachment H, Closure Plan, and other pertinent portions of the application, as appropriate.

RESPONSE: *As requested, page B-3 has been revised to clarify the final cover system. Part III, Attachment D and Part III, Attachment H have also been revised to clarify the final cover system proposed.*

251. Please delete asphalt and shingles from the materials listed on page B-4 as inert materials, as they are not consistent with the inert material definition of §330.3(67).

RESPONSE: *As requested, Section 2 has been revised to clarify the reusable materials staging area and the reference to asphalt and shingles.*

252. Please revise page B-4 to discuss compliance with the requirements of §330.213 and §330.63(b)(3) that are applicable to the citizen's convenience area or please revise this page to refer to the locations in the application where pertinent information is included.

RESPONSE: *As requested, Attachment B has been revised to further address the requirements of §330.213 and §330.63(b)(3).*

253. Page B-5 states that trucks will discharge directly into the portable or permanent basin. This page does not include any information about the permanent basin. Please revise this page to refer to where the pertinent information is included in this application. Please also clarify if all of the other descriptions of the Liquid Stabilization page B-5 and illustrated in Drawing B.6 are consistent with the current permit conditions; if not, please identify and discuss the changes. Please revise page B-5 and other pertinent portions of the application to clarify that the term "stabilization" as used in this application means the specific activities described for the liquid stabilization operation at this site.

RESPONSE: *Page B-5 has been revised to remove the reference to a permanent basin. A permanent basin is not proposed. Page B-5 has been revised to clarify that stabilization is conducted only for the purpose of the material passing the paint filter test.*

254. Please revise Drawing B.7 to add a note on the location restrictions (the foundation soils/strata).

RESPONSE: *The Bioremediation Treatment Pad is an existing permitted, constructed facility located within the waste disposal or landfill footprint. Drawing B.7 has been revised to include additional information related to the existing Bioremediation Treatment Pad.*

255. Page B-5 is not clear about whether acceptance of the petroleum contaminated soil is subject to the limitations on the type of wastes the landfill may accept as specified on page B-2. Please revise page B-5 to clarify this or to refer to where the pertinent information is contained in the application.

RESPONSE: *This section details the separate approved pad to treat such special wastes as petroleum contaminated materials. Page B-2 indicates that special wastes are accepted at the site. Further information can be found in the referenced section listed in the Bioremediation Treatment Pad section on page B-5. No changes will be made to this section.*

256. The Petroleum Contaminated Soil block in Drawing B.1 appears to need "YES" above the link to the next block. Please check and revise the drawing as necessary.

RESPONSE: *As requested, Drawing B.1 has been revised to show the proper wording for the waste movement flow diagram.*

257. Drawing B.1 has a block indicating that the treated petroleum contaminated soil will be used as alternative daily cover (ADC) or disposed of at the working face. Please revise page B-5 to discuss how the ADC usage complies with the requirements of §330.165(d)(4) or refer to where the pertinent information is contained in the application.

RESPONSE: *Attachment B, page B-5 has been revised to reference Part IV, Appendix IVF – Alternative Daily Cover Operating Plan for the proposed use of treated petroleum contaminated soil as ADC.*

258. Please revise Drawing B.1 to include the flows for unauthorized waste that is discovered at the working face, which is discussed in the second last paragraph on page B-2.

RESPONSE: *The referenced paragraph on page B-2 clearly states that any unauthorized waste discovered at the working face is to be immediately removed by the waste haul vehicle or transporter. The same is described in visual form on Drawing B.1. It is clearly stated that prohibited waste is not be disposed of at the working face and gives a procedure for removal by the hauler. This text and visual representation clearly identifies the procedure and no changes to Drawing B.1 will occur.*

259. Please revise the legends for Drawing B.2 to distinguish between the landfill footprint and the permit boundary.

RESPONSE: *As requested, Drawing B.2 has been revised.*

Part III, Attachment C (Facility Surface Water Drainage Report)

260. Some of the titles for the sub-attachments and appendixes under Attachment C are confusing and do not closely represent the contents; for example (but not be limited to), the titles for Appendixes C1-F and C1-G do not closely reflect their contents. Please revise Attachment C to properly name all sub-attachments and appendixes (or audit the contents for consistency with the titles).

RESPONSE: The sections and subsections included in Attachment C are accurate and reflect the information included in each attachment or appendix. No changes are necessary Attachment C in response to this comment.

261. Attachment C does not appear to include detailed design and graphic representation for every drainage system component (for example, but not be limited to, the entrance and exit structures). This deficiency is also reflected in many comments listed below. It is understood that there are numerous components in the proposed drainage system. Please discuss in general terms how the information included in Attachment C and its appendixes has demonstrated compliance with the Chapter 330 requirements on surface drainage system at a landfill site. Please revise the application as necessary.

RESPONSE: The initial submittal of Attachment C did not include drawings depicting existing ponds, culverts, or other drainage structures that were existing, in some cases prior to the issuance of Permit 42C. These existing structures are included in the current permitted and postdeveloped hydrologic calculations included in Attachment C1-B and C1-C, respectively.

However, details for every drainage system component have been included with this response in Attachment C3. Since several drawings have been added to Attachment C3 and several of the drawings from the initial submittal have been moved, Attachment C3 is being resubmitted in its entirety. All of the Attachment C3 drawings are dated 08/12 and do not include revision information. Attachment C has been revised to clarify which drainage features are existing and will remain in their existing (current permitted) condition and which drainage features are being proposed in this permit amendment application. Ponds 5, 6, 8, 10, and 44; the East and West Ditch, and all surface water impounds denoted with I-XX (e.g. I-07 and I-48) are all existing well-established surface water drainage features which have been in place for several years and whose function does not change in the postdeveloped condition. The only drainage control features proposed by this permit amendment application are Ponds 24, 27, and 29, exclusive of final cover swales and downchutes. Narrative has been added to Section 5 of Attachment C1 and Appendix C1-D to clarify what are existing drainage features and what are proposed. Some of the comments below will refer back to this response.

262. Please revise page C-1, Attachment C1, Attachment C3, and other pertinent portions of the application to include sections dedicated to the design and graphic illustration of the drainage systems at the permit boundary (including the comparison point and/or discharge point). Attachment C1, named as Permit Boundary Drainage Analysis and Design, does not appear to include any design information for the drainage system at the permit boundary. Please revise Attachment C as appropriate.

RESPONSE: The intent of the text on page C-1 is to provide a brief overview of the attachments within Attachment C and describe the information they contain. There are no revisions required to Page C-1. Attachment C3 Drawings C3-35

through C3-41 have been added to graphically illustrate each comparison point along the permit boundary.

263. Overall Attachment C does not appear to include sufficient information on the erosion control measures for the liners of channels and ponds, and at the inlet and/or exit of drainage features such as the offsite discharge point, the culverts and the ponds (though Appendix C1-G, Intermediate Cover Erosion Control Structure Design, briefly discusses erosion controls for drainage conveyance systems). Please revise Attachment C to include the requested information.

RESPONSE: Please refer to Comment 261. Appendix C1-D – Perimeter Drainage Design and Appendix C1-E – Final Cover Drainage Structure Design include the necessary supporting drainage calculations for design of erosion and sediment control feature in each proposed structure. However, additional detail has been added to Attachment C3 to depict erosion and sediment control features at their required locations.

264. Please revise Attachment C at a proper location to explain how the on-site drainage system and the landfill have been designed to prevent surface run-on into the waste footprint as required by §330.63(c)(2), §330.303, and §330.305. Please refer to where the pertinent specific information is contained in the application. When addressing this comment, please refer to comments of this letter regarding the temporary diversion channels, if applicable. Please revise Attachment C and other pertinent portions of the application as necessary.

RESPONSE: Responses are in accordance to the rules cited in this comment.

330.63(c)(2) is concerned with the flood control and analyses. On page C-1, a sentence was added to the subsection Attachment C2 – Flood Control Analysis. This is also discussed in the third paragraph on page C2-3, in Attachment C2.

330.303(a) and 330.305(b & c) are concerned with managing runon and runoff during the peak discharge of a 25-year rainfall event. This is discussed in the opening paragraph on page C-1. Appendix C1-D, Perimeter System Drainage Design, includes the design information which demonstrates that the design of the perimeter drainage system will manage runon and runoff from the 25-year rainfall event. Appendix C1-D has been expanded to demonstrate that the existing drainage features, which are not altered in the postdevelopment condition, adequately manage runon and runoff from the 25-year rainfall event.

330.303(b) is concerned with minimizing surface water from running onto, into, and off of the treatment area. Section 5.3 – Surface Water Runon Controls has been added to Attachment C1.

265. Since parts of the landfill will be located within the currently designated 100-year floodplain, please revise Attachment C at a proper location to explain how the landfill and surface drainage systems have been designed to meet the requirements of §330.307. Considering many drainage components discharge

into the Ten Mile Creek (or locations within the 100-year floodplain), please also discuss if the surface drainage systems will function adequately during a 100-year flood event. Please revise Attachment C and other pertinent portions of the application as necessary.

RESPONSE: *The City of Ferris, the FEMA designated Floodplain Administrator for the portion of Ten Mile Creek adjacent to the Skyline Landfill, has approved the placement of fill within the 100-year floodplain thereby removing this area from the 100-year floodplain. At the time improvements are made to the 100-year floodplain, certified as-built information will be submitted to DHS-FEMA through the City of Ferris to request a Letter of Map Revision Fill (LOMR-F). The LOMR-F will effectively remove the proposed fill area from the 100-year floodplain. Therefore, when waste fill operations begin in the area removed from the 100-year floodplain, the waste disposal operations will be conducted outside of the 100-year floodplain.*

Page C-1 has been revised to include the following sentence, "Since the landfill footprint will not be located within the 100-year floodplain, the levees required by §330.307 are not necessary to protect the facility from a 100-year frequency flood or to otherwise prevent the washout of solid waste from the facility."

266. Please clarify if there are existing (or planned) local flood control measures for the Ten Mile Creek at the general project area; and if, yes, please discuss how the landfill site will comply with the flood control measures.

RESPONSE: *As requested, the following sentence has been added to Attachment C2, Section 2, page C2-3 in regards to flood control measures: "The City of Ferris, the FEMA designated Floodplain Administrator for the portion of Ten Mile Creek adjacent to the Skyline Landfill, has approved the placement of fill within the 100-year floodplain thereby removing this area from the 100-year floodplain." No other local flood control measures for the portion of Ten Mile Creek adjacent to the Skyline Landfill are known to exist or to be planned.*

267. It was noticed that all drawings that bear a P.E. seal and signature have a note "Issued For Permitting Purpose Only." Please explain the meaning of this note and justify its use. If detailed information necessary for carrying out the detailed design is unavailable at this time, please specify when the detailed design will be performed. Depending on the response, we may have more comments on this issue.

RESPONSE: *The drawings prepared in support of this permit amendment application have been prepared to provide suitable information and details for permitting. These drawings have been prepared by the responsible engineer or geoscientist and have been signed and sealed in accordance with the Texas Engineering Practice Act and the Professional Geoscientist Practice Act. In accordance with these applicable requirements, it is appropriate to identify the purpose for issuing these drawings.*

268. Pages C1-1 and C1-2 state that Appendixes C1-B and C1-C include hydrologic calculations for the 100-year storm event for the drainage areas that contribute surface water runoff to the Ten Mile Creek. Please explain the purpose of the 100-year storm event calculations and how the results are used in this application.

RESPONSE: The subsections of Appendix C1-B and Appendix C1-C on pages C1-1 and C1-2 have been revised.

269. Please revise page C-1 to briefly discuss how the requirements of §330.63(c)(1)(B) are satisfied and refer to where in the application the pertinent information is contained.

RESPONSE: See response to Comment 261.

270. Please revise Section 2.1, Concepts and Methods, on page C1-3 to discuss how the perimeter channels are designed.

RESPONSE: As requested, Section 2.1 has been revised to discuss how the perimeter channels were modeled.

271. Please revise Sections 2.1 and 2.2 to discuss how the hydrographs are developed for the drainage systems that include or connected to the perimeter channels.

RESPONSE: As requested, Sections 2.1 and 2.2 have been revised to discuss the hydrograph development including their relation to the perimeter channels.

272. Please revise Section 2.1 to discuss the drainage control design approach for the areas where no perimeter channels are located.

RESPONSE: The West Ditch is part of the perimeter drainage system. The current permitted condition includes two chutes that directly discharge into the West Ditch. In the proposed postdeveloped condition there is only one chute which directly discharges into the West Ditch. Profiles for every chute have been included in Attachment C3. The profile for Chute 13 is on Drawing C3-28 and it includes the necessary erosion control protection.

273. Page C1-21 states that comparison point CP07 "is the only comparison point that has an increased peak flow rate in the postdeveloped condition." Please explain how the 43.6 cubic feet per second increase was related to the 100-year water surface for Ten Mile Creek or revise this page and other pertinent portions of the application as necessary (for example, but not be limited to, the adverse impact analysis on page C1-21 and the conclusion on page C1-22).

RESPONSE: As requested, page C1-22 has been revised to clarify the relationship of CP07 to the overall design of the postdeveloped condition in terms of the 100-year water surface.

274. Please revise Drawing C1-A-1 to add a legend for the red line.

RESPONSE: As requested the legend in Drawing C1-A-1 has been revised to reflect the Ten Mile Creek watershed, or the "red line".

275. Please revise at least one existing drawing or add a new drawing in Appendix C1-A to clearly show the creek(s), channels, and other surface water conveyance features that are parts of the drainage analysis (please use proper legends). Please clarify whether the Ten Mile Creek is within the permit boundary and include insets to depict the relative locations of the permit boundary and the creek (or please refer to where this information is included in this application.)

RESPONSE: The purpose of Appendix C1-A is to provide a current permitted/postdeveloped comparison at the permit boundary for summary purposes only. The ditches, ponds, and other surface water conveyance features that are part of the drainage analyses are shown on Drawings C1-B-4 and C1-C-3. These drawings were revised to show the information requested by this comment.

The flowline of Ten Mile Creek crosses onto and off of the permit boundary; however, it generally follows the permit boundary. The floodway of Ten Mile Creek extends more than one thousand feet north of the permit boundary, as shown on Drawing C2-A-2.

276. Please revise Drawings C1-A-2 and C1-A-3 and other pertinent drawings included in Appendix C to mark the flow directions in the creek(s), channels, and other surface drainage features, and at their discharge points.

RESPONSE: As stated in the previous comment, the purpose of Appendix C1-A is to provide a current permitted/postdeveloped comparison at the permit boundary for summary purposes only. Drawings in Appendices C1-B and C1-C have been revised or added to show the flow direction and discharge locations for the ditches, ponds, and other surface drainage features.

277. Please revise drawings in Attachment C1 or in other pertinent portions of Attachment C to show the flow direction and locations of inlet and discharge for the water in the perimeter drainage systems described in Appendix C1-D.

RESPONSE: Drawing C1-D has been revised to show flow direction and locations of inlet and discharge for the perimeter drainage system.

278. Please explain the difference between comparison location (or comparison point) and point discharge. Please distinguish between point discharge and non-point discharge. Please revise the application as necessary.

RESPONSE: "Comparison location(s)" have been changed to "comparison points" throughout Attachment C. As necessary, the drawing legends have been revised to distinguish between point and nonpoint discharge.

279. Please consider use of proper arrows to represent the discharge points and the flow directions at the discharge points (please use different arrows for true point discharge and non-point discharge). Please clarify whether the discharges

identified by three small arrows as sheet flow are non-point discharges. Please revise the application as necessary.

RESPONSE: The use of "proper arrows" was considered to represent the discharge points on the Attachment C drawings; but, the bold point stands out and copies better. The legend and table in appropriate drawings have been revised to better describe point discharges, non-point discharges and whether the comparison points runoff or runoff.

280. Please revise Section 2.2 of Attachment C1 to clarify whether all of the assumptions listed for the HEC-HMS and HEC-RAS modeling are consistent with the computer programs' requirements and the typical considerations for applying the two programs at landfill sites. Or please revise the section and other pertinent portions of the application as necessary.

RESPONSE: The assumptions in Section 2.2 of Attachment C1 are consistent with the computer programs' requirements as they are presented. No changes to this section will occur.

281. Please clarify whether the methodologies and the model setup in the runoff volume calculations follow the requirements and/or recommendations by the HEC programs or please revise Attachment C as appropriate.

RESPONSE: The methodology and model setup in the runoff volume calculations presented in Section 2 of Attachment C1 follow the requirements for the HEC programs. No changes to this section will occur.

282. Tables on pages C1-7 and C1-12 list the contributing areas for each comparison point. Please revise Drawings C1-A-2 and C1-A-3 to highlight the drainage areas that contribute to the same comparison point.

RESPONSE: Drawings C1-A-2 and C1-A-3 as well as C1-B-2 and C1-C-2 have been revised to reference the tables on pages C1-8 and C1-13 for the areas contributing to each comparison point.

283. Please revise the tables on pages C1-7 and C1-12 to identify the receiving water body or drainage feature at each comparison point and/or discharge point.

RESPONSE: As requested, Tables 1 and 2 have been revised to clarify the receiving water bodies or drainage feature associated with each comparison point.

284. Page C1-14 refers to a number of culverts as parts of the surface drainage system. Please add a table in Appendix C1 or at another pertinent location in Attachment C to list the relevant information for all the culverts (for example, size/dimension, capacity, entrance treatment type, existing or planned, etc.) Please revise Attachment or its appendixes to include the culvert design information (please identify the computer program, if applicable). Please also revise Attachment C3 to include necessary drawings/plans for the culverts. If any of the requested information is already included in the application, please

revise Attachment C or its appendixes at proper locations to specify where the information is contained.

RESPONSE: *The purpose of the narrative on page C1-15 is to discuss the complex drainage structure of CP04, not to describe all of the culverts, their numbers, dimensions, type, etc. Pages C1-B-3 and C1-C-1 include a subsection entitled "Current Permitted Drainage Structure Design Parameters" and "Postdevelopment Drainage Structure Design Parameters" respectively, which reference where the detailed drainage structure information can be found. No changes were made as a result of this comment.*

285. Please revise Attachment C at pertinent location(s) to graphically illustrate how surface runoff flows from one drainage area to the adjacent drainage area(s).

RESPONSE: *Surface water runoff from one drainage area to the adjacent drainage area(s) is graphically represented by the HEC-HMS schematic included in Attachment C1-B, Drawing C1-B-6 for the current permitted drainage areas and Attachment C1-C, Drawing C1-C-5 for the postdeveloped drainage areas.*

286. Please revise Attachment C at pertinent location(s) to include necessary measures for the surface drainage system inspection and maintenance (for example, sediment cleanout from the channels and ponds). Please identify the locations if the information is already included in the application.

RESPONSE: *As requested, Section 6.2 has been revised to address sediment cleanout.*

287. Please revise the table contained on page C1-A-5 to list the differences in terms of percentage.

RESPONSE: *As requested, the differences on page C1-A-5 have been revised to include the percent difference.*

288. Please clarify whether rainfall data used in this application is the same set as for the 1995 amendment and the 1997 modification or as representative as the previous rainfall data for the site area. Please justify the use of greater curve numbers (CN) in the modeling for the current permitted conditions or revise Attachment C to use the same CNs as used in the current permit application documents for modeling the current permitted conditions.

RESPONSE: *The rainfall data presented in this application is similar, but not identical, to the rainfall data used in the 1995 amendment and the 1997 modification. Both rainfall sets are based on the NOAA Technical Memorandum NWS HYDRO-35, p. 28, June 1977 and National Weather Service, Technical Paper 40 (TP-40), 1961. However, TP-40 is now available in CAD which provides better resolution than the paper maps which show the entire U.S. The justification for the greater CN in the modeling for the current permitted conditions is already provided on page C1-B-2. No changes will be made to the rainfall data and the information derived from them.*

289. Please revise page C1-D-1 to briefly discuss the pond design methods/process or to refer to where the pertinent information is contained in the application (page C1-D-1 appears to refer to Appendix C1-C for parameters for only a few ponds out of the ponds described in this application). Please identify the computer program used for the pond design, if applicable.

RESPONSE: As requested, Appendix C1-D has been revised to discuss the existing ponds and surface water impoundments.

290. Please add a table in Appendix C1-D or at another pertinent location in Attachment C to list the relevant information for all the ponds (for example, the function/classification, the design method/considerations, the capacity, influent and discharge structure type, existing or planned, etc.)

RESPONSE: As requested, Appendix C1-D has been revised to include a table which provides the relevant information regarding the ponds.

291. Please revise Appendix C1-D to discuss how the peak flow rates are determined for the channel design at each station.

RESPONSE: As requested, Appendix C1-D has been revised to discuss how the peak flow rates were determined for the perimeter channel design.

292. Please revise Appendix C1-D at pertinent locations to clarify whether (and explain how) sufficient freeboard has been incorporated in the channel and pond design.

RESPONSE: As requested, Appendix C1-D has been revised to include a table which provides freeboard information for the ponds. Narrative has been added to C1-D discussing freeboard for the drainage ditches.

293. Please revise drawings in Appendix C1-D to show the perimeter channel(s) and the flow directions and the discharge points of the perimeter channel(s). Please identify the receiving water bodies or drainage features that the channels discharge into.

RESPONSE: Appendix C1-D has been revised to provide the information requested regarding the perimeter channel(s).

294. Please revise the drawings in Appendix C1-D and/or Attachment C3 to list the contributing areas/inflow routes and show the locations of the flows into and out of the ponds. Please identify the drainage features that receive the pond discharge. Please revise the pond plans to use proper lines/legends to show locations and number of culverts/pipes and/or other type of entrance and discharge structures (please include notes to refer to where the design/sizing information is included in the application).

RESPONSE: As requested, details for every drainage system component have been included in Attachment C3.

295. Please revise Drawing C1-E-1 to include a legend for the swale and its flow direction.

RESPONSE: Drawing C1-E-1 has been revised as requested.

296. Please revise page C1-E-6 by deleting the contents under Bullets 1 and 2, and adding considerations to meet the applicable requirements of §330.305(d) and (e). Please note that the calculated soil loss from the final cover shall not exceed 3 tons per year per acre. Please also revise page C1-E-7 accordingly.

RESPONSE: Bullets 1 and 2 in the Erosion Layer Evaluation section on page C1-E-6 are appropriate for purposes of demonstrating compliance with §330.457(a)(3) and are not proposed to be deleted. However, page C1-E-6 has been revised to address soil loss in accordance with regulatory guidance. Page C1-E-1 has been revised to address the requirements of 30 TAC §330.305(d) and (e).

297. Please explain why the flow rates in the downchute design included on page C1-E-19 are from HEC-HMS modeling (per Note 1), not by using the rational method (considering that per Drawing C1-E-2 none of the drainage area for one chute is greater than 30 acres).

RESPONSE: The Skyline Landfill is designed and analyzed to demonstrate that current permitted drainage patterns will not be adversely altered as a result of the proposed landfill development. TCEQ regulations require that surface water runoff is evaluated for the peak flow rate, volume of runoff, and velocity at each point where surface water enters or exits the permit boundary. The HEC-HMS computer model was developed to simulate the surface water runoff response from a diverse watershed and determines runoff volume. All drainage area characteristics for the current permitted and postdeveloped condition meet the modeling parameters of HEC-HMS. The surface water runoff comparison at the permit boundary is based on the HEC-HMS model. The HEC-HMS model is selected for the design of the proposed perimeter channels, detention ponds, and downchutes as the appropriate method to design these structures. The TCEQ, in regulatory guidance (RG-417-Guidelines for Preparing a Surface Water Drainage Report for a Municipal Solid Waste Facility, has stated that the 200-acre standard for the use of the Rational Method refers to the total area of the watershed above and including the landfill permit boundary. The Skyline Landfill permit boundary is 661.74 acres, which exceeds the 200 acre standard. The use of the HEC-HMS for the evaluation and design of each downchute is consistent with TCEQ guidance and is the most appropriate method to evaluate and design the downchutes.

298. Please specify the energy dissipation mentioned in Note 2 on page C1-E-19. Please revise this page as necessary.

RESPONSE: Note 2 on page C1-E-20 has been revised to specify that energy dissipation at the chute (letdown) and low-water crossing confluence is accomplished with a hydraulic jump.

299. Note 3 on page C1-E-19 seems to be in conflict with page C1-E-1 with respect to the erosion control for the chutes. Please revise this application as necessary.

RESPONSE: Note 3 has been revised in regards to the erosion control for chutes.

300. Please include necessary drawings to depict the areas described in Note 3 on page C1-E-19. Please revise this application as necessary.

RESPONSE: As requested, a profile has been added to Attachment C3 for each chute (letdown). The profiles include the necessary erosion protection.

301. Please revise page C1-E-19 to discuss the necessity for energy dissipation at the lower sections of the downchutes. Please include necessary cross-sections and plans for the area where the downchute discharges into the receiving channel.

RESPONSE: See response to Comment 300.

302. Please revise page C1-E-19 to discuss the possibility (and control/containment) of hydraulic jump in the downchutes. Please revise this page as necessary.

RESPONSE: See response to Comment 298.

303. Please revise page C1-E-19 to discuss how the downchute depth will be determined (please consider freeboard). Please revise this page as necessary.

RESPONSE: As shown on the sideslope detail on Drawing C3-30 in Attachment C3, the downchutes provide for 2 feet of flow depth. The maximum calculated flow depth for any downchute is 0.25 feet. Page C1-E-2 has been revised to reflect this information.

304. The temporary drainage letdown design is contained on pages C1-G-22 through page C1-G-26. Please revise the design to discuss the following: letdown depth (including necessary freeboard), dissipation measures/erosion control, water jump, name of receiving drainage feature, and discharge area design. Please include necessary cross-sections and plans.

RESPONSE: Page C1-G-23 has been revised to include the information requested regarding the temporary drainage letdown design.

305. Please explain why the temporary drainage letdown design does not include the top dome/slope and/or revise the design as necessary.

RESPONSE: Surface water runoff from intermediate top dome cover areas is collected by temporary topslope swales and routed to temporary sideslope drainage letdowns. Page C1-G-23 has been revised to address temporary drainage letdown design for top dome and side slopes.

306. Appendix C1-E specifies 85 percent coverage with tall grass for the final cover. Please revise Appendix C1-E and other pertinent portions of the application such as Attachment H, Attachment D8, and other parts of Attachment C to include

measures for schedule, installation, establishment, and maintenance of the specified vegetation coverage (please also include temporary erosion controls before the specified vegetation cover is established). Please note that final cover must have vegetation that is classified as one of the structural erosion control measures. Please note that §330.457(a)(3) requires that the final cover "shall be seeded or sodded immediately following the application of the final cover in order to minimize erosion." Please revise the application as necessary.

RESPONSE: *The second sentence on page C1-19 lists vegetation as an erosion control measure. The second paragraph in the same section states: "The final cover includes, among other things, an erosion layer that is a minimum of 36 inches of earthen material with the top 6 inches capable of sustaining native plant life and will be seeded with native and introduced grasses immediately following the application of final cover in order to minimize erosion." Erosion control measures before the specified vegetation is established are already included in note 5 on page C1-E-7. No changes were made as a result of this comment.*

307. Appendix C1-E and other parts of Attachment C1 (for example, Appendix C1-G) use a 6 percent top slope for various designs. Drawing H2.1 shows 2.5 percent for the top slope. Please revise the application to explain and illustrate the difference or revise the application for consistency (please note that top slope less than 5 to 6 percent is not preferred).

RESPONSE: *As requested, all occurrences of 6 percent top slope have been changed to 2.5 percent.*

308. Please revise Appendixes C1-E, C1-F, and C1-G, as applicable, to clarify whether sufficient freeboards have been incorporated in the design of swales, downchutes, and diversion berms.

RESPONSE: *Narrative has been added to the chute design subsection in Appendix C1-E regarding freeboard. However, there are no regulatory requirements that specify minimum freeboard depth for swales, downchutes, and diversion berms. These drainage control features are designed to convey the design runoff from the 25-year rainfall event as required by §330.305.*

309. Appendix C1-F is named Intermediate Cover Erosion and Sedimentation Control Plan and Appendix C1-G is named Intermediate Cover Erosion Control Structure Design. The intermediate cover definition stated on page C1-F-1 includes areas that have final cover. As discussed in previous comments, Appendix C1-E, Final Cover Drainage Structure Design, does not include sufficient information on erosion control measures. Please revise these appendixes to systematically address the erosion control requirements of §330.335(d) and other applicable requirements of Chapter 330. TCEQ's technical document Guidance for Addressing Erosional Stability During All Phases of Landfill Operation can be downloaded from the agency's website at <http://www.tceq.texas.gov/assets/public/permitting/waste/msw/interimdrainageguide.pdf>.

RESPONSE: *The intermediate cover definition stated on page C1-F-1, which includes areas that have final cover, is taken directly from the guidance document referenced. However, "final cover" has been removed from the definition at your request. The erosion control requirements of 30 TAC §330.305(d), Appendix C1-E addresses the requirements of 30 TAC §330.305(d) related to the final condition of final cover areas. The requirements of 30 TAC §330.305(d) related to intermediate phases are addressed in Appendices C1-F and C1-G.*

310. The temporary diversion channel design presented on pages C1-G-18 through C1-G-21 appears to be more for surface drainage control than erosion control. Please consider removing this design to an appendix dedicated to surface drainage issues or include the design as new appendix to Attachment 3. When address this comment, please refer to the following comment on the temporary diversion channel design.

RESPONSE: *The use of a temporary diversion channel as presented in Appendix C1-G is an appropriate erosion control for landfill areas in the intermediate cover phase. No changes have been made as a result of this comment.*

311. The information included on page C1-G-19 seems to be in conflict with itself with respect to the temporary diversion channel's use. Please explain the discrepancy among the stated uses. Please describe where the temporary channels will discharge (or how they will be emptied), and discuss the possible impact of the temporary channels may have on the "permanent" surface drainage systems. Please explain the difference, if any, between the temporary diversion channel and the diversion berm described in Appendix D6-C. When addressing this comment, please refer to a previous comment regarding how the on-site drainage system and the landfill have been designed to prevent surface run-on into the waste footprint. Please revise the application as necessary.

RESPONSE: *As requested, the temporary drainage channels use has been revised on pages C1-G-15, C1-G-19, and C1-G-20.*

312. Please ensure that all the information included on page C1-G-19 is appropriate for the intended function and location of the temporary diversion channel (for example, but not limited to, the location and design views included in Drawings C1-F-1 and C1-F-2). Please revise the application as necessary.

RESPONSE: *As requested, Drawing C1-G-19 has been revised to show the correct location of the temporary diversion channel. The temporary diversion channel detail has also been revised on Drawing C1-F-2.*

313. Please clarify if the solid lines with numbers shown in Drawings C2-A-3 and C2-A-4 are the elevations of the flood water surface and, if necessary, add a legend to the drawings for the elevations of flood water surface.

RESPONSE: *As requested, the legends in Drawing C2-A-3 and C2-A-4 have been revised to show the flood surface elevations.*

314. Assuming the solid lines in Drawings C2-A-3 and C2-A-4 are the elevations of the flood water surface, please explain the differences between the water surface elevations shown in Drawings C2-A-3 and C2-A-4 and the water surface elevations listed in Drawings C2-A-5 and C2-A-6. Or please revise the drawings and the text of Attachment C as necessary.

RESPONSE: *The purpose of Drawings C2-A-3 and C2-A-4 are to show the limits and flood elevations for the 100-year flood event for the currently permitted and postdevelopment conditions. The purpose of Drawings C2-A-5 and C2-A-6 and the table on page C2-A-7 is to show that the site, if expanded as proposed, will not restrict the flow of the 100-year flood event. No changes to the drawings were made as a result of this comment. To avoid potential confusion with the 100-year floodplain established by FEMA, we have named the water surface developed from this analysis the BME 100-Year Water Surface for Ten Mile Creek.*

315. Please explain the meaning of BME 100-Year water surface used in Drawing C2-A-5 and other drawings of Appendix C2-A. Or please revise the drawings as necessary.

RESPONSE: *A hydrologic analysis of Ten Mile Creek for the 100-year rainfall event was performed, producing a 100-year water surface for Ten Mile Creek. No changes to Appendix C2-A were made as a result of this comment. To avoid potential confusion with the 100-year floodplain established by FEMA, we have named the water surface developed from this analysis the BME 100-Year Water Surface for Ten Mile Creek. No changes to Appendix C2-A were made as a result of this comment.*

316. Please consider adding a cross-section (profile) to Drawing C3-13 or a drawing in Attachment D2 to show the transition from the landfill toe to the perimeter road and the ground where there will be no ponds or perimeter channel.

RESPONSE: *As requested, a profile has been added for each chute (letdown). The profile for Chute 13 can be found on Drawing C3-28.*

317. Attachment C3 is named Drainage System Plans and Details. Many of the drawings included in Attachment C3 are inconsistent with designs and specifications included in other parts of Attachment C; for example, the swale sketches shown on Drawing C3-13 are different from the sketches included in Appendix C1-E. Many details included in Attachment C3 do not have necessary instructions for their application; for example, the detail for rock riprap shown on Drawing C3-13 does not specify where this structure should be used (and its specifications are incomplete, compared to the specifications listed on page C1-E-19). It is difficult or impossible to couple the drawings in Attachment C3 with the designs included in other portions of Attachment C. Please delete Attachment C3 and relocate its contents to the attachments and/or appendixes where the respective structure design information is contained (please ensure that the contents of the drawings removed from Attachment C3 are consistent with the design information). Please revise the application as necessary.

RESPONSE: As requested, sketches on pages C1-E-16 and C1-E-17 have been revised. A reno mattress as called out on C1-E-19 is a type of gabion. The gabion detail on Drawing C3-32 has been revised for clarity.

Pond 27 and Pond 29 include a trapezoidal ditch. These ditches are included in the pond volumes and function as part of the pond and the flow velocity is expected to be less than erodible velocity for a grass lined ditch. However, if erosion protection is required then a portion of the ditch may be rock-riprap lined and an engineer will specify the riprap thickness and rock gradation. Detail D9 – Trapezoidal Ditch references detail D10 – Rock Riprap (Typ).

318. Please revise Attachment C to include sufficient information for Phase 5 and the Sub-Title D area to meet all the applicable requirements.

RESPONSE: The footprints for waste disposal areas, existing and proposed, are shown on the appropriate drawings in Attachment C. The phase labels are not shown on drawings in Attachment C since the phases do not affect the hydrologic evaluations, perimeter drainage system designs, or final cover drainage system designs. The phases are shown on Drawing B.2 – Waste Disposal, Processing, and Storage Schematic Plan, in Appendix B.1, of Attachment B.

Part III, Attachment D (Waste Management Unit Design)

In making the following comments, it was assumed that units and operations are or will be authorized and are consistent with other portions of the application; for example, it was assumed that the Bioremediation Treatment Pad details contained in Part IV of the application are acceptable.

319. Please identify any of the landfill units/areas, storage and transfer units described in Attachment D of this application that are not currently existent.

RESPONSE: Phase 1, Cells 1 through 6 have been lined with Subtitle D liner system and 20 acres of the southern slope of Phase 1 have final cover in place. Cells 7 through 9 of Phase 2 have been lined with the Subtitle D liner system and Cell 10 is scheduled to be lined in 2013. Phase 3 has not been developed. Phase 5 has been lined with the Subtitle D liner system and is at final grade but final cover has not been constructed. The pre-Subtitle D area south of Phase 5 was developed prior to Subtitle D and final cover has been constructed over the whole area. There is an existing bioremediation pad located in the future Cell 18 area, an existing convenience center located adjacent to the landfill maintenance shop/offices, an existing Landfill Gas to Energy (LGTE) plant located across the road from the landfill maintenance shop/office, and an existing leachate storage facility located adjacent to the LGTE plant. Drawing D1.2 has been revised to include hatching to identify the landfill areas where liner and final cover have been constructed.

320. The current permit requires stepped dikes built for screening on certain slopes during filling process. The cross-sections included in Attachment D2 do not

appear to include the same or similar design. Please explain why this slope development feature is not included in this application or refer to where the pertinent information is contained in the application. Please note that this application review does not include review of any agreements or obligations made between the permittee and any other parties, unless they are clearly identified in the application.

RESPONSE: *The screening berms that are shown in the current permit on the south side of the main fill area have been constructed and will remain in place. The steps in the current permit completion plan for drainage purposes have been removed to facilitate waste placement and final cover construction. Drainage control will be built on top of the final cover system as discussed in Part III, Attachment C. Any other screening or stepped slope construction included in the current permit is not known to be obligatory between the permittee and other parties and is not required by this amended design.*

321. Please revise Table D-1 on page D-3 and Drawing D3.5 to specify double geomembrane for the sump liner.

RESPONSE: *There is no requirement for double geomembrane liner in the sump area. In some circumstances, double-lined sumps have been designed and constructed to provide additional protection from potential groundwater contamination. However, the design of this site with the standard Subtitle D liner and leachate collection system provides the required level of protection from potential groundwater contamination; a double geomembrane liner in the sump area is not necessary.*

322. Please revise Section 1.7 on page D-3 to update the final cover design per other comments of this letter (refer to the comments on the lack of a geomembrane in the final cover design).

RESPONSE: *Section 1.7 on page D-3 has been revised to indicate that there is an approved alternate final cover system that will be constructed over the waste footprint that has not changed and the Subtitle D final cover system will be constructed over the waste footprint expansion areas.*

323. Please revise Section 2.1 on page D-4 to include provisions to comply with §330.147(c) for handling items containing chlorinated fluorocarbon or please revise this section to refer to the locations in the application where pertinent information is included.

RESPONSE: *Section 2.1 has been revised to clarify that the reference to procedures for the acceptance, storage, processing, and disposal of large items in Part IV – Site Operating Plan includes items containing chlorinated fluorocarbon.*

324. Please delete asphalt and shingles from the materials identified in Section 2.2 on page D-4 as inert materials, as they are not consistent with the inert material definition of §330.3(67).

RESPONSE: *As requested, Section 2.2 has been revised to clarify the reusable materials staging area and the reference to asphalt and shingles.*

325. Please revise Section 2.3 to discuss compliance with the requirements of §330.213 and §330.63(b)(3) that are applicable to the citizen's convenience area or please revise this page to refer to the locations in the application where pertinent information is included.

RESPONSE: *Section 2.3 has been revised to add that operational procedures for the citizen's convenience center are included in Part IV – Site Operating Plan. See response to Comment 252.*

326. Please revise Section 2.4 and pertinent portions of Attachment D6 to discuss how the leachate will be transferred from the sumps to the existing tanks in the event that the direct connection to the publicly owned treatment works (POTW) is not functional.

RESPONSE: *Text has been added to Section 2.4 to clarify that leachate is pumped from the landfill sumps through a forcemain pipe that passes through the existing storage tanks on its way to discharge at the POTW connection. If the POTW connection is not functional, valves are in place to store the leachate in the storage tanks instead of discharging the leachate to the POTW connection.*

327. Please revise Section 2.7 to define stabilization as used in this application (please refer to a previous comment on the stabilization definition).

RESPONSE: *Section 2.7 has been revised to clarify that stabilization in this context is the addition of listed agents to liquid waste so that the mixture passes the paint filter test.*

328. Please explain whether liquid waste from drilling is included in the wastes identified in the third sentence in Section 2.7; and, if not included, please discuss the treatment to be performed on this waste. Please revise this section as necessary.

RESPONSE: *Section 2.7 has been revised to include liquid waste from drilling activities in the list of liquid wastes that may be stabilized.*

329. It appears that none of the drawings included in Attachment D1 clearly show the on-site roadways including the perimeter roads (except the entrance roads shown in Drawing D1.5). Please consider revising at least one of the drawings (for example, Drawing D1.2) or adding one new drawing to show the on-site roads as required by §330.61(d)(2). Please use proper legends to highlight the on-site roads.

RESPONSE: *Drawing D1.3 has been revised to highlight the perimeter landfill access road and landfill entrance road.*

330. Please identify any of the facilities or improvements shown in Drawing D1.5 that are not existing facilities or improvements.

RESPONSE: *All of the facilities that are called out on Drawing D1.5 are existing facilities. Note 2 has been added to Drawing D1.5 to clarify that all facilities are existing.*

331. Please add cross-sections that include pre-Sub D area and Phase 5. The cross-sections should illustrate the relationships among the pre-Sub D area, Phase 5, and Phases 1 to 3.

RESPONSE: *The typical landfill cross sections included in Attachment D2 have been revised to show the pre-Subtitle D area on Cross Section 5 and to add Cross Section 6 showing the Phase 5 area and the pre-Subtitle D area.*

332. Please revise Drawing D3.2 to briefly discuss the liners installed for the developed cells/areas.

RESPONSE: *Drawing D3.2 has been revised to add a table summarizing liner development for all of the landfill areas at the site.*

333. Drawing D3.5 indicates that the sump design sizing is applicable to Cells 11 – 18. Please revise this drawing to specify the sump design details (including size) for other cells.

RESPONSE: *Cells 11 through 18 are the only cells remaining to be developed at the site that have permanent leachate collection sumps and Drawing D3.5 includes design sizing for those cells. All other cells/leachate sumps are existing and sizing is documented in the SLER and GLER as-built documents for each previously constructed cell.*

334. Please revise Drawing D3.5 to include Note 4 which is referred to but is missing from the drawing. Please discuss the use of the collection riser pipe in Note 4 or rename the pipe as appropriate.

RESPONSE: *Drawing D3.5 has been revised to remove the reference to Note 4 and to rename the Collection Riser Pipe to Cleanout Riser Pipe. The Cleanout Riser Pipe is an extension of the 6" Leachate Collection Pipe for the purpose of cleaning out the leachate collection pipe as needed.*

335. Please revise Drawing D3.6 to include a note for LCS5 to identify the pipe for which the design is intended (Drawing D3.5 shows some pipes used in and around sumps).

RESPONSE: *Drawing D3.6 has been revised to include a note for detail LCS5 that clarifies that the perforation schedule applies to both the 6" leachate collection pipe and the 18" sump pipe.*

336. Please revise Drawing D3.7 to identify the possible locations of the open or closed sumps that are described on page D7-6.

RESPONSE: *Drawing D3.7 has been revised to indicate the locations of the sumps for the underdrain system. Closed sumps are shown for both the north*

sideslope and east sideslope. The north side can be constructed with an optional open sump in place of the closed sump.

337. Please revise Drawing D3.8 and Appendix D7 to have consistent naming for the various parts of the sidewall drain underdrain sump systems.

RESPONSE: Drawing D3.8 has been revised to indicate that the underdrain sump shown on the drawing is the closed sump design. Note 3 on that drawing indicates that the closed sump will be used only if the sidewall drain system cannot be daylighted to an adjacent excavation area (open sump). The sidewall drain in the Cell 13 and 14 area is anticipated to be drained to the adjacent Cell 15 excavation and utilize an open sump. The sidewall drain in the Cell 18 area is anticipated to require a closed sump. The detail for the sidewall drain design on Page D7-B-1 has been revised to include callouts for the drainage geocomposite and the sidewall drain to be consistent with Drawing D3.8.

338. The hydraulic conductivity specified for the sand in the sidewall drain in Drawing D3.8 is illegible. Please revise Drawing D3.8 to include legible specification and justify the specified hydraulic conductivity (or refer to where the pertinent information is contained in the application). Please verify that the drainage composite has sufficient flow capacity and discuss how the sidewall drain (including its groundwater removal mechanism) has been designed so as to not cause hydraulic uplift against the liner. If the pertinent information is already contained in the application, please revise Drawing D3.8 to refer to the locations where the pertinent information is contained.

RESPONSE: Drawing D3.8 has been revised to show the hydraulic conductivity of the sand in the sidewall drain detail in scientific notation ($K \geq 1E-04$ cm/s) so that it is legible. The design for all of the components of the sidewall drain system is included in Attachment D7 – Liner Quality Control Plan as referenced in Note 1 on Drawing D3.8. Appendix D7-B includes calculations and specifications for each of the components of the underdrain system. The calculations to size and specify materials for the sidewall drain shown on Drawing D3.8 are included on page D7-B-1 through D7-B-4. Design flowrate is calculated on D7-B-1. The required sidewall drain components and pump (for closed sump) are calculated on D7-B-2. The drainage geocomposite calculations are included on pages D7-B-3 and D7-B-4. The drainage system (drainage geocomposite and sidewall drain) shown is fully capable of intercepting and transmitting groundwater to an open sump or to a closed sump with a pump to prevent hydraulic uplift on the sidewall liner system.

339. Drawing D3.8 shows a composite drain named as ADS Advantage™ in detail UD2. Please explain how this composite drain works and include a note to this detail to describe this feature in common engineering language and provide necessary design data/sketches and specifications. If confidential information is involved, please follow the procedures of the agency's rule '1.5 and other applicable regulations. If the pertinent information is already contained in the

application, please revise Drawing D3.8 to refer to the locations where the pertinent information is contained.

RESPONSE: *Drawing D3.8 has been revised to include Note 4 that provides a description of the ADS AdvanEdge™ product. Detail UD4 has been added to Drawing D3.8 to provide additional detail of the composite drain shown in the UD3 sidewall drain detail.*

ADS AdvanEdge™ is a prefabricated HDPE oval pipe (12" high by 1.5" wide) with a geotextile wrap that is available in lengths of up to 500 feet. The product can be installed in a trench installation with sand backfill which is typically a more efficient construction technique in underdrain trenches and provides similar drainage characteristics to a 4-inch perforated pipe backfilled with aggregate and wrapped in a geotextile. The product was included in the detail because it is a typical choice for construction of these type drains. However, the specification includes "or equal" to provide the construction engineer flexibility in constructing an underdrain system that is available, effective, and efficient. The design calculations for the sidewall drain in Appendix D7-B set the required specifications for whatever product the construction engineer desires that meets the design specifications.

340. Detail UD3 of Drawing D3.8 appears to show a layer of aggregate over the liner system. This graphic representation is different from the liner design shown in other drawings of the application. Please explain this design or revise the drawing as necessary. If the pertinent information is already contained in the application, please revise Drawing D3.8 to refer to the locations where the pertinent information is contained.

RESPONSE: *Detail UD3 on Drawing D3.8 has been revised to show soil hatch pattern for protective cover soil in place of the aggregate hatch pattern.*

341. Please revise Drawing D3.8 to specify the materials for the sidewall drain and the underdrain sump. Please explain whether lateral and downward groundwater seepage is expected around the sidewall drain and the underdrain sump; for example, along the interface between the liner and the subgrade (please see the sketch on page D7-B-1). If the pertinent information is already contained in the application, please revise Drawing D3.8 to refer to the locations where the pertinent information is contained.

RESPONSE: *Note 1 on Drawing D3.8 provides a reference to Attachment D7 for installation and material requirements. Groundwater in Stratum I will be intercepted and drained to open or closed sumps through the sidewall drain. There is no expected seepage around the sidewall drain as the hydraulic conductivity of the Stratum I and II materials is several orders of magnitude less than that of the drain system. There is no expected seepage at the interface of the subgrade and liner as the interface will be scarified and the liner material compacted into the interface.*

342. Please revise Note 2 on Drawing D3.8 to discuss in principle how the sidewall drain (and underdrain sump) will be located in light of Stratum I and Stratum II. If the pertinent information is already contained in the application, please revise Drawing D3.8 to refer to the locations where the pertinent information is contained.

RESPONSE: *Note 1 on Drawing D3.8 provides a reference to Attachment D7 for installation and material requirements. Note 2 has been revised to clarify that the interface between Stratum I and II will be located in the field during liner construction activities through visual observation of material type, structure, color, moisture content and other changes in material characteristics.*

343. Please revise the final cover design shown in Drawing D3.10 in accordance with other comments on the final cover design of this NOD letter.

RESPONSE: *Drawing D3.10 has been revised to include details for both the approved alternate and Subtitle D final cover systems.*

344. (Attachment D4 was reviewed based on the assumption that the facility is open six days per week) Please revise Attachment D4 to include brief discussion on the capacities and/or amount of waste in place at the pre-Sub D area and Phase 5 or to refer to where the pertinent information is contained in the application.

RESPONSE: *Attachment D4 has been revised to include the quantity of existing waste that is in place at the site and to refer to Attachment H for specific locations and quantities.*

345. Section 3.2 on page D5-5 states that general fill will be required to construct roads and perimeter berms. Please revise this section to specify the locations where the berms will be constructed or revise this section to refer where the pertinent information is contained in the application. Please discuss whether the general fill with the specifications listed on page D5-4 will be suitable for the road and berm construction or revise page D5-4 as necessary.

RESPONSE: *Section 3.2 has been revised to remove the reference to general fill being used in any specific location. General fill is a generic term for soil that is used as needed in various locations around the site that are not covered under other performance specifications. The general fill specification in Table D5-3 that includes most soil types other than sand and gravel and requires a plasticity index (PI) of at least 5 and at least 15% of clay-sized particles (-200) is suitable for all types of general fill applications on a landfill site including access roads and berms.*

346. Please confirm whether the heave and settlement analysis discussed in Section 5 of Attachment D5 is sufficient for the horizontal expansion areas or revise the application as necessary.

RESPONSE: *The location of the typical section used for the settlement and heave analysis of the expansion area is the northern slope and floor of Cell 15. This location was chosen to provide a section that represents the overburden pressures that exist in the area remaining to be developed. The analysis indicates that settlement and heave will not be detrimental to the proposed liner, leachate collection system, or final cover system.*

347. Please revise Table D5-4 to specify whether the friction angles are internal or interface friction angles (and specify the materials that form the interface).

RESPONSE: *Table D5-4 has been revised to specify that all of the friction angles are internal with the exception of the geosynthetics.*

348. Please revise Table D5-6 to list the slope angles used in the stability analysis (please include proper qualifiers as necessary).

RESPONSE: *Table D5-6 has been revised to list the slope angles used in the stability analysis.*

349. Please revise Attachment D5 to update the slope stability analysis for the final cover scenario once the comments on the final cover design have been properly addressed.

RESPONSE: *Table 5-6 has been revised to include results of stability analyses for all components of the approved alternate and Sub-title D final cover systems.*

350. Please update the final cover information included in Section 8 of Attachment D5 after other comments on the final cover design have been properly addressed.

RESPONSE: *Section 8 has been revised to include discussion of both the approved alternate and the Sub-title D final cover systems.*

351. Please check the interface friction angles listed on page D5-B-2 of Appendix D5-B for loading conditions or revise this appendix to use proper interface friction angles for the expected (or conservatively assumed cases) loading conditions (please identify the applicable conditions when friction angles from Reference 2 are used).

RESPONSE: *The appropriate friction angles for the expected loading conditions were used in the initial submittal. Page D5-B-2 has been revised to clarify that the strength parameters were selected based on loading conditions and to identify the applicable conditions when strength data from Reference 2 were used.*

352. Please revise Section 2 of Attachment D6 to discuss how the sumps in the developed cells will be connected to the leachate collection pipe for Cell 13 (please clarify that the leachate collection layer grade and the collection pipe design grade will be satisfied).

RESPONSE: *Section 2.2.5 and 2.2.6 have been revised to clarify that existing leachate collection pipes in the Phase 1 and 2 fill area will be connected to future*

leachate collection pipes in Cells 11 through 13 as these cells are constructed. Existing sumps in the Phase 1 and 2 fill area will be exposed and reconstructed to remove the sump and regrade the leachate collection layer and collection pipes to extend into Cells 11 through 13 with at least the minimum required grades. Documentation of the reconstruction will be submitted with the SLER and GLER documentation of Cells 11 through 13.

353. Section 2.2.6 of Attachment D6 states that the pump may be operated manually or by an automatic start switch. Please revise this section to specify the normal (default) operation mode and clarify the mechanism/conditions that activate the switch. Please revise this section to specify (and justify) the conditions/frequency the pumps will be manually activated.

RESPONSE: Section 2.2.6 has been revised to indicate that the pumps are capable of operating in either manual or automatic mode via an electronic start switch set to come on when leachate levels in the sump approach the compliance level and turn off when leachate levels are lowered to the operational limits of the pump. The default mode will be automatic operation and the manual mode will be used during maintenance and repair operations.

354. Considering the leachate collection system design presented in Attachment D6, please revise Attachment D6 to include provisions that the collection system cleanup can be effectively performed or revise the design as necessary.

RESPONSE: Section 2.2.5 has been revised to clarify that the leachate collection pipes have been designed with cleanout risers on each end to facilitate cleanout of the leachate collection pipes.

355. Please revise Section 2.3 of Attachment D6 on page D6-5 to specify the materials for the floor and the dike of the tank secondary containment area.

RESPONSE: Section 2.3 has been revised to include the statement that the secondary containment area consists of 2 feet of compacted soil liner overlain by a 60-mil HDPE geomembrane for the floor and sidewall of the containment area.

356. Please revise Section 2.4 on page D6-6 to discuss how leachate recirculation will be performed so as not to result in leachate depth/head greater than 30 cm over the liner.

RESPONSE: Section 2.4 has been revised to include a statement that the leachate collection system is automated to prevent leachate depth greater than 30 cm from accumulating on the liner system and will be in operation during leachate recirculation activities.

357. Please revise Section 3 of Attachment D6 to include specific and definite provisions of how the contaminated water will be collected, stored, and disposed of.

RESPONSE: Section 3.2 indicates that contaminated water will be collected through the use of containment berms around the active area. Section 3.3

indicates that the containment berms will be capable of storing the 25-year, 24-hour storm event. Section 3.4 has been revised to include a statement that contaminated water will be pumped to the existing leachate collection system, leachate storage tanks, or transported to a POTW for treatment and disposal.

358. Please revise Section 3.4 on page D6-7 to state that contaminated water may not be discharged offsite without prior written approval.

RESPONSE: *Section 3.4 has been revised to include a statement that contaminated water may not be discharged offsite without prior written approval.*

359. Please revise page D6-A-11 to justify the selection of the numbers of the pinholes and defects and to explain how the hydraulic head beneath liner was determined. Please explain why there was no groundwater inflow calculation for Cell 18.

RESPONSE: *Page D6-A-11 has been revised to include a reference for the selection of number of pinholes and defects per acre and to include groundwater inflow calculations for Cell 18. Page D6-A-10 has been revised to include a reference to explain the value of hydraulic head used in the radius of leakage calculations.*

360. Please explain how the hydraulic conductivities listed on page D6-B-4 were determined for leachate collection system (LCS) layer.

RESPONSE: *The hydraulic conductivities listed on page D6-B-4 were determined in the geocomposite design calculations presented on pages D6-A-1 and D6-A-2 for the various overburden pressures anticipated over the development cycle of the landfill. These various overburden pressures correspond to the design case numbers (1 through 5) presented and modeled with the HELP model.*

361. Please revise Drawing D6-C1 to explain how the diversion berm drainage area was determined or specify how the berm will be sized if the actual drainage area exceeds the listed acreage. Please revise diversion berm design as necessary.

RESPONSE: *The range of drainage areas in the table varies from 0.5 to 1.5 acres which covers the active area that will be open at any given time based on the SOP.*

362. Please revise Drawing D6-C1 to clearly indicate that whether or not the specified berm heights (containment and diversion) already include the specified freeboard.

RESPONSE: *Drawing D6-C1 has been revised to indicate that the "Required Minimum Height" in the "Containment and Diversion Berm Sizing Criteria" table includes the specified freeboard.*

363. Please revise Section 3.3.2, Temporary Dewatering, of Attachment D7 to discuss why only portions of side slope of Cells 13, 14, and 18 will be excavated to below the highest recorded groundwater level. If this information is included in other portions of the application, please revise this section to include a reference.

Please revise this section and other pertinent portions of the application as appropriate (for example, Drawing D3.8).

RESPONSE: *In response to Comment No. 130, the highest recorded groundwater elevations for all historic borings and piezometers as well as the monitoring wells have been compiled and summarized on pages D7-A-2 and D7-A-3 and used to revise Drawing D7A-1. Using this data, the temporary dewatering system and ballast calculations have been revised. Section 3.3.2 has been revised to discuss the areas where the proposed excavation will expose Stratum I material with recorded groundwater. These areas include portions of the sideslope in Cells 13-15 and portions of the sideslope in Cell 18. Drawing D3.7 has been revised to indicate the location of the areas that will require dewatering and Drawing D3.8 has been revised to include additional details of the dewatering system. The proposed excavation areas in Cells 10-18 that are not included in the dewatering area are either Stratum I material that has not had any recorded groundwater or Stratum II material that does not have groundwater.*

364. Please revise Section 3.3.2 of Attachment D7 to briefly discuss the Strata I and II in terms of groundwater levels (or potentiometric surface) and to discuss whether the underdrain systems will completely intercept (cutoff) the water bearing zones/layers. Please also revise this section to describe how the groundwater will be pumped from the sumps to ensure that no uplifting is exerted against the liner above and beyond the under drain areas.

RESPONSE: *Section 3.3.2 has been revised as discussed in the response to Comment No. 363 and includes discussion of intercepting Stratum I groundwater and pumping from the dewatering sumps.*

365. Please revise Section 4.3 on page D7-8 to include provisions that the geotechnical professional (GP) will observe the subgrade for signs of groundwater seepage and take appropriate actions, if necessary.

RESPONSE: *Section 4.3 has been revised to include a statement that the geotechnical professional will observe the subgrade for signs of groundwater seepage and take appropriate actions, if necessary.*

366. Please delete the note from Table D7-4 on page D7-11.

RESPONSE: *The note below Table D7-4 on page D7-11 has been deleted.*

367. Please revise Section 4.8.2 on page D7-11 to state that the samples for hydraulic conductivity tests will be undisturbed and not be remolded.

RESPONSE: *Section 4.8.2 on page D7-11 has been revised to include a statement that permeability testing will be conducted on undisturbed samples from the compacted soil liner.*

368. Please revise Section 5 of Attachment D7 at proper locations to state that the geomembrane seaming and repairs shall be performed in strict accordance with the methods approved or recommended by the geomembrane manufacturer.

RESPONSE: Sections 5.4.2 and 5.4.4 have been revised to include the statement that geomembrane seaming and repairs shall be performed in strict accordance with the methods approved or recommended by the geomembrane manufacturer.

369. Please revise Section 5.5.1 on page D7-16 to specify the tests and testing frequencies for the resin or revise this section to refer to where the pertinent information is contained in Attachment D7.

RESPONSE: The geomembrane product provided by the manufacturer is comprehensively tested by the GM13 specification which has been established as the industry standard to assure performance of the product at the standard required by the regulations. It is unclear why additional specification and testing for components (resin) of the geomembrane are needed.

370. Please revise Table D7-10 to include a note requiring the transmissivity tests to be conducted under the conditions specified by the GP according to the design conditions.

RESPONSE: Table D7-10 in Section 6.5.1 has been revised to include the statement that the transmissivity testing will be conducted under the conditions specified by the GP according to the design conditions.

371. Please revise Section 7 of Attachment D7 to define the term of geosynthetics used in this section.

RESPONSE: Section 7.1 has been revised to clarify that the geosynthetics to be protected during protective cover soil placement include the geomembrane liner and geocomposite utilized as the leachate collection layer.

372. Section 7.4 on page D7-29 states that protective cover shall not be placed over geosynthetics that are stretched across the toe of slopes. Please identify (by location and dimensions) in Drawing D3.2 and/or other pertinent plans the area where protective cover will not be placed. Please specify the material (and necessary specifications) to be placed over the identified area and justify the use of the material, or revise the section and other pertinent portions of the application as necessary. If the specified protective cover material will be placed at the toe of the slopes, please discuss the necessity to revise the modeling for leachate depth on the liner and the slope stability analysis.

RESPONSE: Section 7.4 on page D7-29 has been revised to clarify that protective cover soil shall not be placed while geosynthetics are stretched or bridging across the toes of slopes. Protective cover soil will be placed in these areas when material has relaxed to conform to the top of the soil liner or additional geosynthetics have been added in accordance with the requirements of the Section 5 and 6 to relieve bridging.

373. Please revise Section 9.1 on page D7-33 to indicate that the report recipient is the TCEQ (the rest of the application uses the name TCEQ when referring to the agency).

RESPONSE: *Section 9.1 has been revised for consistency to indicate that the report recipient is the TCEQ.*

374. Please revise Sections 9.2 and 9.3 to specify that the SLER and GLER will also contain properly filled TCEQ SLER and GLER forms and the necessary documents to supplement the forms.

RESPONSE: *Sections 9.2 and 9.3 have been revised to specify that the SLER and GLER will contain properly completed TCEQ SLER and GLER forms and the necessary documents to supplement the forms.*

375. Drawing D7-A-1 shows the highest recorded groundwater elevations. Please revise Attachment D7 at a proper location to explain why the groundwater contours are still representative of the proposed development conditions, considering the lateral and vertical expansions proposed in the application (especially at the expansion areas). Please clarify whether the open waters that will be eliminated by the proposed expansions are hydraulically connected with the groundwater systems and, if applicable, discuss the potential impact on the groundwater system at the site.

RESPONSE: *The highest recorded groundwater contours depicted on Drawing D7A-1 represent a most conservative design condition only and not a water surface that has or will ever exist at the site. The highest water level ever recorded at each monitoring well and piezometer, regardless of time or development sequence, were compiled and used to develop the contours indicated. Past and future development of the site has likely influenced the actual groundwater levels at the site, but the highest measured levels are used for dewatering and ballast design. The open waters that will be eliminated by the proposed expansion are not hydraulically connected to water levels measured in the Stratum I materials at the site and should have no impact on the groundwater system at the site.*

376. Please revise page D7-B-1 to identify by name each of the components of the dewatering system.

RESPONSE: *Page D7-B-1 has been revised to include callouts for each of the components of the dewatering system.*

377. Please revise page D7-B-1 to justify the assumption that the boundary of the upmost water bearing unit (GWBU) is at the top of Stratum II. Or please revise this page to refer to where the justification is included in the application.

RESPONSE: *Page D7-B-1 has been revised to clarify that the boundary of the upmost water bearing unit is the top of Stratum II as discussed and justified in Attachment E – Geology Report, Section 5.6 – Site Hydrogeology.*

378. Please justify the hydraulic gradient used in the dewatering flow rate calculations on page D7-B-1.

RESPONSE: *The hydraulic gradient used in the dewatering flow rate calculations on page D7-B-1 is an average hydraulic gradient calculated using actual potentiometric surfaces around the site from the June, 2010 groundwater readings and provides a reasonable estimate of the groundwater flow characteristics for design of the dewatering system. The flow rate for the dewatering system is relatively small and the value of the hydraulic gradient used in the calculations does not have a significant influence on the design specifications.*

379. Please revise page D7-B-2 to specify the pump operation procedure (the criteria and mechanism for activating and stopping the pump, and the measures to detect and repair malfunctioning pump).

RESPONSE: *Section 3.3.2 in Attachment D7 has been revised to include a discussion of the dewatering pump operation. Appendix D7-B provides design calculations for sizing components of the dewatering system.*

380. Please clarify whether (and explain) the maximum drainage width specified on page D7-B-3 is the same dimension of the length of trench drain specified on page D7-B-1 or revise the pages for consistency.

RESPONSE: *The maximum drainage width specified on page D7-B-3 represents the width of drainage geocomposite installed on the sideslope from the highest measured groundwater level down the slope to the top of the Stratum II layer where it enters the sidewall trench drain. The length of the sidewall trench drain specified on page D7-B-1 is the total length of the trench.*

381. The geocomposite property specification on pages D7-B-3 and 4 appears to assume that the intercepted groundwater will flow full in the geocomposite. Please discuss the possibility that the flow will exceed the effective thickness of the geonet passage and, if applicable, justify that the specifications will still be adequate.

RESPONSE: *The allowable transmissivity for the drainage geocomposite to be installed as part of the temporary dewatering system and installed on a 5H:1V slope was calculated as $1.05E-08$ m²/sec after applying reduction factors for soil, chemical, and biological clogging, intrusion and creep. A typical double-sided, 200-mil drainage geocomposite tested at a hydraulic gradient of 0.01 provides transmissivity of approximately $5E-03$ m²/sec so it is not likely that the geocomposite will be flowing full.*

382. Please revise Appendix D7-C by adding the following equation as Equation 2.(c) to page D7-C-4: $FS = (\sum Tx \cdot \gamma_x) \cdot \cos \beta / P_N$, where: FS is the factor of safety, Tx is the vertical thickness of X component to be counted as ballast, γ_x is the unit weight of the X component to be counted as ballast, β is the liner/slope angle at the point of interest, and P_N is the hydraulic uplift from page D7-C-1. In addition to the FSs calculated by other equations described in Appendix D7-C, the FS calculated by Equation 2(c) must as well satisfy the requirements of §330.337(b) and (h), as applicable. Please revise Appendix D7-C by adding example calculations using the above described equation. This comment and the

following comments are made based on the information included in Appendix D5-B demonstrating that the slopes are stable if the hydraulic uplifting is not considered.

RESPONSE: *It is understood that this comment is requesting that the FS of normal loads (resistive and hydrostatic) be included in the demonstration for waste as ballast. Appendix D7-C has been revised to include a FS equation for normal loading conditions as Equation 2.(c) on page D7-C-4. A few other revisions were also included on pages D7-C-2 and D7-C-3 to clarify wording and intent. The calculations included as pages D7-C-5 and D7-C-6 are the example calculations following the procedure and equations discussed on the first four pages of Appendix D7-C. These calculations have been revised to include the requested calculation for FS added as Equation E2(c) on page D7-C-4, a reference to the equation numbers used on the first four pages, and to format the calculations to clarify and more closely follow the procedure discussed on the first four pages.*

383. Please also discuss how the shear strength of the ballasting material is evaluated against the horizontal shear stress exerted by the hydraulic pressure (on the slope, the geomembrane shear and tensile strengths may be factored into the resistive strength. Any bulging or deformation of the geomembrane will be viewed as geomembrane has been damaged and is not acceptable). The spare passive resistive force contained by the materials on the bottom liner should be evaluated against the horizontal force exerted by the hydraulic force. Please consider all possible liner/slope scenarios under the design/construction/operation conditions. Please describe and explain each assumption used in this evaluation (to simplify the calculations, any assumptions may be made as long as they are relevant and conservative in terms of the final conclusion).

RESPONSE: *It is not understood why the shear strength of the ballasting material needs to be included in the ballast calculations. Typical 60-mil HDPE geomembrane provides a tensile yield strength on the order of 130 ppi while the worst case hydrostatic pressure based on the highest measured water levels at the site exerts on the order of 7 ppi. The calculations included in Appendix D7-C demonstrate that there will be no unbalanced forces and therefore no movement of the geomembrane when sufficient ballast has been placed. Prior to ballast being placed and approval of ballast through the Ballast Evaluation Report submittal, a dewatering system will be operated to prevent hydrostatic forces acting on the geomembrane. The ballast calculations provide a demonstration that sufficient ballast can be placed to counteract the worst case scenario of the various liner/slope combinations during design/construction/operations which will occur in Cell 18.*

384. Regardless of the above two comments on the ballasting evaluation methods, the methods presented in the application or other simplified methods may be acceptable (with proper modifications) as long as they are proven conservative in terms of the final conclusion. Please revise the application as appropriate. The

reference listed on page D7-C-5 is the Guidance Handbook for Liners Constructed below the Groundwater Table (TNRCC, 1995). Please provide a copy of this guidance.

RESPONSE: *Page D7-C-5 has been revised to remove the reference to the Guidance Handbook for Liners Constructed below the Groundwater Table (TNRCC, 1995) as it is out of print and not needed.*

385. Please explain how the design water level above liner used in the example calculations on page D7-C-5 was determined (please consider the possibility of hydraulic pressure exerted by the groundwater that has traveled down and accumulated in the space between geomembrane and soil liner.) Please understand that depending on the circumstances, we may not comment on conservative assumptions (declared or suggested) used in the dewatering system design and ballasting calculations.

RESPONSE: *The design water level above the liner was determined by selecting the location where the highest measured water level in the Stratum I layer, as mapped on Drawing D7A-1 in Appendix D7-A, is at its maximum depth (or thickness) over the top of Stratum II, as mapped on Figure E3-6 in Attachment E, Appendix E3. For this site and current highest measured water level conditions, this occurs in the east sidewall of Cell 18. The ballast calculations assume that water pressure based on the highest measured water level is acting on the geomembrane, i.e., has accumulated between the clay liner and the geomembrane and is hydraulically connected. Dewatering systems have been designed, as presented in Appendix D7-B, for all locations where Stratum I material having the potential to contain groundwater are exposed in the proposed excavation.*

386. Please update the final cover design description included in Attachment D8 per relevant comments of this letter, as appropriate.

RESPONSE: *Attachment D8 has been revised to include both the standard Subtitle D final cover system and the approved alternate final cover system.*

387. Please revise Attachment D8 to include necessary measures for quality assurance and control for the installation of the geomembrane component, as necessary.

RESPONSE: *Attachment D8 has been revised to include both the standard Subtitle D final cover system and the approved alternate final cover system.*

388. Please revise Section 3 of Attachment D8 to specify the minimum thickness of the installed intermediate cover or to refer to where the pertinent information is contained in this application.

RESPONSE: *Section 3.2 of Attachment D8 has been revised to include a minimum thickness of 12 inches.*

389. Please revise page D8-10 to refer to Appendix D8-A for the geocomposite transmissivity determination.

RESPONSE: *Section 6.2.1 on page D8-18 has been revised to reference Appendix D8-A for the geocomposite transmissivity determination.*

390. Please replace "infiltration" with "erosion" in Section 6.5.1 on page D8-14 or explain the use of "infiltration" at that location.

RESPONSE: *Section 7.5.1 on page D8-23 has been revised to replace "infiltration" with "erosion".*

Part III, Attachment H (Closure Plan)

391. Please revise Attachment H to include sufficient number of cross-sections of the landfill unit(s) as required by §330.63(h). If the cross-sections are included in other portions of the application, please revise page H-1 or at another pertinent location to refer to where the cross-sections are contained. The cross-sections should illustrate the relationships among the pre-Subtitle D area, Phase 5, and Phases 1 to 3.

RESPONSE: *Page H-1 has been revised to include a reference to the typical fill cross sections included in Attachment E, Appendix E3 and Attachment D2. Cross-sections have been revised in Attachment E, Appendix E3 and Attachment D2 to include the pre-Subtitle D and Phase 5 areas with the Phase 1 to 3 areas.*

392. Please revise page H-2 to specify the final cover designs for each phase and the pre-Sub D area.

RESPONSE: *Page H-2 has been revised to indicate that the final cover system described will be constructed over all of Phase 1 to 3 and Phase 5 and that the pre-Subtitle D fill unit has final cover in place and approved by the TCEQ.*

393. Please revise page H-2 to address the comments included in this letter regarding the final cover design in accordance with §330.457(a)(1) and other applicable requirements of Subchapter K on final covers.

RESPONSE: *Attachment H has been revised to include closure provisions under both the standard Subtitle D and approved alternate final cover systems.*

394. Pages H-2 and H-3 include discussions on erosion control (including vegetation) for the final cover. Please revise these pages to refer to where the detailed erosion control measures are contained; the erosion control measures must meet the requirements of Subchapter G (please refer to the comments on erosion controls in Attachment C).

RESPONSE: *Page H-2 has been revised to refer to Part III, Attachment C1, Appendix C1E for detailed erosion control measures.*

395. Please revise Sections 3 and 4 of Attachment H to include specific closure procedures compliant with §330.457 (including schedules) for closing the pre-Subtitle D area (if applicable), Phase 5 (if applicable), and the unit consisting of Phases 1, 2, and 3. Page II-1 of Part II indicates that final cover has already

been installed over the pre-Sub D area; please clarify whether the pre-Subtitle area has fulfilled the applicable closure requirements of Subchapter K. If rule §330.457 is not applicable to the pre-Subtitle D area and Phase 5, please specify the applicable sections under Subchapter K and include the corresponding closure procedures. Please also include procedures to close the facility in accordance with §330.461. Please also revise the schedule shown on page H1.1 accordingly.

RESPONSE: *The pre-Subtitle D area has approved final cover. Documentation indicating construction and approval of the final cover in the pre-Subtitle D area has been added as Appendix H-5. Attachment H has been revised to include closure provisions under both the standard Subtitle D and approved alternate final cover systems.*

396. Section 3.2.1 on page H-4 states that "final cover has been installed over 20.1 acres." Please revise this page to identify the locations of the 20.1 acre area.

RESPONSE: *Section 3.2.1 on page H-4 has been revised to refer to Drawing H2.1 in Appendix H2 for the location of the 20.1-acre area where final cover has been constructed.*

397. Rule §330.503(a) states, "The owner or operator shall provide a detailed written cost estimate, in current dollars, showing the cost of hiring a third party to close the largest waste fill area that could potentially be open in the year to follow and those areas that have not received final cover in accordance with the final closure plan. For any landfill this means the completion of the final closure requirements for active and inactive fill areas." Please revise Section 8 to be consistent with this requirement (please use the same wording as used in this rule). Please also revise the cost estimate included in Part III, Attachment J accordingly.

RESPONSE: *Section 5 on page H-8 has been revised to include the wording used in the rule. Part III, Attachment J provides the detailed cost estimate for third party closure of the largest area that could potentially be open during the development of the site. This provides a conservative value for determination of financial assurance and does not require updates unless the area requiring final closure ever exceeds what is included in the cost estimate or when the site reduces the area requiring final cover through completion and construction of final cover.*

398. Please revise Drawing H2.1 to include a note referring to where details of the surface drainage features and erosion control measures are included in the application. Please revise the application to improve the overall quality of cross-reference and consistency between the different portions of the application.

RESPONSE: *Drawing H2.1 has been revised to include Note 4 indicating that surface drainage features and erosion control measures are discussed in detail in Part III, Attachment C-1.*

399. Please revise Drawing H2.2 to include toe drain system or include a note referring to where details of the toe drain are included in the application. Drawing H2.2 shows a 6" pipe installed in a trench located at the toe; please revise Attachment H at pertinent location(s) to discuss the purposes of the pipe and the trench or revise Drawing H2.2 to add a note referring to where the relevant information is included in the application.

RESPONSE: *Drawing H2.2 has been revised to provide the details for the alternate Subtitle D final cover systems including the toe drain trench. Attachment D8 – Final Cover Quality Control plan has been revised to include a discussion of the toe drain system.*

400. Drawing H2.2 shows that the geomembrane from the final cover is not tied to the geomembrane from the liner at the toe area (please see the other comments of this letter on adding a geomembrane to the final cover design). Please consider the surface drainage conditions at the toe area and, if necessary, revise the design to tie the geomembrane.

RESPONSE: *Drawing H2.2 has been revised to include details from both the standard Subtitle D and approved alternate final cover systems.*

401. Drawing H2.2 shows an area at the toe of 6" soil over the drainage geocomposite layer. Please justify the adequacy the soil thickness or increase the thickness of the soil.

RESPONSE: *Drawing H2.2 has been revised to indicate additional thickness at the toe of the final cover system.*

402. One detail on Drawing H2.2 specifies that the slope varies, while the other detail indicates that the slope is 4H:1V. Please revise Drawing H2.2 to include a note specifying the greatest slope or to refer to where the pertinent information is included in this application. It was noticed that the greatest slope specified in Drawing IIA.19 is 4:1. Please revise the application as necessary.

RESPONSE: *Drawing H2.2 has been revised to include a note on Detail FC1 that indicates the maximum sideslope will be 4H:1V and that the topslope is 2.5 percent.*

Part III, Attachment I (Postclosure Plan)

403. Rule §330.457(d)(5) 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)." Please revise the first sentence in Section 2.1 on page I-2 to be consistent with this requirement (please use the same wording as used in this rule).

RESPONSE: *Section 2.1 on page I-2 has been revised to use the wording from the rule.*

404. Please revise Section 2.1 to state that the leachate collection system will be maintained and operated to limit the leachate depth/head to less than 30 cm over the liner.

RESPONSE: *Section 2.1 has been revised to include limiting the leachate depth/head to less than 30 cm over the liner.*

405. According to Part III, Attachment D6, leachate collected in the sumps will be pumped through a leachate forcemain to a direct connection to POTW; and the leachate will be sampled and analyzed per the POTW's requirements. Please revise Section 2.1 to include provisions to continue this leachate disposal mechanism during the postclosure care period.

RESPONSE: *Section 2.1 has been revised to include providing for leachate disposal as detailed in Attachment D6.*

406. Please revise Section 4.0 to include discussions on compliance with §330.954(c).

RESPONSE: *The last sentence in Section 4.0 indicates that any postclosure construction will be subject to the provisions of 330.951 through 330.964, of which 330.954(c) is included.*

Part III, Attachment J (Cost Estimates for Closure and Postclosure Care)

407. Please revise the final cover design and closure cost estimates to be consistent with other changes due to earlier comments in this NOD letter (please refer to the comments on final cover design of this NOD letter.)

RESPONSE: *The final cover design and closure cost estimates have been revised to include both the alternate and Subtitle D final cover systems.*

408. In unexpected closure events, the bioremediation treatment facility may have contaminated soils that have not completed the required treatment and need to be disposed of at another facility that has proper authorization; and the bioremediation treatment pad may also require excavation and on-site or off-site disposal. Please revise the closure cost estimates (the text discussions and the tables) to include the costs for the off-site disposal of the contaminated soils, and the cost for the excavation and proper disposal of excavated bioremediation treatment pad.

RESPONSE: *Table J-1 in Attachment J and page J1-4 and J1-6 in Appendix J1 have been revised to include provisions for closure costs associated with the bioremediation pad.*

409. Page J-2 states that final cover has been installed over 20.1 acres; Drawing J.1 indicates that final cover has been installed over the pre-Sub D area and an area of 20.1 acres within Phase 1. Please clarify whether the final covers over the 20.1 acres and the pre-Sub D area have been accepted by the TCEQ. If any portion of the installed final cover has not been accepted by the TCEQ, the

closure cost estimates should include the cost of final cover installation for that portion. Please revise this attachment including the closure cost estimates (the text and the tables) as necessary.

RESPONSE: *Page J-2 has been revised to clarify that final cover has been constructed over 20.1 acres in Phase I and has been accepted by the TCEQ. Final cover has also been constructed over the entire pre-Subtitle D area and has been accepted by the TCEQ. Documentation of final cover construction has been added in Attachment H, Appendices H4 and H5.*

410. Please revise page J-4 to include measures to annually adjust postclosure care cost estimates for inflation during the active life and the postclosure care period.

RESPONSE: *Page J-4 has been revised to include the annual adjustment during the postclosure care period.*


411. Please explain how the leachate disposal cost listed on page J2-3 is estimated for the postclosure care period or revise the page as necessary.

RESPONSE: *The unit cost for leachate disposal is based on current disposal costs through the direct connection to a POTW sewer main.*

We trust these responses are satisfactory to you and meet the rules and regulations of the TCEQ. If you need additional information, please let us know.

Sincerely,

BIGGS & MATHEWS ENVIRONMENTAL
TBPE No. F-256 ♦ TBPG No. 50222



Kenneth J. Welch, P.E.
Principal Engineer

Attachments: Part I Form
Revised Permit Amendment Application (original and three copies)

cc: Mr. Steve Jacobs, WMTX (1)