



TA-73

DEPARTMENT OF ENERGY
National Nuclear Security Administration
Los Alamos Site Office
Los Alamos, New Mexico 87544



JAN 27 2006

Mr. James Bearzi, Chief
New Mexico Environment Department
Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, NM 87505-6303

Subject: Response to January 4, 2006 Notice of Disapproval
Remedy Design Work Plan for the Las Alamos Site Office
TA-73 Airport Landfill, Revision 1
Los Alamos National Laboratory, NM0890010515
HWB-LANL-05-015



Dear Mr. Bearzi:

On behalf of the U.S. Department of Energy (DOE) Los Alamos Site Office (LASO), thank you for allowing us to meet with your staff on January 12, 2006 to discuss the above referenced Notice of Disapproval (NOD). As a result of this meeting we were able clarify and provide better response to New Mexico Environmental Department's (NMED) issues. DOE/LASO's responses to NMED's comments are found in the attachment, DOE-LASO's resolutions to NMED's comments on the Remedial Design Work Plan (RDWP).

At the heart of the January 12 discussion is our strategy to maintain schedule for completion of this project and submittal of the March 2007 Consent Order milestone. As we discussed at the above referenced meeting, it is essential that our contractors be in the field to begin construction of the MatCon surface early in the 2006 construction season. . Additional information and detail, including all requested changes, errata sheets and calculations will be submitted by February 20, 2006 for NMED review. The final designs for the Mechanically Stabilized Earth (MSE) walls, MatCon surface and hangar pads will be submitted as shortly thereafter as possible (for concurrent NMED review), but no later than April 30, 2006. DOE-LASO respectfully requests NMED's decision regarding our NOD response and approval of the workplan by February 28, 2006 (we expect NMED to reserve making a final decision on the MSE walls, MatCon surface and hangar pads until after the April 30, 2006 submittal).

In order to facilitate an expedited review of our February 20, 2006 deliverable, DOE-LASO will make our contractors available to meet with NMED and your technical consultants anytime during the week of February 20, 2006 at a location most convenient to NMED (either Santa Fe, New Mexico or Washington, D.C) and will present all data in a format most suitable to NMED.



In closing, I look forward to working closely with you and your contractor during the coming months. Feel free to call me at (505)667-5808 or Bob Enz at (505)667-7640, if you have any concerns related to this proposed approach.

Sincerely,



David R. Gregory
Federal Project Director

ES: 3DG-002

cc w/attachment:

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1	General	<p>The Permittees claim that the alternative cover meets the RCRA Subtitle C requirements cited in 40 C.F.R. 265.310. In order to demonstrate that the alternative cover meets or exceeds the Subtitle C required performance criteria, modeling (such as the Hydrologic Evaluation of Landfill Performance [HELP] Model) will need to be conducted, especially for the Debris Disposal Area (DDA) and the riprap armored portion of the landfill. The modeling could be conducted with data obtained from testing the materials to be used in the covers and literature data.</p> <p>The proposed landfill covers do not appear to be equivalent in performance to a Subtitle C final cover. A Subtitle C final cover includes a composite soil and geosynthetic impermeable liner, a gas collection layer, a biotic barrier, and a vegetation cover. Please revise the design documents to show that water flux through the cover, collection of landfill gas, protection against biotic intrusion and surface water control on the proposed covers will be equivalent to a Subtitle C prescriptive final cover. Equivalency must be shown in both numeric similarity (i.e., zero or extremely low water flux through the cover) and in reliability of the cover.</p> <p>The EPA <i>Technical Guidance Document, Quality Assurance and Quality Control for Waste Containment Facilities</i> (EPA/600/R-93/182) recommends construction of a test pad to demonstrate adequate performance (hydraulic conductivity) of the design that will be used for the full-scale landfill cover. <i>The Remedial Design Work Plan for Los Alamos Site Office TA-73 Airport Landfill, Revision 1</i> (Work Plan) presents neither modeling results nor test pad results to demonstrate that the proposed covers meets the RCRA Subtitle C landfill regulations for design of the landfill cover, closure and post-closure regulations in 20 NMAC 4.1.500 (and 600), incorporating 40 CFR 264 (and 265) Subparts G and N, and related guidance issued by the US EPA.</p> <p>After a modeling exercise is completed, a test pad is needed to verify the assumed and modeled hydraulic conductivity of the proposed cover, using the materials, equipment and procedures indicated in Attachment A (Construction Specifications). The materials and procedures used in constructing the test pad, with any modifications necessary to confirm the</p>	<p>Comments noted or incorporated as follows:</p> <p>a. DOE-LASO will use the HELP version 3.07 and: LANL weather data for the five wettest years on record, previously provided by NMED; average measured soil properties for soil courses, HELP model default values for rip-rap, vendor data or HELP default values for geosynthetics, literature values for MatCon and concrete, and as-built and post-settlement slopes as identified in the RDWP; to calculate average annual infiltration for all of the capped areas on the main landfill; and for the RCRA Subtitle C Minimum Technology Guidance (MTG) cover depicted in "Technical Guidance Document, Final Covers on Hazardous Waste Landfills and Surface Impoundments (EPA/530-SW-89-047, July 1989), Figure 1. DOE-LASO will modify the RDWP as required to reduce average annual infiltration for all main landfill covered surfaces to less than that for the RCRA MTG cover on equivalent slopes; within the constraints imposed by desired end use by the LA County Airport, and the requirement that little or no waste shall be shipped off-site. Materials will be tested as placed during construction to confirm that they meet requirements.</p> <p>b. The DDA cover will not be modeled. The final cover for this area was previously specified in the VCM Plan and approved by NMED in the "Notice of Approval with Modifications for Phase II Work Plan for Los Alamos Site Office TA-73 Airport Landfill SWMU-73-001(a-d)" (September 2004).</p> <p>c. Pursuant to the 01/12/06 discussion with NMED, the post-closure cover inspection and maintenance described in the PCCMP, the HELP code modeling described previously in Response 1a, and test pad demonstrations for MatCon and low-permeability soil described in Response 1f below, in total would adequately</p>

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		<p>required performance (hydraulic conductivity), should then be used for construction of the varying covers for these landfills. The Work Plan should be revised to include modeling and test pad construction and evaluation, and provide for revision of the construction specifications, if needed, based on the data obtained from the test pad.</p>	<p>demonstrate reliability of the cover.</p> <p>d. Biotic barrier layers are identified as optional in EPA (1989). Biointrusion is not expected to impair final cover performance on the main landfill, since the planned remedy will remove all vegetation from the main landfill, cover all waste with resistant surfaces, and eliminate habitat that would attract wildlife. Additionally the expanded airport operations on the MatCon capped area will further discourage use by wildlife. This remedy will therefore greatly reduce or eliminate the potential for biointrusion. The requirement for, and effectiveness of the main landfill cover design with respect to biointrusion will be described in Section 2.2, "Basis for Revised Design", of the revised RDWP. The PCCMP will be clarified to include post-closure inspection for and repair of animal burrows on the DDA cover.</p> <p>e. DOE will revise the design and the PCCMP to meet the requirements of NMAC 20.9.1.400.B.2 and 20.9.1.400.B.3. DOE will revise the design of the gas collection system to allow for active gas collection by connecting the manifolded piping to one or more blowers, in the event that methane concentrations exceed 25% of the LEL in hangars or trench drains or exceed the LEL at the property boundary. DOE will modify the PCCMP to include monitoring at these locations using a combustible gas meter quarterly for the first year after completion of construction, with potentially reduced frequency after that depending on the results of monitoring in the first year. If concentrations exceeding 25% of the LEL are observed in hangars or trench drains, or if concentrations exceeding the LEL are observed at the property boundary, then active gas collection will be implemented. Details of the contingent active gas collection system including supporting calculations will be added to the design. Details of the monitoring plan will be added to the PCCMP.</p> <p>The thickness of the gas collection layer will be kept at 6-in, to maintain the cut-and-fill balance and avoid having to</p>

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			<p>send waste off-site. Addition of another 6-in lift while maintaining surface elevations to accommodate airport expansion could result in a surplus of about 6500 cy of waste (about 400 truckloads) that would have to be sent off-site for disposal, potentially as hazardous waste.</p> <p>f. Test pads will be added to the Construction Quality Control Plan and the Construction Plan for both the MatCon and the low-permeability soil courses. As-built permeability will be determined in a certified geotechnical laboratory on cores collected from the test pads and verified against the design requirements.</p>
2	General	<p>The design drawings presented in Attachment A (e.g., Drawing No. 2005) show that, on the flat top area of the landfill, 16 inches of additional material (consisting of 6 inches of existing or relocated interim cover material and 6 inches of aggregate base course separated by a woven geotextile, and 4 inches of asphalt pavement) will be placed. Existing waste or relocated waste is shown below these layers. Since the waste/cover material will be relocated from the eastern and northern edges and directly placed on the existing cover material, it is not clear how this relocation results in the cover configuration depicted on Drawing No. 2005. According to Drawing No. 2001 (Excavation Tick Plan), waste will be relocated from the eastern and northern edges and distributed over the remaining landfill area essentially covering nearly all of the existing waste and cover material. The Permittees must revise the Work Plan to clarify if the existing cover will be removed before placing the relocated waste on top of the existing waste or if the relocated waste will be directly placed on the existing cover. In either case, the cover configuration would not look like what is depicted in the drawings. In addition, the Permittees must explain how the existing and the relocated interim cover material will be reconstituted as a single 6-inch layer just above the waste/relocated waste.</p>	<p>Comment noted. The existing cover soil will be stripped and stockpiled from the main landfill surface prior to placing waste removed from the north and east slopes. The stripped cover soil is the existing/relocated material shown in the drawing. This layer is shown as 6-in (min) on Dwg 2005. This approach is described in Section 5.5.2 of the construction plan.</p>
3	General	<p>The design drawings (e.g., Drawing No. 2002) show five concrete pads ("hanger slabs") on the western portion of the main landfill. It is assumed that these hangers will be used to store and maintain aircraft. It is not clear from the design drawings how aircraft will be moved to these hangers since there are no taxiways connecting these hangers to the main taxiway south of the landfill. The transition zone between the existing taxiway and the MatCon surface is to be covered with rip rap, according to Detail G on drawing 2005, Capping System Details. This</p>	<p>Comment noted. Section G (not detail) shows the cross-sectional view at the SE corner of the landfill, where rock armor covers the sloped surface between the taxiway and the landfill surface, due to the difference in elevations. At the west end of the landfill and approximately a third of the distance from the end along the south perimeter, the MatCon and the existing paving are contiguous at grade, allowing for aircraft to enter the existing parking area or</p>

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		design will apparently prohibit aircraft access to the taxiway from the MatCon surface. The Permittees must revise the Work Plan to clarify this issue.	the taxiway. A section view will be added to show this interface. The airport has reviewed these plans and would be responsible for routing traffic.
4	General	<p>The differential settlement calculations (Attachment A, Differential Settlement Evaluation) were based on two factors: increased load (stress) imposed on undisturbed waste as a result of placing relocated waste and capping materials on the flat top of the landfill and self-weight consolidation of the relocated waste, including the stress imposed by the weight of the capping material. A 100 by 100 foot grid was placed over the landfill footprint to calculate the total settlement at each nodal point and the differential settlement between the nodal points determined. The analysis provided does not appear to include settlement due to stress from live and dead loads of the five proposed aircraft hangers that are a part of the cover material. Each concrete pad for the hangers measures 190 ft by 48 ft. The concrete, structures and aircraft in the hangers will impose significant loads on the landfill and should be considered as major factors in the differential settlement calculations. A complete and detailed description of the equipment and aircraft that will be stored and maintained at these hangers must be presented. In addition, the use of the three "future tie-down" areas should be discussed and weights of typical aircraft also included in the settlement analysis. In addition, it appears settlement evaluation was not carried out for the armored portion of the main landfill and the DDA. The Permittees must revise the Work Plan to re-evaluate the differential settlement analysis for all landfill areas and address the issues raised in this comment.</p>	<p>Comments noted. The live load associated with the movement of light aircraft was not considered because the ground pressure generated by the aircraft is over a small area (contact area of tire on the ground) and so will attenuate in the shallow subsurface. Light aircraft used at the Los Alamos airport range in weight from 3000 to 5000 pounds gross weight and when distributed over the contact area of the tires, results in a weight of about 200 to 300 pounds per square foot for a very short period of time and would not impact settlement. The expected loadings will be discussed in more detail in the revised calculations and load limits will be cited, based on avoiding differential settlement or exceeding the MatCon compressive strength.</p> <p>When the planes are parked on the Matcon or on the concrete slab the weight distribution will result in an insignificant amount of added weight on the landfill materials below. The aircraft hangers will be constructed on the reinforced concrete slab and the weight distributed over the entire area of the slab, resulting in a minimal weight on the bearing soils. The actual weight of the hangers is not known at this time, as they have not been purchased by the airport.</p> <p>In areas where the net load is zero due to unloading, no settlement will occur. Calculations will be rechecked to ensure that the effect of the concrete, hangers, aircraft, and Matcon have been taken into consideration.</p> <p>No evaluation of settlement of the DDA is necessary, since as discussed in the response for General Comment #1, the final cover for this area was previously specified in the VCM Plan and approved by NMED without requiring a settlement evaluation. Little or no change in surface relief has been noted at the DDA, as discussed in the 01/12/06 discussion with NMED. Added compaction will occur by</p>

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			wheel-rolling during cover soil placement.
5	General	<p>The attachments to the Work Plan, in various places, state that the final design drawings and specifications for both the main landfill and DDA are provided in the Remedy Design Work Plan for the TA-73 Airport Landfill. However, the drawings submitted with the Work Plan are marked "not for construction" and, thus, are not final drawings. In addition, some of the drawings are provided for illustrative purposes and cannot be considered final design drawings. For example, Note 1 to the typical hanger slab cross-section on Drawing No. 2024 indicates that the concrete slab is for illustrative purposes only and is not intended to depict the actual slab required to support the hanger, and that the slab shall be designed consistent with loadings provided by the selected hanger manufacturer. The construction specifications provided in Specification 03300 are too general for cast-in-place concrete and do not appear to take into consideration the live and dead loads that the hanger slabs are meant to support. The Permittees must revise the Work Plan to provide the final design package (i.e., design drawings and specifications) for the hanger slabs.</p>	<p>Comments noted. The drawings are labeled "Not for Construction" so that control of the drawings is maintained. Until the drawings have been approved by the State and DOE this note will be used. After the drawings are approved, they will be issued with a note "approved for construction". This way there is no confusion as to which drawings are to be used for construction. The ancillary plans will be revised as needed to note that the drawings are not for construction until approved.</p> <p>Specification 03300 is primarily intended to address the construction of Wall No.1 and has been used in the construction of numerous other projects. The concrete hanger slabs were not designed as part of this submittal as noted on Drawing 2024. The slab cannot be designed until the hanger vendor and hanger type has been identified.</p> <p>Final designs for the MatCon surfaces, MSE retaining walls and hangar pads will not be available until after notice to proceed is received by the Contractor from DOE-LASO and contracts are awarded for design and construction of these features. Additionally, purchase of the hangers is the responsibility of the Los Alamos County Airport Authority, and is beyond the control of DOE-LASO.</p> <p>NMED will be provided with the designs for the MSE walls, MatCon surfaces and hanger pads for their review and approval prior to construction. DOE-LASO and NMED will need to agree upon a schedule for this review and approval to ensure that construction can be completed in the 2006 field season. Completing construction in the 2006 field season is critical to ensuring that the Compliance Order milestone for this project can be met.</p>
6	General	<p>The Construction Plan (Attachment B) addresses the construction sequence, procedures and schedule for both the Main Landfill and the DDA. The Work Plan provides very limited information for the DDA. Detailed design calculations (e.g., hydraulic calculations, differential</p>	<p>Comment noted, please see response b) to General Comment #1. The approved design by the state is for a minimum thickness of 12 inches of clean fill over the area and to maintain positive drainage. Therefore settlement</p>

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		settlements) presented for the main landfill are not provided for the DDA. The Permittees must revise the Work Plan to clarify whether this Work Plan is meant to address the design and construction of the Main Landfill only or provide detailed design information including engineering calculations for the DDA cover.	calculations are not needed. Soil will be added as needed to achieve a minimum thickness of 12 inches of cover and positive drainage.
7	General	None of the engineering drawings provided clearly indicate the current limits of waste and the extent of the cover over the existing and the relocated waste. For example, the legend for Drawing No. 2002 indicates a symbol for limit of "landfill final cover system/limit of waste." Because the limit of the cover and the limit of waste are indicated by the same dashed line, it appears the cover system does not extend beyond the extent of the waste. It is not apparent from an engineering standpoint how this would be possible. Similarly, Detail G on drawing 2005 shows the edge of the MatCon asphalt at the outer limit of the wastes. This design will allow pooling of runoff within rip rap immediately adjacent to the MatCon, and infiltration into the base course beneath the MatCon, along the entire southern edge of the landfill cover. The Permittees must revise the Work Plan to provide drawings that clearly show the extent of the waste and the cap, and how the cover is tied (anchored) to the ground beyond the waste limit to prevent infiltration of water beneath the MatCon on the edges of the landfill.	Comments incorporated. The "Limit of Landfill Final Cover System/Limit of Waste" line referenced should be viewed with respect to Sections A and G on Drawing 2005. These sections show termination details of the cover system, which extend beyond the "Limit of Waste". A note will be added to clarify that all waste must be relocated within this limit.
8	General	A 6-inch rip-rap and 18-inch compacted infiltration barrier layer are proposed as components of the armored portion of landfill cover. It is not clear how the thickness of the infiltration barrier layer was determined. Such determination should be supported by data from field tests to determine the predicted annual infiltration through the cover by measuring flux through different thicknesses of the layer to find the optimal thickness. The HELP Model can be used for such simulations. The Permittees must revise the Work Plan to discuss why an 18-inch infiltration layer was selected for the cover.	Comment incorporated, please see the response to General Comment No. 1.
9	General	In the Post-closure Care and Monitoring Plan (PCMP) (Attachment E) inspection for breach of the cover by animal burrows is discussed. However, the Work Plan does not discuss what other measures (other than inspection and repair if damaged) could be considered or used to prevent burrowing animals from damaging the cover. The Permittees must revise the Work Plan to discuss this issue in detail. In addition, it is indicated that all animal burrows greater than approximately four inches in depth will be filled and compacted using topsoil and equipment appropriate to the scale of the erosional features, and that excessive compaction will not be used unless repair of the underlying low-permeability soil layer is required. The Permittees must revise the Work	Comments incorporated, more specific post-closure performance measures and corrective actions will be provided. Inspection and maintenance procedures for the DDA soil cover will be clearly identified.

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		Plan to clarify which parts of the main landfill or the DDA this procedure applies to and clearly identify the low-permeability soil layer referenced.	
10	General	The PCMP does not discuss inspection and maintenance of the concrete pads for the hangers. The Permittees must revise the Work Plan to include inspection and maintenance procedures for the hanger slabs.	Comments incorporated, the requested information will be provided.
11	General	In addition to the specified periodic landfill inspections, the PCMP should provide for inspecting the landfill after the next significant rainfall following the installation of the final cover, and annually at the end of the spring thaw. The Permittees must revise the Work Plan accordingly.	Comments incorporated, the requested information will be provided.
12	General	The Construction Plan and Project Specifications do not appear to contain procedures that address daily cover. The Permittees must revise the Construction Plan and Specifications to indicate that a minimum of 6 inches of clean material will be placed over all waste surfaces at the end of every working day. This requirement is particularly applicable to the cover mining plan in which landfill cover material will be stripped from the top of the landfill. At the end of every working day, a minimum of 6 inches of clean soil material must be present between the surface and all waste, as required in NMAC 20.9.1, Section 402. In the event that operations continue for more than a standard working day, no waste may be exposed to the environment for more than 12 hours.	Comment noted. Trash, odors, and dust would be controlled as described in Sections 5.5.3 and 11.6 of the Construction Plan. Daily cover is not a requirement for closure under RCRA Subtitle C requirements and would be difficult to implement since the cover added at the end of each day would have to be excavated later. Recovering a thin (6-in) lift of cover material for reuse would be impracticable. The overall increase in the volume of excavated material that would occur would complicate the cut-and-fill balance and elevate the overall landfill surface; or would necessitate some off-site disposal of co-mingled waste and daily cover soil.
13	General	Detailed structural plans, elevations, and design calculations are provided for Wall No. 1. Similar plans and elevations, and design calculations are not provided for the other walls (i.e., Wall Nos. 2 through 4). Specification Section 02273 Mechanically Stabilized Earth Retaining Wall, subsection 1.01, requires the Retaining Wall Subcontractor to provide detailed designs and a construction quality assurance plan for all retaining walls. The subcontractor is required to provide the Facility's Engineer the opportunity to review and verify the retaining wall designs, but no provision is included for final approval of the wall designs by NMED. The Permittees must revise the Work Plan accordingly.	Comments incorporated, please see the response to General Comment #5.
1	Section 2.3, Final Design, page 4	It is stated in this section that the "final design package, which includes specifications, drawings, and engineering calculations, is included as Attachment A. The final design specifications and drawings will incorporate NMED review comments of the draft final design package and represents the final specifications directing construction of the landfill cover." As the drawings submitted in Attachment A are marked "not for construction" and the details of some cover components are not provided (e.g., aircraft hanger slabs and retaining walls) they are not a part of the final design package that could be used to direct construction of the landfill cover. The Permittees must revise the Work Plan to provide final	Comments incorporated, please see the response to General Comment #5.

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		design drawings and details, or include provisions for NMED review and approval of future final design submittals from subcontractors.	
2	Section 6.0, Demonstration of Cover Performance, page 5	This section was apparently intended to respond to the requirement of the NMED Conditional Approval of the VCM Plan that the Work Plan includes a demonstration of cover performance for the life of the cover. This section simply references Attachment E (Post-closure Care and Monitoring Plan), but the referenced plan does not provide the information requested by the Conditional Approval Letter. As indicated above in the General Comments, the Permittees must revise the Work Plan to satisfy this requirement.	Comments incorporated, please see response c to General Comment #1.
3	Attachment A, Construction Specifications, Section 02200 Earthwork, Subsection 3.02.D.4 Placing Fill Materials, page 02200-13	This section requires that infiltration layer fills be compacted to at least 98% of the maximum dry density. Table 02200-2, Field Quality Control, Minimum Testing Acceptance Criteria, however, specifies 95% of maximum dry density. The 98% requirement applies to fill materials in Table 02200-2. Assuming that Table 02200-2 is accurate, the Permittees must correct the text in subsection 3.02.D.4.	Comments incorporated. Both the table and text will be corrected. The superscript "2" should be applied to the infiltration layer field dry density and field moisture content, indicating that the acceptable range of values will be established upon completion of preconstruction testing. The preconstruction testing will establish an acceptable range of values for both that will result in the required as-built permeability. The text in Section 02200.3.02.D.4 will be revised accordingly.
4	Attachment A, Drawing No. 2011, Detail Section E	Based on the location of Section E as shown on Drawing No. 2002, Section E should depict the hanger slab replacing the MatCon asphalt cover. The Permittees must clarify whether the "Pavement Section" in Section E is actually the hanger slab.	Comment incorporated, the section view should show the hanger slab, not MatCon, and will be revised accordingly.
5	Attachment A, Differential Settlement Evaluation, sheet 2 of 9	The settlement analysis accounts for increased loads consisting of relocated waste and capping materials. Although the discussion (last paragraph) acknowledges the potential for elastic settlement, this type of settlement is not addressed in the following calculations. Since the plans for the landfill apparently include long term traffic consisting of various unspecified types of aircraft and other heavy vehicles such as fuel and cargo trucks, elastic settlement and the effects of such settlement on the relatively thin (4-inch) MatCon pavement should be specifically evaluated. Cracking of the MatCon surface will allow infiltration of stormwater, generation of leachate, and may lead to more substantial settlement and general failure of the asphalt cover system. The Permittees must revise the Work Plan to provide an evaluation of elastic settlement due to aircraft and other traffic, and the resulting effects on the MatCon asphalt cover system.	Comments noted. Elastic settlement of the landfilled materials would occur during construction. Therefore, the impacts of any elastic settlement that may occur would be addressed while placing fill material (Existing/Relocated Interim Cover Material or Aggregate Base Course). The thickness of either of these materials would be increased to account for effects of elastic settlement. Elastic settlement is not anticipated after placement of MatCon. The MatCon pavement will be designed to support aircraft as well as support vehicles, which includes the installation of a stable foundation (Aggregate Base Course). The O&M manual for the MatCon will address inspection and maintenance to prevent infiltration of stormwater in the event of cracking.
6	Attachment A, Differential Settlement Evaluation, sheet	The first full paragraph states, "Furthermore, there is no evidence of a perched water table or leachate mound within the landfill." The Permittees must revise the Work Plan to provide data to support this contention or provide a reference for these determinations.	Comment incorporated, Section 2.3.5 of the RFI report will be cited as a reference for this statement. Additionally, cone penetrometer testing performed in

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	2 of 9		January of 2004 at 32 locations on the main landfill showed no indication of perched water. Moisture was only indicated when the cone went through clayey material and was indicative of the higher moisture content of clayey materials. These results will also be cited.
7	Attachment A, Differential Settlement Evaluation, sheet 5 of 9	In Table 1, at the bottom of this sheet, the interim cover thickness is given as 1 foot. The engineering drawings (e.g., Drawing No. 2005) indicate the interim cover thickness as a minimum 6 inches. The Permittees must clarify if the thickness used in the settlement calculations is the maximum expected or the average thickness of the interim cover.	Comment noted. The thickness of the interim cover thickness will not be less than 6 inches. The exact thickness of this layer cannot be determined at this time as it depends on the thickness, after compaction, of the relocated waste. The use of 1-foot of material in the example calculation was to reflect a more conservative condition than the minimum requirement of 6 inches.
8	Attachment A, Differential Settlement Evaluation, Sheet 9 of 9	The last paragraph states "it is particularly important to provide positive drainage and a design slope of approximately 2% on the top area of the landfill." However, the constructed slope of the landfill will be less than the NMED prescribed slope of 2% and the minimum post-settlement slope was calculated to be 1.3%. Because a minimum slope of 1% is typically recommended for asphalt surfaces, it is concluded (in the Conclusion Section) that the minimum slope predicted will be sufficient to provide long-term positive drainage. The Permittees must revise the Work Plan to clearly indicate which slope will be used in the long-term plan, considering the fact that the findings of the post-settlement analysis do not indicate that the design will provide a long-term slope of 2% percent.	<p>Comments incorporated. Slopes of 2% to 3% are common for vegetated or rock surfaces, to promote drainage. For paved areas slopes of 0.5% are common. For those areas that are not paved, slopes of at least 2% have been provided. The minimum slope on paved surfaces will not be less than 1%.</p> <p>For the Matcon surface, the area can be considered like a parking lot and slopes of 1% are acceptable, since runoff occurs much quicker.</p> <p>The calculation will identify areas and slope grades for the different material surfaces.</p>
9	Attachment A, Differential Settlement Evaluation, sheet 9 of 9	Under "Conclusions," it is stated that due to settlement of the landfill and consolidation of the relocated waste due to compaction by construction equipment, it is possible that the final grades shown on the project drawing will not be achieved." The Permittees must revise the Work Plan to provide acceptance criteria for what grades will be adequate and procedures to follow in the event final grades shown on the drawings are not achieved, or provide, in the final Work Plan submittal, an achievable grading plan.	Comments incorporated. The intent of this statement was to indicate that the design elevations may not be achieved but that the "intent" of the grading plan would be maintained. That is, the intent of the design is to minimize the volume of foreign borrow required to achieve the subgrade elevation. If after placement and compaction of the relocated waste and relocated cover soil the specified elevations have not been achieved, the final grades will be lowered or raised in order to avoid the unnecessary import or export of materials. Criteria will be added to clarify minimum values.
10	Attachment E, Post-Closure Care and Monitoring Plan (PCMP), Section	It is stated that "the cover of the DDA will consist of re-grading the DDA surface with a uniform 12 in. of native soil cover, followed by revegetation of the disturbed surface." In addition, the Construction Plan (Section 5.4) states that the DDA will be constructed to include a minimum of 12 inches of top soil over the existing waste. However, Detail 4 of Drawing No. 2005	Comment incorporated. The drawing will be revised to note that a final DDA cover thickness of 12-in minimum is required. Drawing 2019 shows the amount of fill required to achieve a minimum thickness of 12 inches of fill over the DDA and to achieve contours that provide positive

Item No.	Page No./ Section/Zone	Review Comment	Resolution
	2.0, Requirements, page 1	indicates that soil cover thickness will vary between 0 and 12 inches. The Permittees must revise the Work Plan to correct or clarify the intent of this drawing	drainage.
11	Attachment E, PCMP, Section 3.1.5, MatCon Asphalt Surface, page 4	This section states that the MatCon asphalt surface will be inspected and evaluated in accordance with the MatCon Operation and Maintenance Plan prepared by the MatCon subcontractor, which is apparently to be submitted at some future time. This document will be critically important to maintaining the long-term effectiveness of the landfill cover system. The Permittees must revise the Work Plan to incorporate the O&M Plan into the PCMP.	Comments noted, please see the response to General Comment #5.