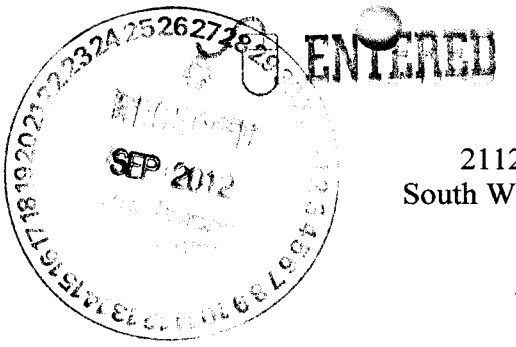

AQS Environmental

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September 24, 2012

DCN: NMED-2012-23

Mr. David Cobrain
NMED - Hazardous Waste Bureau
2905 Rodeo Park Dr. East
Building One
Santa Fe, NM 87505

RE: Draft Technical Review Comments on the Part A and Part B Permit Renewal Application for the Triassic Park Waste Disposal Facility, Chaves County, New Mexico, Dated October 2011 (Revision 1: April 2012)

Dear Mr. Cobrain:

AQS has reviewed the October 17, 2011 (Revision 1: April 2012) version of the Part A and Part B Permit Renewal Application for the Triassic Park Waste Disposal Facility in Chaves County, New Mexico. The Part A and Part B Permit was previously approved by NMED in 2002; however, the Triassic Park facility was never constructed. The Permittees are requesting a permit renewal, and have made the following substantive changes to the design of the facility:

- Elimination of the hazardous waste treatment and storage areas, while retaining the landfill for hazardous waste disposal. Specifically, the following components of the facility were removed from the design in the permit renewal application: the evaporation pond, stabilization unit, drum handling unit, liquid waste receiving and storage unit, truck roll-off storage area, and truck wash.

- Since treatment has been eliminated from the facility design, waste acceptance criteria has been changed to only allow acceptance of wastes that meet Land Disposal Restrictions (LDRs) prior to receipt at the gate.

- Since liquid waste handling has been eliminated, Permittees have proposed management of leachate and potentially contaminated storm water by spray recirculation onto the soil cover within the landfill cell area (in the previous permit, leachate would be managed in the evaporation pond or stabilization unit).

- There were relatively minor changes to the monitoring network associated with the above-noted elimination of treatment and storage areas.

Consequently, the more significant changes to the Permit renewal application (in comparison to the 2002-approved Permit) included the following:

- Revisions to Engineering Drawings 4, 8, 9, 10, 25 (1 of 2), and 26 (1 of 2, and 2 of 2).
- Elimination of Part B text and drawings associated with the solid/liquid waste storage and treatment components that were removed from the design.
- Additional description in the Part B text of the proposed leachate and storm water recirculation process, as well as allowing use of leachate and contaminated storm water for dust control in the landfill cell.
- Addition of Attachment L5 Landfill Stormwater and Leachate Recirculation Modeling to the engineering report, which provided technical support for the proposed storm water and leachate management procedures, including derivation of the precipitation file for UNSAT-H water balance modeling.
- Additional calculation briefs to demonstrate that the propose facilities were adequate for a greater design storm event than was previously evaluated in the original Permit Application.
- An updated Closure Cost Estimate, based on removal of treatment and storage components, as well as escalation to 2011 dollars.

Attached please find draft technical review comments on the subject document. If you or any of your staff have questions, please contact me at (801) 451-2864 or via email at paigewalton@msn.com .

Thank you,

Paige Walton
AQS Senior Scientist and Program Manager

Enclosure

cc: Neelam Dhawan, NMED (electronic)
Kent Friesen, Wyoming Environmental (electronic)
Joel Workman, AQS (electronic)

Draft Technical Review Comments on the Part A and Part B Permit Renewal Application for the Triassic Park Waste Disposal Facility, Chaves County, New Mexico
Provided by Gandey Marley, Inc.
Dated October 2011 (Revision 1: April 2012)

GENERAL COMMENT

1. **Leachate Recirculation.** The technical feasibility of leachate and contaminated storm water management by spraying onto the landfill cell soil cover has been adequately addressed, and we believe is a potentially workable solution. However, Permittees have not provided any additional protective measures to mitigate the potential spread of contamination from spraying leachate on the landfill cover soil. One such protective measure could be placing additional cover soil over the area where leachate recirculation has been applied, so that hazardous constituents would not be exposed on the soil surface. Also, we suggest designating a discrete cover soil area for this spray evaporation, so that the process can be more tightly controlled, rather than just allowing leachate to be sprayed anywhere within the landfill cell. Additional field monitoring during leachate recirculation would be appropriate as well, such as air emissions and weather conditions. The Permittee has not addressed potential air emissions associated with spraying leachate, although almost certainly there would be additional VOC emissions and odors associated with this activity. Specific permit conditions may need to be imposed for recirculation controls based on weather, liquid volume limits, or quality of liquid (i.e., high-concentration leachate vs. less contaminated leachate vs. storm water).

2. **Cell configuration.** The landfill cell liner configuration that was approved during the last (2002) permit review included a bottom liner, full sidewall liner to the north (which spans nearly 100 feet in vertical elevation change), about half of the sidewall to the east and west sides (with the top edge of the liner sloping down towards the south), and just a small amount of the southern sidewall (about 8 to 10 ft high). Now that the Permittees are proposing leachate recirculation within the cell, we question if the partial cell liner configuration is adequately protective. How would unlined areas be protected from impacts by sprayed liquids? How would wind-blown dispersion of contaminated soil be contained? Also, the cell liner design places the anchor trench for the liner halfway across the access ramp, which is unconventional; the result is that haul trucks would be off the liner on one side of the access ramp, and above the liner on the other side. Given the new proposal for leachate recirculation within the landfill cell, we believe the entire cell should be lined before initiating landfill operations.

3. **Operations Plan for Hauling Within the Cell.** Since the liquid waste receiving and storage unit, stabilization unit, and drum handling unit have been removed from the design, we assume that virtually every load will need to travel down into the landfill cell for direct bury. However, there are no additional measures described for the health and safety of non-employee truck drivers during operations within the landfill cell. Will the original driver travel down into the landfill cell? How will they back into the waste placement area? How will the health and safety of drivers be protected while in the waste cell? Also, there are inadequate decontamination provisions for these trucks in the plan, even though it appears there is ample opportunity to spread contamination along the haul road. Also, we disagree with eliminating the truck wash from the facility design; since

direct bury appears to be the normal mode for the renewal permit facility, all trucks leaving the hazardous waste landfill cell should be adequately decontaminated.

4. **Final Closure.** Although approved in the 2002 Permit, we find the final Closure Plan to be inadequate because the geomembrane in the final cover is not attached to the liner geomembrane; instead the cover merely overlaps the liner system. Also, only Phase 1A of the landfill cell will be permitted under this renewal; however, there is no description of a Phase 1A closure configuration. We are concerned that Phase 1A could be permitted and constructed, and then if not financially successful, the landfill may need to be closed well before the subsequent phases are permitted and built. As written, all that would be permitted is the Phase 1A "wedge" of waste against the north wall of the cell, with the partial liner completion on the east, west, and south sidewalls. How would the Phase 1A waste configuration be closed, if needed? When would the rest of the liner be brought up? What would fill the void space between Phase 1A top of waste, and the proposed landfill cover? In summary, details on final closure contingency should be added to the renewal application. It would be prudent to match a Phase 1A final closure with the Phase 1A permitted facility.

5. **Detection Monitoring.** A waiver from groundwater monitoring was previously granted by NMED, which is appropriate given the site-specific hydrogeology at the site. The detection monitoring approach is based on checking for moisture accumulations within wells completed in the vadose zone. Although this was approved in the 2002 Permit, use of soil gas monitoring would provide a more sensitive indication of potential leakage; however, there was no discussion of why soil gas monitoring was not addressed.

SPECIFIC COMMENTS

Following are specific comments on the proposed Permit revisions, the Part A application, and the Part B application. The Part B application comments are further divided into those that apply to proposed design or operations changes in the renewal permit, and those that apply to the original design. NMED may elect not to use the latter set of Part B comments since they would apply to the previous Permit Application version that was approved by NMED in 2002.

Comments on Permittee's Proposed Permit Revisions:

1. Pg. 21, Section 2.4.1.a, "LDR hazardous waste" is not clear enough; instead, indicate that "The Permittee shall accept only hazardous wastes that meet LDRs at the landfill..."

2. Pg. 22, Section 2.4.2.a, Permittee proposes to delete "certain liquids containing PCBs"; instead all liquids should be designated as "prohibited." As stated in Section 2.4.2.b.i, should add "Hazardous wastes of any waste code that do not meet LDRs" in this Section 2.4.2.a.

3. Pg. 9, Section 6.3.5 adds discussion of leachate recirculation; Permittee must also reference a leachate sampling and analysis plan to determine if LDRs are exceeded.

Comments on Part A Application:

1. Part A Permit Application, Section 9 "Description of Hazardous Wastes", with accompanying "XIV Description of Hazardous Wastes": it is not clear how the "Estimated Annual Quantity of Waste" of 42,120 tons was derived. Certainly the

proposed Phase 1A landfill does not have this capacity for each of the approximately 500 proposed waste codes. Instead, this quantity appears to be related to the ultimate build-out of the landfill (using 10.86 million bank CY of waste space, 500 waste codes, and an assumed density of 1.9 tons/CY). Please clarify or revise the Part A "Estimated Annual Quantity of Waste" to correspond to the total Phase 1A capacity of 553,200 cubic yards. *Note to NMED: Attachment L, pg. L-30, Table L-3 provides the basis of the maximum waste capacity for the ultimate landfill build-out as 10.86 million cy; so Dave was right, these Part A quantities are likely based on the entire facility instead of just Phase 1A.*

2. Part A Permit Application, Section 9 "Description of Hazardous Wastes", with accompanying "XIV Description of Hazardous Wastes": The Process Codes D80, T01, S01, S02, and T02 were assigned for each waste code; however, only D80 is appropriate for landfill disposal. T01 (tank treatment), S01 (container storage), S02 (tank storage), and T02 (surface impoundment treatment) no longer apply for the renewal permit since waste storage and treatment was eliminated from the design. Please revise Part A accordingly.

Comments on Part B Renewal Application (New Design):

1. Pg. 2-5, Section 2.5.1.6, 4th full paragraph. Regarding the non-contaminated storm water collection basin within the landfill excavation, sampling of this water must be performed prior to 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 especially important in light of the proposed leachate recirculation measures within the cell.

2. Pg. 2-6, Section 2.5.1.6, top paragraph on page. Regarding the Landfill Contaminated Storm water Basin, the use of vacuum trucks to spray water could result in the spread of contamination outside of the lined landfill area, if the spray trucks are operated from the access ramps. Instead, water trucks would need to spray from the lined landfill area, and not from the access ramp, because the liner is 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, the design could be changed so that the liner is placed under the entire access ramp to provide adequate containment for spraying from the access ramp.

3. Pg. 2-6, Section 2.5.1.7, Wind Dispersal Control Procedures. Permittees have changed the leachate management approach to apply accumulated leachate to the landfill soil cover. What are the proposed control measures to prevent wind dispersion of contaminated soil particles (i.e., soil cover that has been impacted by leachate)? Possibilities include placement of additional soil cover over sprayed-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 enough, which could benefit leachate evaporation in the recirculation system, but could also aggravate wind dispersion of contamination. Also, with the 3-sided lined cell design, there are added concerns that re-circulating leachate for evaporation by spraying onto the cover soil could result in wind dispersion of spray, which would not be adequately contained. For adequate protection, Lining all 4 sides of the landfill cell would be appropriate.

4. Section 4 Waste Analysis Plan. Permittees have changed the facility design to eliminate on-site treatment. To provide adequate assurance that wastes entering the gate will meet land disposal restrictions (LDRs), TCLP analysis should be added to the fingerprint procedures. Permittees also need to describe the contingency measures or corrective action in the event that a load arrives that fails LDRs. Generator certification and testing of the initial profile samples is appropriate, but is not adequate assurance that the incoming waste loads will meet LDRs, given that there are no longer any treatment facilities on site as previously planned. The prior permit required 10 percent of incoming waste streams to be analyzed (Attachment N Operations and Maintenance Plan, pg. N-7, Section 3.2.2, item C); however, this frequency of testing is no longer adequate given that virtually every load under the renewal permit would be a direct bury load. When on-site treatment was available, Attachment N, pg. N-7, Section 3.2.4, deleted Item F indicated that all treated wastes would have been sampled before landfilling. In short, Permittees need to verify that LDRs will be met in the incoming wastes. It is apparent that, under the renewal permit application, there are less procedures in place to ensure that LDRs will be met in the landfill.

5. Pg. 4-1, Section 4.1.2, third bullet. We agree with this item that indicates that liquids and sludges that do not meet LDRs cannot be accepted for disposal. However, an additional bullet should be added that any hazardous waste that does not meet LDRs cannot be accepted for disposal. This was addressed adequately on Page 4-6, Section 4.3.3.3, second bullet. However, note that the renewal permit application requires additional burden of proof on the Permittee that incoming wastes meet LDRs.

6. Page 4-33, Section 4.7.4 and 4.7.5. These sections are unnecessarily duplicated.

7. Page 5-6, Section 5.4.1 Loading, Unloading and Waste Transfer Operations. This section makes no mention of drivers travelling down the 10% access ramps, which is now a requirement under the renewal permit given the removal of treatment facilities outside of the landfill cell. It appears, but is not clearly stated, that the over-the-road drivers will need to bring their vehicles down into the landfill cell. What supervision or added safety precautions will be provided for the drivers? Also on page 5-8, Section 5.4.6, how will the non-employee drivers be protected in the landfill cell during unloading? The circumstances within the landfill cell during unloading are considerable different now that there is no stabilization treatment or other waste handling outside the landfill. How will drivers entering into the landfill cell be protected? It is expected that all loads will be direct bury loads as a result of the permit renewal changes.

8. Pg. 5-6, Section 5.4.3 Wind Dispersal Control System. This section should address application of leachate and contaminated water, and measures to prevent wind dispersion of sprayed contaminated materials (such as not spraying in high winds). Also applies to Section 2.5.1.7.

9. Pg. 5-10, Section 5.5.3. The second sentence indicates that "wastes will be solidified and stabilized prior to placement in landfill"; however, these operations were removed from the renewal permit application. Liquid wastes will not be accepted into the facility under the renewal permit. Revise the second and third sentence accordingly.

10. Attachment F Waste Analysis Plan, Pg. F-24, Section 4.6.1. In the 2nd paragraph, 3rd sentence, note that the Coliwasa sampler was deleted from Table F-5 and subsequent sections; please reconcile.

11. Attachment I VZMS Work Plan, Pg. I-8, Section 2.2 Vadose Zone Monitoring Wells. The vadose zone monitoring strategy is based on monitoring for accumulations of liquids in these 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 various 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 evaporation pond); however, now it seems even less likely that sufficient liquids would accumulate in the vadose zone wells from the landfill, even if a release had occurred. Soil gas sampling would provide a more sensitive indication of a landfill release; however, there was no discussion of why soil gas sampling was not proposed for vadose zone monitoring. Soil gas monitoring at the Site could employ the same vadose zone monitoring wells as currently designed. Soil gas VOC plumes have been identified at other New Mexico hazardous waste landfills (i.e., 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. Please modify the sampling strategy, or provide sufficient justification for eliminating the use of soil gas sampling for vadose zone monitoring. Regarding Section 2.1, sumps could also be monitored using a soil gas approach (i.e., daily with an OVM), which could be used to correlate with vadose zone soil gas results outside of the landfill. We recognize that elevated OVM concentrations would be allowable at the sumps due to potential VOCs in the leachate.

12. Attachment I VZMS Work Plan, pg. I-24, Section 6.4, 3rd paragraph, the 5th sentence (added text) states the following: "Statistical analysis will be used to determine statistically significant changes in the following non-leachate parameters." Is Permittees proposing to compare changes with these parameters over time, or with respect to some "background" or source data set (like "consolidation water")?

13. Attachment I VZMS Work Plan, Drawing 2, Sheet 2 of 2, Well Installation Details (deleted). This diagram is helpful for conceptualizing the completion intervals for the vadose zone monitoring wells; therefore we suggest retaining this drawing. To update this drawing for the renewal permit, portions of the schedule as well as the "pressure-vacuum soil-water sampler installation detail" could be deleted or red-lined, as needed.

14. Volume 3, Attachment L1 Engineering Drawings. Please collate the revised drawings in with the old drawings, in drawing number sequence, so the reviewer can avoid flipping back and forth between new and old drawings.

15. Attachment L1, Drawing 2 Index, 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, such as Notes 9, 10, and 11.

16. Attachment L1, Drawing 4 (revised), Facility Layout. In the Typical Vadose Zone Monitoring Well Installation Detail, suggest defining the vertical distance between the top of the screen and the bottom of the bentonite seal. See additional comments on Attachment I Vadose Zone Monitoring System Work Plan; elimination of Drawing 2 from Attachment I leaves the completion depth of these VZMWs as 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 does not appear to be provided anywhere.

17. Attachment L1, Drawing 10 Filling Plan – Phase 1A (revised). What is the assurance that slope erosion will not impact unlined portions of the cell, even across the access ramp? Or along the northern edge? Also, the operational plan needs to include timely removal of liquid from the Contaminated Water Basin to assure there are no slope stability problems associated with the saturated toe of 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. *Note to NMED: this drawing provides the basis of the maximum amount of Phase IA filling as 553,200 cy.*

18. Attachment L1, Drawing 44 Truck Wash Layout and Details. 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. Also, 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 means of decontamination will be required. The Attachment N Operations and Maintenance Plan, pg. N-10, Section 3.4.3, Item J description of visual observation and physical cleaning of "excessive accumulation" is not an adequate decontamination procedure.

19. 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." Also on pg. 5 of 6 there is a typo 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, check the date which should be 9 AM on October 10 instead.

20. Attachment L5 Landfill Stormwater and Leachate Recirculation Modeling. *This comment is presented for NMED's benefit, and therefore was not written for presentation to the Permittees.* This report is thorough and well done. Note that only contaminated storm water and leachate is addressed in this evaluation; therefore Permittees should not construe this as meaning there is additional capacity for treatment of non-contaminated storm water. In summary, the model results indicate that the amount of liquid loss to evaporation is approximately the same as the change in soil moisture (about 50% each); that is, the spray evaporation technique is expected to reduce the liquid volume by evaporation as well as by increasing the moisture of the underlying soil and waste.

Therefore over time, the moisture stored within the waste and cover soil will increase. The model results suggest that the increase in internal moisture should not result in the generation of additional leachate in a "typical" year, but would result in additional leachate during a year with unusually high precipitation. However, the model approach is conservative in that it assumes a small amount of waste initially present in the cell; as wastes continue to be brought into the landfill, there will be additional material available to absorb moisture, and therefore any increase in leachate production should be manageable by additional spray evaporation/recirculation over the landfill cover soil. Regardless, in my opinion, if the facility stops operation for a long time and the landfill cell is left open (i.e., is not provided with the final cover), then soil/waste moisture will continue to increase (with no added "dry" waste to absorb it), and accumulating leachate could be problematic. Therefore, their proposal to use leachate recirculation should allow NMED the opportunity to insist on design changes as needed, and to require a plan for contingency closure in the event that the facility becomes inactive prior to "ultimate landfill" build-out.

21. Attachment L5 Landfill Stormwater and Leachate Recirculation Modeling. Additional description is needed for 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 permit application. The Attachment L5 recirculation modeling was limited to the management of contaminated storm water and leachate (pg. L5-1, second paragraph, first sentence). The Attachment N Operations and Management Plan, pg. 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. What is the planned disposition of water within the storm water detention basin? Additional NMED permit mechanisms will be required during operation such as a storm water pollution prevention plan (SWPPP), which would also need to be maintained during 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; are there any other performance goals or operational considerations for this pond? There needs to be an operations plan of how to manage the accumulated uncontaminated storm water after a large precipitation event, such as the design maximum 25-year, 24-hour storm event; obviously the removed evaporation pond is not an option for disposal of this storm water. The Attachment O Closure Plan, pg. O-10, Section 8.1.7, indicates that the storm water detention basin will be sampled during closure; what will happen to any accumulated storm water during closure? During closure, will the pond be backfilled and ditches graded to drain?

22. Attachment N Operations Plan, pg. N-2, Section 2.1. 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. Are there any slope stability concerns associated with more prolonged storage of this water accumulation at the toe of the hazardous waste slope (potentially at 4:1)? Also, it must be clarified that this leachate management technique is only available for use on daily cover, and not on the final cover.

23. Appendix N O&M Plan, page N-9 and N-10, Section 3.4.3 Waste Placement. Since the stabilization facility has been eliminated, there will be substantially more traffic within the landfill cell under the renewal permit scenario than under the previous permit design, and therefore more potential contact with hazardous waste by haul trucks. However, the truck wash was also eliminated in this renewal permit version. Item J in this portion of the permit is an inadequate description of the operations of trucks within the landfill. How will trucks be unloaded? What provisions will be made to keep trucks from trafficking through hazardous waste? How will trucks either be kept clean during unloading, or decontaminated after dumping? "Physical cleaning" based on visual observations of "excessive accumulations" is altogether subjective and not protective. Additional safeguards of human health and the environment need to be established within the landfill cell during operations. Either the truck wash needs to be placed back into the design, or other measures to ensure that contamination remains within the landfill cell must be implemented.

24. Attachment N O&M Plan, pg. N-10, Section 3.4.4 Operation of Leachate Collection and Detection Systems. Item E needs to be revised since there will be no "main liquid waste storage tanks" to receive the liquids.

Comments on Previous Part B Application (Old Design):

25. Pg. 1-4, Section 1.3 Location Information. The 1st full paragraph on this page summarizes security measures, which are also briefly discussed in Section 5.1.1. More secure fencing than 3-strand barb wire should be placed around the facility, or at least around the hazardous waste disposal cell.

26. Pg. 2-6, Section 2.5.1.8, Gas Generation Management. The first sentence of the third paragraph indicates that "an assessment will be made of the landfill waste gas generating potential" prior to closure, and that organic vapor monitoring (OVM) and fingerprint test data will be used to assess the potential for landfill gas accumulations after closure. However, toxic and hazardous constituents are not the only components of potential landfill gas. Therefore, periodic monitoring of major gases such as methane and carbon dioxide should also be performed to provide a more thorough assessment of landfill gas potential, prior to approval of closure. Also in Section 8.1.6, Pg. 8-2, 2nd full paragraph, 2nd sentence, it is questionable that the proposed quarterly gas monitoring data would be sufficient to determine if landfill gas is present that may require mitigation for the final cover. This also applies to Attachment A General Facility Description, Section 2.5.1.8. Attachment O Closure Plan, Pg. O-9, Section 8.1.6, also has similar inadequate gas monitoring and mitigation language.

27. Pg. 5-7, Section 5.4.4 Water Protection. In the 3rd paragraph, please clarify where the landfill design specifies removal of alluvium before cell construction. Also see related alluvium comment on Drawing 23.

28. Pg. 8-1, Section 8.1.6 Landfill Closure. The first sentence states: "This Part B Permit Application only includes the Phase 1A portion of the landfill. ". If the landfill was closed after Phase 1A, what would be the assurance that the entire cell would be lined? This closure discussion refers to the landfill cover, but not the remaining liner. How would the remaining air space between the top of waste (Drawing 10) and the final cover

(Drawings 21 and 22) be managed? Also, if this renewal permit only refers to Phase 1A, what then is "Phase IB" referring to in Drawing 4? Attachment L Engineering Report Section 3.1.5 mentions Phase 1B but there is no description.

29. Pg. 11-2, Section 11.2. Regarding the potential for air emissions, it is stated in the first sentence of this paragraph, "No wastes with organic concentrations greater than 10 percent by weight shall be placed in the landfill." The <10 percent organic criteria is not clearly specified in the Attachment F Waste Analysis Plan; please reconcile.

30. Attachment I VZMS Work Plan, pg. I-18, Section 4.1. Is Permittee committing to monthly neutron probe monitoring? Also, what will be the indicator criteria that moisture is present based on the neutron probe results?

31. Attachment I VZMS Work Plan, Pg. I-19, Section 4.3 Monitoring Method. Provide specifications or cut sheets for the "dedicated transducer with a manual readout" for sumps. Also applies to Attachment N O&M Plan, pg. N-10, Section 3.4.4 Operation of Leachate Collection and Detection Systems, Item F.

32. Attachment L1, Drawing 11. 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 "original surface". It also does not show enough relief for the final cover; there should be about 40 ft relief west of the crest, and 15 ft relief east of the crest, per Drawing 22. Please clarify. Also, laying 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. On cross section D-D', how will unlined areas be protected from contaminated runoff from within the waste near Station 200, where it apparently would flow towards the north? Also, some form of interim cover will be required at the top of the Phase IA waste fill (Drawing 10); please specify.

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

34. Attachment L1, Drawing 13, Landfill Uncontaminated Storm water Collection. 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 terminated in what appears to be a culvert. Neither the Ditch 7 end of ditch, nor the Ditch 8 discharge culvert, appear to be sized. Please verify if additional engineering measures are required for the Ditch 7 and 8 discharge into the pond.

35. Attachment L1, Drawing 13. In Detail 8, could native soil subgrade be used below the liner instead of "structural fill"?

36. Attachment L1, Drawing 14, Access Ramp sections. What are the requirements for unearthing, cleaning, overlapping, and welding more recent liner onto older liner when transitioning between "interim fill stage" and "final fill stage"? Is Permittee intending to build the ramp per the top section, and then after Phase 1A remove half the access road,

install the remaining liner, and re-build the access road as shown? Wouldn't it make more sense to line the entire width of the access road to begin with, 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.

37. Attachment L1, Drawings 21 and 22. The locations of the crest riser pad (Drawing 19) and vertical riser (Drawing 20) are not shown. Also, show the daylight and discharge points for the final cover anchor trench perforated piping (Drawing 23, Detail 19).

38. 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, and so the design is ambiguous. We note that 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. Please address to ensure that this clay berm or liner is constructed as intended in the unsaturated flow modeling. This 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.

39. Attachment L1, Drawing 23. Detail 17 indicates that the cover geomembrane is not connected to the primary liner geomembrane, which is unconventional. Please revise or provide justification for not welding the primary liner to the cover geomembrane.

40. Attachment O, Pg. O-8, Section 8.1.6, Landfill Closure. In the third paragraph, it is noted that only the Phase 1A portion of the landfill is permitted. Consequently, additional details of the closure configuration are needed in light of this phased construction, since only Phase IA is permitted. There needs to be 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 Phase IA only is required in the event that future phases are not permitted.