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CERTIFIED MAIL - RETURN RECEIPT REQUESTED

February 5, 2013

Mr. Larry Gandy, Vice President
Gandy Marley, Inc.
P. O. Box 1658
Roswell, NM 88202

RE: DISAPPROVAL
PART A AND PART B PERMIT RENEWAL APPLICATION
TRIASSIC PARK DISPOSAL FACILITY
EPA ID# NM0001002484
TPDF-12-001

Dear Mr. Gandy:

The New Mexico Environment Department (NMED) received the Gandy Marley Inc.'s (the Permittee's) *Part A and B Permit Renewal Application for the Triassic Park Waste Disposal Facility, October 17, 2011, Revision 1 - April 30, 2012* (Renewal Application) dated April 30, 2012. NMED has reviewed the document and issues this disapproval with the following comments.

Part A Application

1. **Section 7, Process Codes and Design Capacities, page 3:**
Section 7 lists D80 (i.e., Landfill), as the only process code under column 4 of the table. However, the fifth column of the Table XIV Description of Hazardous Wastes, (pages 1-30) lists T01, T02, S01, and S02 as process codes for the characteristic or listed wastes identified in column 1. The Revised Application indicates that the Permittee does not

intend to store and treat hazardous waste prior to disposal at the Facility. Remove these codes from the Part A Application or explain why these process codes are still listed on the application if hazardous wastes are not to be stored in the tanks (S02), in the containers (S01), treated in the tanks (T01), and treated in the surface impoundments (T02).

2. **Section 7, Process Codes and Design Capacities, page 3 of 6:**
Under the Process Codes and Design Capacities Section (page 3 of 6), the design capacity of the landfill is listed as 553.2 cubic yards(cy) and in Section 2.5.1.1 it is listed as 553, 200 cy. Resolve the discrepancy and revise the table accordingly.

3. **Section 9, Table, Description of Hazardous Wastes and XIV Description of Hazardous Wastes, pages 1-30:**
The third column in this table reports "Estimated Annual Quantity of Waste". The Permittee's estimate for each of the waste codes listed in the table is the same amount, i.e., 42,120 tons. Clarify if this number is projected for individual waste codes or for the total amount of waste that is expected to be disposed in the landfill per year. It is not clear how the estimated annual waste quantity of 42,120 tons was derived. The proposed Phase 1A landfill does not have the capacity to contain that volume for each of the approximately 500 proposed waste codes. The estimated quantity appears to be for the ultimate build-out of the landfill (10.86 million bank cubic yards (CY) of waste space, 500 waste codes, and an assumed density of 1.9 tons/CY). Revise the estimated annual quantity of waste to correspond to the total Phase 1A capacity of 553,200 cubic yards and clarify the relationship between the design capacity and the waste expected to be disposed annually.

Part B Application

4. **Section 1.1.9, Facility Location, page 1-2:**
Permittee Statement: By road, this location is approximately 43 miles east of Roswell and 36 miles west of Tatum, as shown on Figure 1-2.

NMED Comment: Figure 1-2, depicts the location of Roswell as well as the proposed site location (marked by an X), but does not show the location of Tatum. Revise the figure to depict the location of Tatum as referenced in the text. In addition, highways 172 is mentioned in the text as a reference point but not depicted on the figure. Revise the figure to include all relevant reference points including Tatum and state highway 172.

Two different scales are provided on Figure 1-2, i.e., one inch=80 miles and one inch=16 miles. In addition, the date and survey source was not included in the figure. Revise the figure to include the appropriate scale, survey source, and the date.

5. **Disposal Process, Section 2.5.1.6, Run-On/Runoff Control, page 2-5:**
The non-contaminated storm water collection basin within the landfill excavation, should be analyzed prior to its application or discharge outside of the landfill disposal area (such as pumping to surface ditches or the storm water detention basin) to ensure that this water is not contaminated. This is important in light of the proposed leachate recirculation measures within the cell.

6. **Disposal Process, Section 2.5.1.6, Run-On/Runoff Control, page 2-6:**
The proposal to use vacuum trucks to spray water that would be collected from the landfill contaminated storm water basin could result in the spread of contamination outside of the lined landfill area if the spray trucks are operated from the access ramps. The water trucks should spray from the lined landfill area, and not from the access ramp, because the liner would be installed only halfway across the access road. The liner configuration beneath the access road would not be adequate for containing leaks and spills of leachate from the vacuum truck. Alternatively, modify the design so that the liner is placed under the entire access ramp to provide adequate containment for spraying from the access ramp. Discuss in detail the process of spraying leachate on the landfill that would prevent contamination of the unlined areas of the landfill.

7. **Disposal Process, Section 2.5.1.7, Wind Dispersal Control Procedures, page 2-6:**
The Permittee proposes management of leachate by application of accumulated leachate to the landfill soil cover. Explain the measures to be taken to control wind dispersion of contaminated soil particles (i.e., soil cover that has been impacted by leachate). Possible approaches could be to include placement of additional soil cover over spray-impacted soil, application of dust suppression foam, or covering with a synthetic layer. Nuisance dust control could be a significant issue if the weather conditions are dry and windy. Such conditions could benefit leachate evaporation in the recirculation system, but could also aggravate wind dispersion of contamination. In addition, with the 3-sided lined cell design, there are added concerns that applying leachate for evaporation by spraying onto the cover soil could result in wind dispersion of spray, which may not be adequately contained. For adequate protection, lining all 4 sides of the landfill cell is appropriate. Either modify the design to address the above-mentioned concerns or provide an explanation of how contamination would be prevented from spreading to unlined areas of the landfill and areas outside the landfill.

8. **Groundwater Protection, Section 3.4.1.1, Regional Stratigraphy, page 3-7:**
The text indicates that there is a conformable relationship between the Permian Dewey Lake Formation and the overlying Triassic sedimentary deposits. However, on page 3-5, the text indicates that the Triassic sediments unconformably overlie Permian in Texas and New Mexico. A similar discrepancy was found in statements made in section 3.1.3 and 3.1.4 of Attachment H. Resolve the discrepancy and revise the text appropriately.

9. **Groundwater Protection, Section 3.6.1, Regional Aquifers, page 3-15:**
Permittee Statement: RA 9568 was drilled to a depth of 550 feet in 1998. It was a dry hole and was plugged and abandoned on August 14, 1998.

   NMED Comment: This is inconsistent with the information in Table 3-3 (Water Wells Within 10 Miles, page 3-31) which states that RA 09568 is a DOM (72-12-1, domestic one household well) owned by Andrus Ranch Inc. Resolve the discrepancy and revise the table and or text.

10. **Groundwater Protection, Section 3.6.2.2, Upper Dockum – "Uppermost Aquifer", pages 3-17 and 3-18:**
The text refers to an offset borehole 14-o that was completed 400 feet to the east of borehole 14. However, figures 3-11 and 3-14 (also figure 3-6 of Attachment H) identify this borehole as 14-C. Resolve the discrepancy.

11. **Groundwater Protection, Section 3.6.3.1, Saturated Flow Modeling, page 3-20:**
The second paragraph states that for the purpose of calculating travel time, contaminants are assumed to travel from borehole PB-3 (which is near the center of the facility) to the perched groundwater downgradient of the site. The last paragraph of the same Section on page 3-22 states that, for travel time calculations, the distance of 2,500 feet, from the eastern boundary of the landfill to the perched groundwater was used. However, Figure 3-20 (and Figure 4-2 of Attachment H) indicates that the distance between PB-3 and the perched groundwater is much greater than 2,500 feet. In addition, Figure 3-21 of Part B, Section 5.2.2, 2nd and last paragraphs of Attachment H, and Figure B-1 of Attachment H give the distance from the landfill to the perched aquifer of 3,600 feet. Resolve the discrepancy and revise the travel time calculations, if necessary.

    The second bullet of page 3-20 erroneously used the word "fades" instead of "facies". Correct the typographical error.

12. **Groundwater Protection, Section 3.6.3.1, Saturated Flow Modeling, page 3-21:**
The equation (1) uses the "&" symbol that is not defined in the notes. Revise the text to define the "&" symbol.

13. **Groundwater Protection, Section 3.6.3.2, Unsaturated Flow Modeling, page 3-22:**
Permittee Statement: Leakage rates were based on preliminary HELP (Hydrologic Evaluation of Landfill Performance) modeling results presented in Tables 3-3 and 3-4.

    NMED Comment: These results are presented in Tables 3-4 and 3-5 rather than Tables 3-3 and 3-4. Revise the text accordingly.

14. **Groundwater Protection, Section 3.6.3.2, Unsaturated Flow Modeling, page 3-22:**
Permittee Statement: Brooks and Corey (1964) correlated the N exponent with the pore size distribution index a. Mckee and Bumb (1988) by confirmation of theoretical derivations by Irmay (1954) suggest an optimal value of 3 for η.

NMED Comment: The text incorrectly uses the symbols "N" and "η" in referring to the "n" exponent. Revise the text accordingly.

15. **Groundwater Protection, Table 3-1 and Table 3-2, page 3-29:**
The title of the Table 3-1 indicates that it lists temperatures from 1977 to 1978 at Roswell. However, the table lists temperatures from January to December of a single year, clarify if the temperatures reported are for 1977 or 1978. In addition, since the renewal application was submitted in 2011, the most recent available data should have been utilized or a justification should be provided for using data from 1977 or 1978.

16. **Groundwater Protection, Table 3-6, page 3-33:**
Table 3-6 (also Table B-3 of Attachment H), report the residual saturation value for a clay berm as being lower than the same value for the Upper Dockum, which is comprised mostly of siltstones. Residual saturation values for clays are generally higher than for siltstone. Explain the discrepancy or make appropriate corrections and revise the modeling if necessary.

17. **Groundwater Protection, Figure 3-14, Structure Contour Top of Lower Dockum:**
Figure 3-14 (also Figure 3-6 of Attachment H) depicts a depression in the top of the Lower Dockum between boreholes PB-14 and PB-14c. However, Figure 3-10 (also Figure 3-5 of Attachment H) shows the same depression extending to the west of PB-14, with the deepest part in the vicinity of PB-14. Resolve the discrepancy. In addition, show the northern, western, and southern extent of the depression on the figure, which is not well defined.

18. **Groundwater Protection, Figures 3-21, 3-25, and 3-26:**
These figures include the symbols "Gandy" or "MTR" but a definition or explanation for these symbols is not provided. This comment also applies to figure B-1 and B-5 of Attachment H. Revise the figure to define these symbols.

19. **Waste Analysis Plan, Section 4.1.2, Prohibited Waste, page 4-1:**
For clarification, add another bullet that states that any hazardous waste that does not meet land disposal restrictions (LDRs) will not be accepted for disposal.

The third bullet states that organic liquid and sludges that have not been treated to applicable LDRs will not be accepted at the Facility. Clarify that no liquid hazardous waste will be accepted at the Facility.

20. Waste Analysis Plan, Section 4.1.2, Prohibited Waste, page 4-2:
The New Mexico Environmental Protection Regulations have been updated since the original permit was issued in March 18, 2002. The correct reference for the definition of radioactive/nuclear materials is 20.3.14.7.

The New Mexico Solid Waste Regulations were revised on August 2, 2007; the correct reference for the New Mexico Solid Waste Management General Requirements is 20.9.2 NMAC. The Renewal Application cites 20.9.1.105.AL as a reference for the definition of infectious waste: the correct reference now would be 20.9.2.7.I(5) NMAC. Similarly the correct reference for the special waste (i.e., packing house and killing plant offal) is 20.9.2.7.S(13(b)) NMAC. Review the entire document to update citations for NMAC rules.

21. Waste Analysis Plan, Section 4.3.3.1, Fingerprint Test Procedures, page 4-9:
An inconsistency was observed in the section numbering sequence. Section 4.3.3.1 should be numbered 4.4.3.1; it is in section 4.4.3, rather than 4.3.3. Revise accordingly.

22. Waste Analysis Plan, Section 4.4, Procedures for Incoming Waste Acceptance, page 4-7:
The facility design has been changed from the initial permit to eliminate on-site treatment of waste. To provide adequate assurance that wastes entering the Facility will meet LDRs, toxicity characteristic leaching procedure (TCLP) analysis should be added to the fingerprint procedures. The contingency measures or corrective action to be taken in the event that a waste shipment arrives that fails LDRs should also be discussed. Generator certification and testing of the initial profile samples is appropriate, but is not necessarily adequate assurance that the incoming waste shipments will meet LDRs, given that there treatment facilities are not proposed in this permit application.. The current permit required 10 percent of incoming waste streams to be analyzed (Attachment N, Section 3.2.2, item C); however, this frequency of testing is no longer adequate given that every shipment will be a direct bury load. Under the current permit, all treated wastes would have been sampled before disposal in the landfill (Attachment N, Section 3.2.4, deleted Item F). It appears that under the Renewal Application, there are fewer procedures in place to ensure that LDRs will be met before disposal in the landfill. Revise the permit application to propose an increased frequency of waste analysis to verify that LDRs are met.

23. Waste Analysis Plan, Section 4.5.1.1, Parameters for Waste Characterization, page 4-11:
Permittee Statement: *Radioactivity screen:* This test screens each load using a gamma ray scintillation detector or other appropriate equipment. This test will be used to ensure that the level of radioactivity observed in NORM waste or equipment from oil, gas, and

water production containing hazardous constituents, or other naturally occurring radioactive materials not regulated under 20.3.1.14 NMAC, is not above regulated limits as defined in 20.3.1.14 NMAC (i.e., the maximum radiation exposure reading at any accessible point does not exceed 50 microroentgens per hour [ΦR/hr] and the maximum radiation reading for sludges and scales contained in oil, gas, and water production equipment does not exceed 50 ΦR/hr, or, if the radiation readings for removable sludges and scales exceed 50 ΦR/hr, the concentration of radium 226, in a representative sample, does not exceed 30 picocuries per gram [pCi/g]).

NMED Comment: The reference to 20.3.1.14 NMAC has been updated. The correct reference would be 20.3.14.1403 NMAC. Revise accordingly.

24. **Waste Analysis Plan, Section 4.5.1.2, Additional Analysis to Ensure Compliance with the LDR Treatment Standards, page 4-12:**
Permittee Statements: *Explosive meter vapor test (TLV sniff test):* This test determines the fire-producing potential of the waste and whether it is regulated as flammable or combustible by the US Department of Transportation. If liquid waste exceeds 200 ppm, the waste will also be tested for ignitability using the flash point test. The tolerance range for the TLV sniff test is plus or minus 200 ppm.

Reactive sulfide: This test determines the reactive nature of the waste and indicates if the waste is prohibited. It is also used to determine whether the waste is compatible with liners, piping, structures, equipment, and other waste streams. Wastes containing total releasable sulfide with concentrations less than 500 ppm are considered non-reactive.

Reactive cyanide: This test determines if cyanide could potentially be reactive under acidic conditions, indicates if the waste is prohibited. It also determines whether the waste is compatible with liners, piping, structures, equipment, and other waste streams. Wastes containing total releaseable cyanide with concentrations less than 250 ppm are considered non-reactive.

NMED Comment: Above statement indicates that the liquid waste is expected to be disposed of at the Facility. According to the Renewal Application, the Facility will not accept waste that contains free liquids (*see* section 2.1.5). Resolve the discrepancy and revise the text accordingly.

EPA withdrew the July 1985 cyanide and sulfide reactivity guidance (cited above) in April 1998. To determine whether the waste is reactive, a determination in accordance with 40 CFR 261.23(a) must be made. Revise this section accordingly.

25. **Waste Analysis Plan, Section 4.5.5.5, Waste Analysis Requirements Specific to the Landfill, page 4-16:**
Permittee Statement: The waste must be treated using the technology specified in the table ("technology standard") which are described in detail in 40 CFR 268.42, Table 4-1.

NMED Comment: There is no Table 4-1 in 40 CFR 268.42. Instead, Table 1 of 40 CFR 268.42 describes the technology-based standards. Revise the text to provide correct reference.

26. **Waste Analysis Plan, Section 4.5.5.5, Waste Analysis Requirements Specific to the Landfill, page 4-16:**
Permittee Statement: If the results of the analysis indicate that the waste does not conform with the applicable LDR requirements, the retained sample will be analyzed, generator-supplied information re-evaluated, and an evaluation made of the potential for the waste's variability based on the process that generates the waste stream.

NMED Comment: Portion of the above statement (i.e., the retained sample will be analyzed, generator-supplied information re-evaluated, and an evaluation made of the potential for the waste's variability based on the process that generates the waste stream) is repeated in the beginning of the next paragraph. Revise the text to remove the repeated text.

27. **Waste Analysis Plan, Section 4.5.5.5, Waste Analysis Requirements Specific to the Landfill, page 4-17:**
Permittee Statement: *Lab packs:* Prior to acceptance by the Facility for disposal, hazardous wastes contained in lab packs will be treated to meet applicable treatment standards for each waste type identified. Lab packs will also be analyzed to ensure that they do not contain hazardous wastes listed in 40 CFR 264, Appendix IV [V]. In cases where hazardous lab pack wastes are combined with non- hazardous lab pack wastes prior to or during treatment, the entire mixture will be treated to meet the most stringent treatment standard for each hazardous constituent before being disposed of in the landfill.

NMED Comment: The Renewal Application indicates that the Permittee do not intend to treat waste at the Facility. However, the above statement implies that the where lab packs hazardous waste is mixed with non-hazardous waste, the lab packs would be treated. It is not clear from the above statement where the treatment of the mixed waste lab pack would be conducted prior to disposal in the landfill (i.e., at the generator's or at the Facility). Revise the text to clarify that treatment would not be conducted at the Facility.

In addition, revise the text to clarify who will be responsible for the treatment to render the ignitable and reactive waste non-ignitable and non-reactive, respectively. Similar

references to treatment of waste found in Attachment N, Operations and Maintenance Plan, should also be revised.

28. **Waste Analysis Plan, Section 4.5.6.1, Overview of the Waste Generated On-Site, page 4-18:**
Permittee Statement: *Spills and leaks:* Spills and leaks may occur during ordinary Facility operations (e.g., release of fluid from a leaking drum to the cell trench and sump in the drum handling unit, a spill at any loading or unloading area).

NMED Comment: The reference to the drum handling unit in the above statement should be removed. The Renewal Application does not include construction of the drum handling unit.

29. **Waste Analysis Plan, Section 4.5.6.1, Overview of the Waste Generated On-Site, page 4-18:**
The text references several sections where information related to waste generated on-site is supposedly located. However, some of these sections could not be located (e.g., the second bullet refers to sections 5.2.5, 5.2.10, and 9.1.2 for information on decontaminated rinse water), these sections were likely deleted and are not in the Renewal Application. Similarly, sections 2.6.1.4 (referenced on page 4-18), 3.1.5 (on page 8-1), 4.6.2.8 and 4.6.2.9 (on page 4-22), 4.10 (on page (4-6), 6.2.2 (on pages 4-19 and 6-2), 6.3.5.1 (on page 6-8), 6.3.5.2 (on pages 4-18 and 6-8), 6.3.5.4 (on page 5-7), 6.3.8.2 (on page 6-9), were referred to in the text, but could not be located. Revise the document to provide correct references.

30. **Waste Analysis Plan, Section 4.7.4 and Section 4.7.5, Laboratory Requirements for Foreign Generators, page 4-33:**
Sections 4.7.4 and 4.7.5 duplicate each other. Revise the text to remove the duplicated section.

31. **Waste Analysis Plan, Figure 4-1, Pre-Acceptance for First Time Waste,:**
One of the rectangular box in the middle of the figure states "Determine if waste is acceptable for storage/treatment/disposal at facility according to permit terms", the text must be revised to reflect that the Facility does not intend to treat or store waste.

32. **Waste Analysis Plan, Figure 4-2, Incoming Waste Shipment Procedures:**
The rectangular box at the bottom of the figure indicates that the waste will be transported to appropriate storage, treatment, or disposal area. The Renewal Application does not include storage or treatment of waste. Revise the Figure to indicate that the waste will be transported to the appropriate disposal area, instead of storage, treatment, or disposal area.

33. **Procedures to Prevent Hazards, Section 5.1.2, Warning Signs, page 5-1:**
Permittee Statement: If ignitable wastes are stored or treated in the area, a "No Smoking" sign will also be posted.

NMED Comment: The Permittee does not intend to store or treat waste at the Facility. Remove references to storage and treatment of the waste and revise the text accordingly.

34. **Procedures to Prevent Hazards, Section 5.4.1, Loading, Unloading and Waste Transfer Operations, page 5-6:**
The incoming waste will be disposed in the landfill. However, this section does not address the non-employee drivers travelling down the 10% access ramps to dispose of the hazardous waste since treatment would not be conducted at the Facility. It appears, but is not clearly stated, that over-the-road drivers will drive their vehicles into the landfill cell. Discussion on additional safety precautions for these drivers should be included. Similarly, section 5.4.6 (page 5-8) should include measures that would be taken to protect the non-employee drivers in the landfill cell during unloading. Include a discussion on protection of non-employee drivers that will be entering the landfill.

35. **Procedures to Prevent Hazards, Section 5.4.3, Wind Dispersal Control System, page 5-6:**
The section must include a discussion on the application of leachate and contaminated water to the landfill and the measures that would be taken to prevent wind dispersion of sprayed contaminated materials (e.g, not spraying in high winds). This comment also applies to section 2.5.1.7. Revise the section to include a discussion on preventive measures that will be used to control the possible spread of contamination.

36. **Procedures to Prevent Hazards, Section 5.5.3, Incompatible Waste Handling, page 5-10:**
Permittee Statement: Wastes will be solidified and stabilized prior to their placement into the landfill. These processes are performed to bind liquids and prevent leaching of any of the wastes' constituents. Therefore, any leachate generated within the landfill is not expected to contain significant levels of hazardous constituents.

NMED Comment: The above statement indicates that wastes will be treated prior to placement in the landfill. The Permittee has eliminated these operations from the Renewal Application. Liquid wastes will not be accepted in the facility according to the renewal application. Revise the text to clarify that wastes will be treated prior to disposal, but not at the Facility.

37. **Closure and Post-Closure of Permitted Units, Section 8.1.6, Landfill, page 8-1:**
Permittee Statement: This Part B Permit Application only includes the Phase 1A portion of the landfill. Therefore, this Closure Plan only addresses Phase 1A. If future expansions are required, they will be addressed in future permit modifications and will include revised closure plans.

NMED Comment: The Renewal Application does not discuss what would happen in the event that the landfill is closed after Phase 1A. Explain how the entire cell would be lined. This closure discussion refers to the landfill cover, but not the remaining liner. Describe how the remaining air space between the top of waste (Drawing 10) and the final cover (Drawings 21 and 22) would be managed.

Drawing 4 and several other drawings refer to Phase 1B, but no description of Phase IB is provided. Attachment L, Engineering Report, Section 3.1.5 mentions Phase 1B but provides no description. Describe Phase IB or revise the text and figures to remove the references to Phase 1B.

38. **Closure and Post-Closure of Permitted Units, Section 8.2.5.1, Sampling and Analysis, page 8-5:**
Permittee Statement: Vadose zone monitoring will be conducted semiannually to test for the presence of contaminants in the unsaturated sediments hosting the landfill. Sampling procedures and analytical parameters will be defined according to the Vadose Zone Monitoring System Work Plan (Permit Attachment I) and will follow the same guidelines used during the active life of the Facility.

NMED Comment: Revise the statement to provide more flexibility in the proposed post-closure monitoring frequency. For example, if evidence of leachate discharge to groundwater is noted during any sampling event, vadose zone monitoring frequency will be increased as appropriate to reflect the apparent increased rate of leachate discharge to groundwater.

39. **Attachment C4, Evacuation Plans:**
Figures provided with Attachment C4 have not been updated. The figures depict locations of the drum handling area, stabilization unit, and liquid waste receiving and storage area. According to the Renewal Application, these processes have been eliminated because the Permittee does not intend to treat or store waste at the Facility. Revise the figures accordingly.

40. **Attachment D, Procedures to Prevent Hazards, page D1-18:**
The inspection list for the landfill indicates that leachate storage tanks, and the secondary containment for the leachate storage tanks would be inspected daily. However, the Renewal Application indicates that leachate will be re-circulated and applied to the

landfill soil cover for enhanced evaporation, and not stored in the tanks. It is not clear if it is a reference to temporary leachate storage tanks or to the leachate storage tanks and secondary containment system proposed in the 2002 Permit, which has been removed from the Renewal Application.

41. **Attachment F, Waste Analysis Plan, Section 4.6.1, Sampling Methods, page F-24:**
Permittee Statement: The methods and equipment used for sampling wastes will vary with the form and consistency of the material to be sampled. Also, these matrices will be sampled using a variety of sampling tools (see Table F-5), including the Coliwasa (containerized liquid/viscous liquid), dipper (containerized liquid/viscous liquid), thief (containerized liquid/viscous liquid), weighted bottle (containerized liquid), scoop (sludge, powdered material, rock/soil material, fly-ash material), shovel (powdered material, rock/soil material), auger (soil/fly-ash-like material) and tube sampler (fly-ash like material and liquids).

NMED Comment: The text refers to the use of equipment to sample containerized liquids and viscous liquids; however, liquids will not be accepted at the Landfill. Revise the text accordingly.

42. **Attachment H, Ground Water Monitoring Waiver Request, Appendix B, Section B-2, Modeling Methodology:**
Several equations are presented in this section. Some of the symbols used in the equations (EQ.1) to (EQ.8) are not defined. Provide definitions of all symbols used in the equations.

In addition, the paragraph below the equation (EQ.5) incorrectly uses the symbol "η" in referring to the "n" exponent.

43. **Attachment H, Ground Water Monitoring Waiver Request, Appendix B, Table B-3:**
Table B-3 includes "b = assumed values" in the table key but none of the table entries has the superscript "b". Make appropriate corrections.

44. **Attachment H, Ground Water Monitoring Waiver Request, Appendix C, Table C-1:**
Table C-1 states that the leachate infiltration rate of 0.84 in/yr is equal to the unsaturated hydraulic conductivity. However, Section 5.2.2 (Alternative Modeling Approach), first bullet below Table H-1, states that this infiltration rate is equal to the saturated hydraulic conductivity. Resolve the discrepancy and revise accordingly.

45. **Attachment I, Vadose Zone Monitoring System Work Plan, Section 1.4.3, Site Model, page I-6:**
The second paragraph states that monitoring wells located downgradient of the facility will be screened across the Upper Dockum/Lower Dockum contact. However, on Figure

3, the monitoring well east (downgradient) of the Facility does not reach the Upper Dockum/Lower Dockum contact. Resolve the discrepancy.

46. Attachment I, Vadose Zone Monitoring System Work Plan, Section 2.2, Vadose Zone Monitoring Wells, page I-8:
The vadose zone monitoring strategy is based on monitoring for the accumulation of liquids in the monitoring wells screened in the unsaturated zone. If liquids are detected, then liquid samples would be collected and analyzed for comparison with characterization results from possible sources of water (such as leachate, soil consolidation water, etc.). Therefore, it is likely that some or all of these wells may never be sampled, unless enough water has accumulated within the well screen to enable sampling. This approach was more appropriate in the earlier design when large volumes of liquids were to be managed (i.e., in the surface impoundments); however, it now seems less likely that sufficient liquids would accumulate in the vadose zone wells from the landfill, even if a release were to occur. Soil gas sampling would provide a more sensitive indication of a release from the landfill. However, no explanation is provided as to why soil gas sampling was not considered for vadose zone monitoring. Soil gas monitoring at the site could employ the same vadose zone monitoring wells as currently designed. Soil gas volatile organic compound (VOC) plumes have been identified at other New Mexico hazardous waste landfills (e.g., Los Alamos National Laboratory), and vapor migration could adversely impact underlying groundwater, without any accumulation of liquids from the landfill into the vadose zone monitoring wells. Modify the sampling strategy to include soil gas monitoring or provide sufficient justification for not considering it for vadose zone monitoring.

Similarly, sumps (*see* section 2.1) should be monitored using a soil gas approach (e.g., daily with an organic vapor meter (OVM)) and it could be used to correlate with vadose zone soil gas results outside of the landfill. It is recognized that elevated OVM concentrations would be expected at the sumps due to potential VOCs in the leachate.

47. Attachment I, Vadose Zone Monitoring System Work Plan, Section 2.2, Vadose Zone Monitoring Wells, page I-8:
Clarify if neutron probe monitoring will be conducted monthly. Table I-2 does not include neutron probe monitoring. Also, describe the indicator criteria that will be used to determine if moisture is present based on the neutron probe results.

48. Attachment I, Vadose Zone Monitoring System Work Plan, Section 2.2,1, Well Locations, page I-8:
Section 2.2.2.1, 2nd paragraph and Figure 2 specify the locations of deep monitoring wells. Section 2.2.1 states that the monitoring wells are intended to detect potential migration of fluids from the landfill. However, the deep monitoring wells VZMW-5D and VZMW-6D do not appear to be located downgradient of the Phase 1A cell. Based on

the contour map of the top of Lower Dockum in Figure 3-6 of Attachment H and Figure 3-14 of Part B, leachate migrating from the Phase 1A cell along the Upper Dockum/Lower Dockum contact would likely flow south of boring PB-47 and not towards the northeast corner of the facility, where VZMW-6D is located. Review the likely pathways of leachate migration from the Phase 1A cell, and either provide justification for the current proposed locations of wells VZMW-5D and VZMW-6D or propose alternate locations.

49. Attachment I, Vadose Zone Monitoring System Work Plan, Section 2.2,2.1, Deep Monitoring Wells, pages I-11-I-12:
Section 2.2.2.1, 3rd paragraph lists two deep monitoring wells as VZMW-1 and VZMW-4, and a very deep monitoring well as VZMW-9. However, the same wells on Figure 2 are named VZMW-1D, VZMW-4D and VZMW-7D. Resolve the discrepancy.

The 4th and 5th paragraphs use confusing terminology ("screened", "well screen", and "screened interval") to describe construction of monitoring wells, and it is unclear which of these terms refers to the filter pack. The Permittee should use the terms "filter pack" and "well screen" consistently throughout the document.

Paragraphs 4 through 7 provide descriptions of monitoring well construction that is inconsistent with the "Typical Vadose Zone Monitoring Well Installation Detail" in Figure 2. Specifically, the 5-foot long well sump mentioned in paragraph 4 is not depicted in Figure 2; the 0.010-inch slotted screen mentioned in paragraph 5 is shown as 0.020-inch slotted screen in Figure 2; the centralizers mentioned as mandatory in paragraph 6 are shown as optional in Figure 2; the 20/40 filter pack sand mentioned in paragraph 7 is shown as 10/20 sand in Figure 2; and the 100-mesh transitional sand mentioned in paragraph 7 is not shown in Figure 2. In addition, paragraph 7 states that bentonite pellets will not be used in well completion and grout seal will be placed directly on top of the transitional sand, while Figure 2 depicts a bentonite pellet seal. Review the description of monitoring well construction in Section 2.2.2.1 and Figure 2 and resolve the discrepancies. In addition, some of the discrepancies described above also exist between Figure 2 and Section 2.2.2.2 for construction of shallow monitoring wells. Resolve these discrepancies as well.

The 5th paragraph states that the PVC well screen in deep monitoring wells will extend to 20 feet below the top of the alluvium/Upper Dockum contact and that there will be a minimum 20-foot grout seal below the alluvium/Upper Dockum contact. This proposed well construction is technically not feasible because, in accordance with paragraph 7, a filter pack and transitional sand will extend approximately 6 feet above the top of the well screen, thus making the grout seal below the alluvium/Upper Dockum contact only 14 feet long. Revise the proposed well construction details and resolve the discrepancies.

50. Attachment I, Vadose Zone Monitoring System Work Plan, Section 2.2,2.2, Shallow Monitoring Wells, page I-12:
Section 2.2.2.2 and Figure 2 specify locations of shallow monitoring wells that will be installed across the alluvium/Upper Dockum contact. Section 2.2.1 states that the monitoring wells are intended to detect the potential migration of fluids from the landfill. However, the Permittee did not submit sufficient information on the flow patterns of potential landfill leachate along the alluvium/Upper Dockum contact. Provide a structure contour map of the top of the Upper Dockum in order for NMED to assess the placement of the shallow monitoring wells.

The 3rd and 4th paragraphs state that, for shallow monitoring well installations, the alluvium thickness must be a minimum of four feet, the PVC screen will extend to 3 feet above the alluvium/Upper Dockum contact, and the grout seal length will be minimum 3 feet. Since the filter pack and transitional sand have to extend at least one foot above the well screen (in accordance with the information provided in paragraph 5), the proposed well construction would require at least seven feet of alluvium thickness. Revise the well construction details to resolve the discrepancies.

The fifth paragraph indicates that the surface seal will be installed from the top of the transitional sand. The text further states that the surface seal will be installed from the top of bentonite. Resolve the discrepancy.

51. Attachment I, Vadose Zone Monitoring System Work Plan, Section 2.2,2.3, Neutron Probe Access Tubes, page I-13:
Section 2.2.2.3 specifies the locations of the neutron probe access tubes but does not explain how these locations were selected, why there are no neutron probe access tubes downgradient of the landfill, or whether or not they are purposely located near stormwater runoff channels. Provide additional information on the criteria used in the selection of locations of the neutron probe access tubes.

The last paragraph states that laboratory soil moisture data will be collected from soil samples from neutron probe access tube boreholes for neutron probe calibration purposes. Provide a reference to the section of the document that describes the procedure for soil sample collection that preserves soil moisture information or add the necessary description.

52. Attachment I, Vadose Zone Monitoring System Work Plan, Table I-1, Baseline Chemical Analysis, page I-16:
Table I-1 lists analytes for baseline chemical analyses. However, some common anions like fluoride, nitrate/nitrite, and phosphate are not included. Include all major anions in the analyte list.

53. Attachment I, Vadose Zone Monitoring System Work Plan, Section 4.1, Monitoring Frequency, page I-17:
Section 4 describes monitoring procedures for vadose zone monitoring wells. However, it does not include monitoring procedures for neutron probe access tubes. Provide a reference to the section of the document that describes monitoring procedures for neutron probe access tubes or add this information to Section 4.

54. Attachment I, Vadose Zone Monitoring System Work Plan, Section 4.3, Monitoring Method, page I-19:
Provide specifications or cut sheets for the "dedicated transducer with a manual readout" for sumps. This comment also applies to Attachment N, Section 3.4.4, Operation of Leachate Collection and Detection Systems, Item F.

55. Attachment I, Vadose Zone Monitoring System Work Plan, Section 4.4, Sample Collection, page I-20:
The next to last paragraph states that monitoring wells will be purged until field parameters stabilize. However, stabilization criteria are not provided and dissolved oxygen and oxidation/reduction potential (ORP) are not listed as field parameters. Add dissolved oxygen and ORP as field parameters and list all pertinent stabilization criteria.

56. Attachment I, Vadose Zone Monitoring System Work Plan, Section 6.4, Vadose Zone Monitoring Wells, page I-24:
Permittee Statement: Statistical analysis will be used to determine statistically significant changes in the following non-leachate parameters: dissolved and total metals (Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Ti, Zn) and radionuclides (gross alpha, gross beta, gamma emitters, total uranium, radium 226/228, radon).

NMED Comment: Clarify if statistical analysis would be used to compare changes to these parameters over time, or with respect to some background or source data set (such as consolidation water).

The text states that statistical analysis will be performed on data for dissolved and total metals. However, Table I-1 does not list total metals as analytes. Resolve the discrepancy.

57. Attachment I, Vadose Zone Monitoring System Work Plan, Section 6.5, Data Reporting, page I-25:
Section 6.5, mentions a biennial sampling event for 40 CFR 264 Appendix IX parameters. However, this sampling event is not listed in Table I-2 or described anywhere else in monitoring procedures (Section 4). Provide a reference to the section of the document that describes the biennial sampling event or add such information to Section 4.

58. Attachment I, Vadose Zone Monitoring System Work Plan, Drawing 2, Sheet 2 of 2, Well Installation Details (deleted):
Drawing 2, sheet 2 of 2 was deleted in the Renewal Application. The diagram is helpful for conceptualizing the completion intervals for the vadose zone monitoring wells; therefore, the drawing should be updated, and retained. To update this drawing, portions of the schedule as well as the "pressure-vacuum soil-water sampler installation detail" should be deleted or red-lined, as needed.

59. Attachment L1, Engineering Drawings, Volume 3:
The facilitate the review, the revised drawings should be collated in with the old drawings, in drawing number sequence, to avoid flipping back and forth between new and old drawings.

60. Attachment L1, Drawing 2 Index, Volume 3, Legend and General Notes:
Some general notes should be eliminated or red-lined as not applicable due to the removal of associated features in the renewal permit design, e.g., #10, 11, and 12.

61. Attachment L1, Drawing 4 (revised), Facility Layout:
The drawing provides "Typical Vadose Zone Monitoring Well Installation Detail", but the vertical distance between the top of the screen and the bottom of the bentonite seal is not defined. Also *See* comment # 58 on Attachment I (Vadose Zone Monitoring System Work Plan), elimination of Drawing 2 from Attachment I has left the completion depth of these monitoring wells ambiguous in the current design. Note that specifications for the neutron probe access well construction are not shown on the drawings, but are generally described in Section 2.2.2.3 of Attachment I. However, the target depth interval for completion of the neutron probe access wells is not provided. Provide the missing information.

62. Attachment L1, Drawing 10, Filling Plan-Phase 1 (revised):
The Permittee should provide assurance that slope erosion will not impact unlined portions of the cell (i.e., across the access ramp and along the northern edge). In addition, the operational plan should include timely removal of liquid from the Contaminated Water Basin to ensure that there are no slope stability problems associated with the saturated toe of the slope. With the elimination of the evaporation pond from the design, it is possible that removal of this liquid could be delayed by constraints on the proposed leachate recirculation system.

63. Attachment L1, Drawing 11, Phase 1A Cross-Sections:
On the cross sections of Phase IA during filling, check and clarify what the "vegetative cover" is attempting to show, it appears to coincide with the "original surface". It also does not show enough relief for the final cover; there should be about 40 feet of relief

west of the crest, and 15 feet of relief east of the crest, per Drawing 22. Also, laying the liner along only half of the access ramp does not allow positive drainage towards the waste, so waste could erode from the edge of the waste prism and spread beyond the liner across the access road. It is not clear on cross section D-D', how the unlined areas will be protected from contaminated runoff from within the waste near Station 200, where runoff apparently would flow toward the north. In addition, some form of interim cover will be required at the top of the Phase IA waste fill (Drawing 10).

64. **Attachment L1, Drawing 12, Liner Details:**
Explain why is there a 0.5 ft thick clay layer between the geocomposite and the primary geomembrane in the anchor trench in the detail 2 and 6. Also, call out the geotextile around the lower (LDRS) drainage gravel on Detail 5. Explain how the expansion after Phase IA will tie into this liner system.

65. **Attachment L1, Drawing 13, Collection Basin Plan and Details:**
It appears that Ditch 7 water will discharge into the pond after flowing over the ground surface for about 30 to 40 feet. Similarly, Ditch 8 flow terminates in what appears to be a culvert. Neither the end of Ditch 7 nor the Ditch 8 discharge culvert appear to be sized. Discuss if additional engineering measures are required for the Ditch 7 and 8 discharge into the pond.

66. **Attachment L1, Drawing 14, Typical Landfill Access Ramp Details:**
Describe the requirements for unearthing, cleaning, overlapping, and welding more recent liner onto older liner when transitioning between "interim fill stage" and "final fill stage". It is not clear whether the Permittee intends to build the ramp per the top section, and then after Phase 1A is complete, remove half the access road, install the remaining liner, and re-build the access road as shown. The better option would be to line the entire width of the access road at the beginning and then weld onto the liner outside of the access road for the post-Phase IA construction. Lining only half of the access road is unconventional, and may not be protective of the unlined portion from migration of contamination.

67. **Attachment L1, Drawings 21 and 22, Final Grading Plans:**
The drawings do not depict locations of the crest riser pad (Drawing 19) and vertical riser (Drawing 20). Also, depict the daylight and discharge points for the final cover anchor trench perforated piping (Drawing 23, Detail 19).

68. **Attachment L1, Drawing 23, Final Cover Details:**
In Drawing 23, Detail 17, a clay liner is shown extending from the top of the Upper Dockum Formation to the top of alluvium; however, the thickness of this clay liner is not called out leaving the design ambiguous. This clay liner seems to function as the clay berm shown in Figure 3-21, and Attachment H, Appendix B, Figure B-1, which extends in elevation from the top of the Upper Dockum bedrock to the ground surface, thereby

sealing off any discharge into the cell from the sandy Quaternary Alluvium. Clarify to ensure that this clay berm or liner is constructed as intended in the unsaturated flow modeling. The comment also applies to Attachment L Engineering Report, Pg. L-12 to L-13, Section 3.1.3, 2nd bullet that describes the compacted clay liner as extending 16 feet laterally (as shown on Drawing 23); however, the thickness of the clay liner underlying the geosynthetic liner system is not indicated.

Drawing 23, Detail 17 indicates that the cover geomembrane is not connected to the primary liner geomembrane, which is unconventional. Either revise or provide justification for not welding the primary liner to the cover geomembrane.

69. Attachment L1, Drawing 44, Truck Wash Layout and Details (deleted):
There is not sufficient justification for eliminating the truck wash from the facility design. Since the waste storage and treatment facilities have been eliminated, it appears that all trucks will be traveling into the landfill cell to discharge their loads. In addition, with the use of leachate and storm water recirculation, the moisture content of cover soil within the landfill cell will likely be greater than in the previous design, resulting in greater adhesion of leachate-contaminated soil to vehicles. Therefore, the potential spreading of hazardous constituents from trucks leaving the landfill cell is greatly increased, and some methods of decontamination should be in place.

The Attachment N (Operations and Maintenance Plan), Section 3.4.3, Item J states "[L]andfill operational staff will visually observe trucks leaving the area for excessive accumulation of waste on the tires and/or truck body. If excessive accumulation is noted, physical cleaning of the trucks will be performed within the lined landfill on an area with soil cover daily waste disposal working face," this may not be an adequate procedure to provide protection from spreading the contamination. Retain the truck wash facility in the Permit Application and as part of the proposed facility.

70. Attachment L4 New Landfill Engineering Calculations:
For Calculation ES11.0141-002 "Calculate precipitation file…", Sheets 1 through 6 are entitled "Surface water runoff and channel sizing", which does not appear correct since the subject on the Cover Sheet is entitled "Calculate precipitation file for use in UNSAT-H model." Revise the sheet accordingly.

On pg. 5 of 6 there is a typographical error in the first line of text, "0.024 acre-feet" should be "0.0024 acre-feet," however the calculation is not affected. Also, on the same page, 5th line, the date should be 9 AM on October 10 instead of October 9, revise accordingly.

71. **Attachment L5 Landfill Stormwater and Leachate Recirculation Modeling:** Provide additional description as to how accumulated "clean" storm water will be managed. With the elimination of the evaporation pond, stabilization unit, and storage tanks, the available measures for handling storm water have been significantly reduced in the Renewal Application. In Attachment L5, the recirculation modeling was limited to the management of contaminated storm water and leachate (pg. L5-1, second paragraph, first sentence). Attachment N (Operations and Management Plan), page N-2 indicates that the uncontaminated landfill storm water will be pumped into the storm water control system for the site (i.e. the ground surface ditches and storm water detention basin). Clarify the planned disposition of water within the storm water detention basin. Additional mechanisms such as a storm water pollution prevention plan (SWPPP) would be required during operations and post-closure. The Part B application, pg. 2-5, Section 2.5.1.6, 3rd full paragraph, last sentence states that the storm water detention basin will be lined to prevent infiltration into groundwater. Clarify if there are any other performance goals or operational considerations for this pond. There should be an operations plan on management of the accumulated uncontaminated storm water after a large precipitation event, such as the design maximum 25-year, 24-hour storm event. In Attachment O (Closure Plan), pg. O-10, Section 8.1.7, indicates that the storm water detention basin will be sampled during closure; explain how any accumulated storm water will be managed during closure. Clarify, if the pond will be backfilled and ditches graded to drain during closure.

72. **Attachment M, Construction Quality Assurance Plan, Section II, page M-11:** Remove all references to the excavation of the surface impoundment in the text. The Permittee does not intend to construct the surface impoundment according to the Renewal Application. Review the entire section to delete references to the surface impoundment.

73. **Attachment N, Operations and Maintenance Plan, Section 2.1, page N-2:** In the first full paragraph at the top of the page, 3rd sentence, the plan for the contaminated storm water to be pumped out and removed from the designated collection basin "within 24 hours" has been removed, and instead the water is proposed to be managed by spraying and recirculation over the daily soil cover. Discuss if there are any slope stability concerns associated with more prolonged storage of this accumulated water at the toe of the hazardous waste slope (potentially at 4:1). Also, clarify that this leachate management technique is only for use on daily cover, and not on the final cover.

74. **Attachment N, Operations and Maintenance Plan, Section 3.1.2.B, page N-6:** The text indicates that Table 4.4 lists the tests to be performed on incoming waste. Table 4.4 does not provide this information, instead Table 4-2 lists tests and analytical methods for fingerprint samples. Similarly, the reference to Table 4.5 is incorrect, the correct reference is Table 4-3.

75. **Attachment N, Operations and Maintenance Plan, Section 3.1.3.A, page N-6:**
The text indicates that confirmatory sampling would be performed according to section 4.4. However, section 4.4 of the Attachment N has been deleted. If the Permittee is referring to section 4.4 of the Waste Analysis Plan, then it needs to be specified. Similarly, section 3.3 refers to section 4.5.6 for discussion of waste generated at the site, but does not specify that it is the section 4.5.6 of the Waste Analysis Plan, and not Attachment N. Provide the correct references to clarify the text.

76. **Attachment N, Operations and Maintenance Plan, Section 3.4.3, Waste Placement pages N-9 and N-10:**
The Renewal Application proposes elimination of the stabilization facility which would result in substantially more traffic within the landfill cell and more potential for haul trucks to contact contaminants. The truck wash was also eliminated from the design. Item J (page N-10) does not provide an adequate description of the operations of trucks within the landfill. Revise the text to discuss the process for unloading the trucks and discuss the measures that will be taken to keep trucks from trafficking through hazardous waste. "Physical cleaning" based on visual observations of "excessive accumulations" is subjective and not protective. Additional safeguards for protection of human health and the environment need to be established within the landfill cell during operations. The Permittee must include construction of the truck wash in the design.

77. **Attachment N, Operations and Maintenance Plan, Section 3.4.4, page N-10:**
Revise Item E since there will be no "main liquid waste storage tanks" to receive the liquids.

78. **Attachment N, Operations and Maintenance Plan, Section 3.4.5.E, page N-11:**
The text refers to section 5.2.5. No such section was found in the part B application or Attachment N. Revise the text to provide correct reference.

79. **Attachment O, Closure Plan, Section 8.1.6, Landfill, page O-8:**
In the third paragraph, it is stated that only the Phase 1A portion of the landfill is going to be permitted. Consequently, additional details of the closure configuration are needed in light of this phased construction, since only Phase IA will be permitted. Provide additional discussion of how the liner system will be brought up to grade (i.e., the portions of the excavation that are unlined on Drawing 10) to match Detail 17 on Drawing 23 (or some interim version of this detail). Also, a drawing showing the final cover for only Phase IA should be included in the event that future phases are not built.

The Permittees must address all comments and submit a revised Renewal Application by **July 5, 2013**. As part of the response letter that accompanies the revised Renewal Application, include a table that details where all revisions have been made and that cross-references NMED's numbered comments. All submittals (including maps) must be in the form of two paper copies

and one electronic copy. In addition, submit a redline-strikeout version that includes all changes and edits to the document (electronic copy) with the response to this disapproval.

Please contact Neelam Dhawan at (505) 476-6042, if you have any questions.

Sincerely,

John E. Kieling
Chief
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File: 2012 TPDF, Part A and B Permit Renewal Application, TPDF 12-001