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March 11, 2004

Mr. Joe Legare
Assistant Administrator for Environment and Infrastructure
U.S. Department of Energy-RFFO
10808 Highway 93, Unit A
Golden CO 80401-8200

RE: *Appendix H, Comment Responsiveness Summary, Final Draft Interim Measure/Interim Remedial Action for INSS 114 and RCRA Closure of the RFETS Present Landfill*

The Environmental Protection Agency (EPA) has completed the review of *Appendix H, Comment Responsiveness Summary, Final Draft Interim Measure/Interim Remedial Action for INSS 114 and RCRA Closure of the RFETS Present Landfill*, dated February 2004. The document, in general, adequately addresses EPA's comments except for the attached comments on the responsiveness summary and the details as described below, which must be included in the Executive Summary.

However, several individual responses acknowledge that some items are outstanding and will be addressed, in detail, in further investigations and studies. To provide a "place holder" that identifies the items that must be completed in order to finalize the documentation for the proposed IM/IRA, the following should be inserted in the Interim IM/IRA for the Present Landfill, Executive Summary, Page 1, after the second paragraph:

"Specific issues to be addressed shall include, but not be limited to, the following:

- The chemical characteristics and disposition of the effluent discharged from the groundwater intercept system outlets down-gradient of and in the East Landfill Pond;
- The sources of and final disposition of existing groundwater contamination down-gradient of the East Landfill Pond;
- The potential sources of contamination up-gradient of the groundwater intercept system that may be contributing to the discharge of contaminated groundwater from the groundwater intercept system;
- The final disposition of the discharge pipe from the groundwater intercept system;
- Characterization and potential disposition of sediment in the East Landfill Pond;
- Ecological risks from the Present Landfill related to surface water, groundwater, surface and subsurface soil, sediment, seeps and all discharges, including a detailed review of relevant data, and discussion of the basis for proposed analytes, ecological exposure and risk assessment;
- Final disposition of the East Landfill pond;
- Wetlands mitigation issues and strategy."

ADMIN RECORD

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The first five bullets were discussed at a recent meeting on February 23, 2004, at Rocky Flats Environmental Technology Site, Mountain View Office, and there was an agreement to insert these items as proposed. The last three bullets are a result of additional review of the Comment Responsiveness Summary after that meeting.

The revised IM/IRA should also address the following items:

2-ft and 4-ft thick Rocky Mountain Alluvium Cover

1. A cost comparison should be provided that includes reasonable assumptions concerning materials properties, availability and handling cost. Attached are EPA comments on the cost analysis previously prepared by Rocky Flats comparing a 2-foot and 4-foot thick cover of Rocky Flats alluvium. These comments were discussed at the previously mentioned meeting at the Mountain View Office. We have not received a response to these comments to date.

2. Calculations, based on realistic properties of the Rocky Mountain alluvial and pit fines, should be provided to support the qualitative discussion of the adequacy of the proposed cover-section to support a desirable stand of vegetation as discussed at the meeting on February 24, 2004 at the Mountain View Office. The opinion of an independent vegetation specialist, Dr. David Buckner, ESCO Associates, concerning the adequacy of the proposed rooting depth is attached for your consideration.

Additional Comments on the Responsiveness Summary

See enclosure for additional comments to be addressed per the responsiveness summary.

Comments on Appendix F - Wetland Mitigation Plan

Please respond to the enclosed comments. We are also requesting that you provide revised pages of the IM/IRA to reflect these changes.

Please contact me at (303) 312 6258 if you have any questions or wish to discuss the additional proposed bullets.

Sincerely,

Mark Aguilar
Rocky Flats Project Manager

Enclosures (4)
Additional Revisions Required for Responsiveness Summary
Present Landfill Soil Cover Depth Comparative Analysis Comments
Wetland Mitigation Comments
Brief Responses to EPA Inquiry Regarding Root Depth

cc: Steve Gunderson, CDPHE

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EPA Comments on Responsiveness Summary for the Draft Final Interim Measure/Interim Remedial Action (IM/IRA) for Operable Unit 7 and RCRA Closure of the RFETS Present Landfill

Response to Comment No. 1. Please clarify the discussion/description of the RFCA screening methodology to include definitions of each value, the sequence or other strategy that each value is used (e.g., background comparison for only metals and radiological completed prior to Tier II vs Tier I, surface water standards), and a discussion of the locations for the background used in the comparison (for each media). Frequency of detection tables should be presented to resolve many of the outstanding comment response issues (as indicated in the example provided to DOE contractors at the January 21st meeting).

Response to Comment No. 3. The description added to the report is appropriate, however, a figure which documents the wetland areas should be added.

Response to Comment No. 4. Since the Accelerated Action does not address the Landfill Pond, conclusions in the document related to exposures associated with potential contamination in standing surface water and accumulated in sediments should be avoided and deferred to the CRA.

Response to Comment No. 5. The last paragraph in Section 2.5.9 presents general aquatic information associated with the site and a brief description of the East Landfill Pond. However, the description of the aquatic status of No Name Gulch is found in the wetlands portion of the document. It is recommended that Section 2.5.9 include a specific subsection to describe the >Aquatic Resources= and include a map of the wetlands described in section 2.5.9.6. The request is being made to ensure that the baseline conditions of No Name Gulch and the wetlands are documented.

Response to Comment Nos 11 and 32: EPA's comment, and continued concern, is not related to aesthetics as eluded in the DOE response. CERCLA requires that the remedy should not result in extensive long term maintenance costs. The proposed soil cover depth does not appear to be adequate to support the proposed vegetation. EPA requests that standard, low-cost physical soil testing (e.g., measure moisture holding capacity, pH, nitrogen) be conducted to ensure that the proposed depth (i.e., 2 feet) is suitable for the vegetation proposed for the cover.

Extensive local experience and research suggests the proposed cover depth will result in a high level and increased costs associated with long-term maintenance (research available in Rocky Flats DOE field office and can be provided as requested). In addition, the FWS has stated they will not take secondary jurisdiction of this area as an overlay to the Refuge unless soil depth is adequate to support the proposed vegetation. It is likely that the proposed soil cover depth will result in substantial long-term costs that could be avoided with the proper soil characterization and application of additional depths of soil cover in order to support vegetation. The IM/IRA should document the supported technical rationale (soil characterization data) for the proposed 2 foot depth, or revise the conceptual composite cover figure and associated text to indicate the top layer soil depth may be from 2 to 4 feet, with an indication that the Afinal depth is to be determined during the design based on borrow area soil characterization data@.

Response to Comment No. 19: The Response incorrectly states that appropriate regulatory requirements will be followed if there is a discharge *of a pollutant* to waters of the US (emphasis added). The Clean Water Act requires that *any* discharge to a water of the US be monitored regardless of whether it is >thought= to be polluted (i.e., if a discharge is not monitored then it

could not be determined whether the discharge contained a pollutant). Revise the document to ensure the regulatory requirements are understood and correctly presented. Monitoring of this surface water point of compliance is required, in perpetuity, which is how it must be reflected throughout the responsiveness summary and revised IM/IRA.

Response to Comment No. 23: Please add the information to the IM/IRA to document the coordination with US FWS.

Response to Comment No 25: The ecological screening approach is not defined in the IM/IRA. Since portions of the remedy are being deferred and will ultimately consider and use the assessment of ecological risk as part of the remedial decisions, the ecological screening approach should be provided in more than just a footnote. Revise the document to include the a clear definition of the approach for evaluating ecological risk.

Response to Comment No. 26: Identification of the historical seep and sediment locations is requested since they are discussed in the text and it appears that data from certain seeps is not provided with a selection of other historical seeps. The IM/IRA should document the locations of previous discharges in the context of defining potential areas of migration, and fate and transport pathways to the adjacent watersheds and the surrounding environment. Locating the seeps on the figures will also document that the presumptive remedy cover will actually addressed the seep areas (as indicated in the response). The reluctance to provide a careful and accurate depiction of the existing conditions at the landfill is not understood. EPA is willing to work with DOE on clarifying the specific information that is needed in order to insure that a clear record of the actual and potential contamination at the landfill is presented. The information is important in order to establish the baseline conditions prior to the remedy and to insure that the information presented in this document does not conflict or omit historical information documented in other more complete reports in the Administrative Record.

The response implies that construction of the RCRA subtitle C cover over the locations of the intermittent seeps will eliminate the seep issue. The cover may remove the seep from view, but, unless the cover design specifically provides for managing the seep water, the seep water will undermine the integrity of the cover and may result in local failures of the cover. Handling of flows from the intermittent seeps must be addressed in the cover design.

Response to Comment No. 29: The rationale for using the WRW Als for comparison to the sediment standards is appropriate, however, please provide the discussion of the approach and use of all Action Levels in the IM/IRA document and clarify that ecological screening in the CRA will address appropriate ecological sediment exposures.

Response to Comment No. 37: The comment was made because this information was not clear in the IM/IRA. Please ensure that the information provided by the response is included.

Response to Comment No. 39: The response indicates that PCBs were historically sampled. The historical sampling regime is difficult to evaluate or determine. Revise the document to include frequency of detection tables to provide a accurate understanding of all the work that has been conducted at the landfill.

Response to Comment No. 41: The response indicates that remediation wastewater will be collected, characterized, and transferred to an approved treatment unit for processing. It is not clear where the collection, characterization, and transferring of wastewater will occur. The design should identify means and methods for implementing these proposed actions.

MEMO

To: Vera Moritz, EPA
From: David Buckner and Denise Arthur, ESCO Associates
Re: Quick comments on a list of 6 questions concerning revegetation of the landfill at the Rocky Flats site

BRIEF RESPONSES by ESCO TO EPA INQUIRY/COMMENTS:

EPA--------*1. DOE Rocky Flats proposed seed mix (also see fax#1)*
sand dropseed 5%; blue grama 15%; canby's bluegrass 10%; june grass 10%; sideoats grama 15%; little bluestem 10%; western wheatgrass 20%; green needlegrass 10%; canada bluegrass 5%.

RESPONSE---------1. Assuming that the material to be used as growth medium is "Rocky Flats Alluvium" as stated, I would say that the best seed mix to use would be one that included tallgrass species that are present in the pre-existing "xeric tallgrass" vegetation. I don't really follow the DOE arguments about why they are no longer suitable (except see para. 4 below). Experience nearby has shown that their establishment is quite feasible (test plots at LaFarge gravel mine on the northwest corner of the buffer zone). Of the proposed mix, I would say that sand dropseed, Canby bluegrass, and Canada bluegrass are unsuitable for various reasons:

> Sand dropseed will do best on very sandy soils and is unlikely to make much contribution on the Rocky Flats soils.
>
> Canby bluegrass, though theoretically adapted, has not established well at all on any of the many similar sites that I have seen it included in the seed mix.
>
> Canada bluegrass may or may not be a native species, but the commercially available strains are definitely European. Besides that, it is a problem aggressive species in the area already. It may well arrive despite intentions to limit its presence. Seeding it on purpose just adds to the problem.

The tallgrass species big bluestem and yellow Indiangrass should be included because they are very prominent in the native vegetation that occurs on the site. It is probably appropriate to seed the warm season grasses (big bluestem, yellow Indiangrass, sideoats grama, blue grama, and little bluestem), along with Junegrass (cool season but not aggressive) separately in space or time.

A new seed mix and planting approach may be required here. Also, there is available a quantity of volunteer – collected truly native seed collected from non-DOE but nearby areas of tallgrass vegetation. Collected species include big bluestem, yellow Indiangrass, little bluestem, and sideoats grama, along with some native forbs that would be appropriately used in the landfill-reseeding process. These collected seed quantities are in the Possession of DOE or one of tis subcontractors at present.

The inclusion of tallgrass species will not necessarily affect the suitability of a given depth of available growth medium. Just because they are "tall", they are not necessarily possessed of greater required root depth. They do, however, require greater moisture availability.

It may ultimately be decided (or have already been decided) not to attempt to reproduce the peculiarities of the very rocky soils on which the tallgrasses formerly occurred (and still do on the western half of the pediment; see also response to 3) below) . A very rocky growth medium that does not accept and store incident moisture the way the in-situ soils do may not support the tallgrass species and may support only a thin stand of midgrass/shortgrass species at most. (This may be why DOE was suggesting that those plants be emphasized in the seed mix).

EPA-------- 2. For these species, what are the required rooting depths and soil moisture requirements, as well as other agronomic factors (eg soil texture, organic matter content, N, P, K, pH, calcium carbonate, cation exchange capacity, salts, etc.) to ensure establishment and stand survivability in the prevalent drought cycle.

>

RESPONSE---------2. As regards required rooting depths, all of these grasses persist through good and bad times by way of placing an extremely dense mat of roots in the shallow soil (mostly 12 to 24 inches) between the major source of water above and the lower soil. Inasmuch as most wettings from natural precipitation events don't penetrate much below that approximate depth, the strategy of concentrating water interception capability in the upper soil zone is very effective in the long run. The deep roots that some and even most, of the native perennial grasses possess are a very small portion of overall root biomass and number (see the classic root depth work and Weaver and Albertson, and especially their hard-working graduate students). It is quite clear that the bulk of grass "drought-tolerance" is related to their capacity to intercept incident moisture and quickly and completely sequester it for their use. The degree to which the very sparse deep roots figure in the ability of native grasses to survive the serious (long-term) dry times is not quantitatively known. It is quite possible that the small amount of moisture these few very deep roots might be able to bring to the surface could be the difference between survival and death when a serious drought has virtually eliminated the production of foliar cover (leaves). (It is often observed that, during drought, foliar cover is greatly reduced, allowing the plant to subsist on significantly less water so as to "wait out" the drought until the arrival of more favorable moisture conditions in the future).

In general a root zone of any depth that is separated by impermeable geotextile layers may not have the same long-term drought resistance that native stands will. We have observed a pattern of vegetation suppression that has shown up even in the four foot soil layer treatments over the impermeable base of lysimeters in the test plots at the Rocky Mountain Arsenal. That being said, every added increment of soil depth provides an incremental increase to the probability that cover vegetation will survive a serious drought.

In this short response it is difficult to address the agronomic testing requirements that should be implemented on the cover soils prior to placement. Below is a modified example of the testing required and the range of acceptable and unacceptable soil characteristics from the ET borrow cover soils at the RMA. Additional information will need to be provided to you on the specific tests, and frequencies of testing.

Agronomic Soils Testing Criteria

	Suitable	Results in need of reviewed by vegetation specialist	Unsuitable
pH	6.0 – 8.4	5.5 – 6.0 and 8.4 – 8.8	< 5.5 and >8.8
EC	< 8	8 - 12	> 12
SAR	< 6	6 - 13	> 13
ESP	< 10	10 - 20	> 20
Calcium Carbonate Equivalent	< 15	15 – 40	> 40
CEC	> 20	10 – 20	< 10
For information and soil amendments determination only			
Upper Soil Texture	Loamy sand, sandy loam,	sand, silt loam, sandy clay loam, sandy clay,	Clay, clay loam, silty clay, silty

	loam	silt,	clay loam
Subsoil Texture	All others	Sand, loamy sand	none
% OM	>1 %		<1 %
N	Depending on soil organic matter content, but with low OM, less than 6 ppm would usually merit amendment		
P	Less than 5 ppm will require amendments		
K	Less than 50 ppm will require amendments		

EPA------→3. DOE Rocky Flats is proposing a RCRA cover system that consists of the following, from top to bottom (see fax #2 for figure) -- vegetation, 2 ft RF alluvium soil cover, 1 ft cobble layer (biota barrier), 10" soil fines cushion layer, geocomposite drainage layer, flexible membrane layer (FML), geocomposite clay liner (GCL), existing material (soil/waste). What agronomic factors need to be presented to demonstrate that this type of soil (RF alluvium) with a thickness of 2 ft will support/sustain the vegetative cover? As to the 1ft cobble layer underlain by the 10"fines and drainage layer, what is the current field experience showing root penetration and (a) how this penetration helps stand survival during drought cycles (b) impacts on effectiveness to deter burrowing animals.

RESPONSE---------3. We really should have some verification that textural makeup of this source material (where is the source?). The native soils that support the native "xeric tallgrass" vegetation on the Rocky Flats pediment are extremely old. They are "Paleosols" (SCS 1983). One of the most prominent evidences of this great age is the development of a highly clay-enriched subsoil. The matrix between cobbles and boulders in the undisturbed surface soils (approximately 13 inches) are of sandy loam texture. Permeability is 2 to 6 inches per hour (SCS 1983). It is underlain (and this is probably critical to the function of this soil) by gravelly clay and clay loam to depths of 13 to 47 inches. Permeability of this clay layer is only 0.06 to 0.2 inches per hour. Hence, the basic character of this growth medium is the presence of a very rapidly permeable surface layer that accepts, holds, and protects incident moisture as it very slowly enters the very fine-textured subsoil. The very high content of cobbles and boulders (often 60 % of the volume) serves to magnify the moisture accepting and retaining nature of this soil. Regards the penetration of roots through the biota barrier, see 4) below.

EPA---------> *4. Concerning the gradation of the cobble layer, are there configurations that are preferable for helping vegetation through drought cycles?*

RESPONSE---------4. The cobble biota barrier layer will contribute to the survival of plants above if the interstices become filled with fines. The biota barrier volume serves to magnify the moisture that makes its way farther down the soil column that would be available to plants .if roots can enter and survive in the interstices. If the interstices are voids, roots are very unlikely to enter and, thus, not only is this layer (biota barrier layer) of no survival advantage, but the soil cushion layer below is also isolated. In short, a configuration that allows continual occupation of roots down to the bottom of the "soil cushion" is the most desirable configuration of the cobble layer. Toward that end, the use of coarser material with bigger interstices and fine textured fill between the cobbles would be the best. I do not think that the presence of fines in the interstices will compromise its physical impediment to burrowing mammals.

EPA-------> *5. What factors are important in borrow soil placement to encourage*

vegetation growth (eg. soil horizons, calcium carbonate concentrations etc.)

RESPONSE---------5. In brief, the most desirable configuration would be expected to be one in which the upper foot was highly permeable and the lower layers were clay-rich, as is the natural circumstance (extreme rockiness throughout the cover is also helpful). If there is no chance of replacing the growth medium by design (i.e. the inconvenience to construction efficiency is too great), the main factor to attend to is to make sure that we don't end up with the very clay-rich horizons on the surface. This would result, in conjunction with the extreme rockiness, in a very low permeability and moisture penetration. The overall depth of the growth medium in that case becomes rather irrelevant because so little moisture is going to make its way into the soil column, no matter what depth. Borrow sites toward the eastern end of the RF alluvial surface are likely to have calcareous subsoils (and this would need to be addressed).

EPA------→6. What were the canopy cover standards used at RMA?

RESPONSE---------6. Cover standards at RMA for Basin A were set up as a one-year standard, a two-year standard, and a three-year standard.

- Initially vegetation cover was to be considered in compliance whenever the two year running mean for bare ground did not exceed 50 percent and the three-year running mean did not exceed 33 percent.

- A one-year standard was later added that required total live vegetation cover to stay above 25 percent. This standard is probably too high; drought response will often drive total live cover below this threshold in our area.

Since this is such a quick response please let us know when further information, elaboration on the above points, review of documents, designs, or other relevant information are needed.

If you have any questions please don't hesitate to call on Denise's cell phone (303) 517-3043 or the David at the office (303) 447-2999.

Best Regards Dave Buckner and Denise Arthur

3/10/04

Present Landfill Depth Comparison
2 foot vs. 4 foot depth

As presented, the cost comparison contains many undocumented assumptions that cannot be verified. We request that all analytical parameters be presented, such that all costs can be documented and calculated correctly.

1. The acceptable erosion rate recommended by EPA guidance is a rate of less than 2 tons/acre/year (see Design and Construction of RCRA/CERCLA Final Covers).

The low cost alternative used in this cost comparison is the 2 ft -bare soil cover (see p. 2 of 3). Although the cost comparison worksheet states that the erosion estimate is 0.010"/yr, this estimate has not been documented and conflicts with the 95% Design Document. The calculations presented for this option in the Design Document Appendix I show an erosion rate of 3.9 tons/acre/year, corresponding to 0.018"/yr . This value is almost 100% higher than EPA's value. For this reason, the 2 ft bare soil option cannot be accepted as the basis for the low-cost comparison as it would not be EPA-approvable design. The basis for the low cost comparison must be a cover with characteristics that meet the allowable erosion rate of less than 2 tons/acre/year.

2. Page 1 of 3 - Safety. The borrow area locations and quantities should be identified, to document the travel distances.

3. Page 1 of 3 - Vegetation Establishment. (a) The agronomic factors for the 2 different cover thicknesses need to be presented, in correlation with establishment of the proposed seed mix, specifically, moisture holding capacity, temperature sensitivity and resistance to the prevalent drought cycle.

(b) The design document (see DD Appendix I p. I-19) assumes a soil with density of 120 lb/ft3. This is essentially rocky material. For example, at the RMA landfill (see RMA 95 % Design Document), loamy soils with density of 93 lb/ft3 had to be used to ensure revegetation. Documentation will be required to demonstrate that the proposed seed mix will establish in the emplaced soils at the specified canopy coverage.

4. Page 2 of 3 - Drought Tolerance of Vegetation. For the 2 ft soil cover, the statement is made that "The rooting zone is about 4 ft" due to rooting into the cobble layer and that "this effective rooting depth will increase the drought tolerance of the vegetation." We cannot corroborate this statement; current field experience is that the cobble layer does not promote root penetration. If the authors have specific field evidence, it should be presented with quantitative data, otherwise this statement should be deleted and not used as support for the 2 ft cover option.

Again, we request that the specific agronomic parameters for both 2 and 4 ft thicknesses be presented, quantifying the difference in drought tolerance for the vegetation and taking into account the prevalent drought cycle.

5. Page 2 of 3 - Protection from Burrowing Animals. This comparison shows no difference between level of management between the 2 and 4 ft. cover options. Current field experience shows that the level of active management for burrowing animals is dependent on the success of the vegetative cover. This needs to be accounted for in the cost comparison. See #7 below.

6. Protection from Erosion to Geosynthetic Liner. The statement is made that the 2 ft bare soil cover is "protective without maintenance." We cannot agree with this statement because the erosion rate is higher than recommended by EPA (see #1 above). The erosion estimates presented in this item are in direct conflict with the erosion estimates presented in the Design Document, Appendix I. For the 2 ft cover, the Design Document shows 3.9 tons/acre/yr (or 0.018"/yr) while this box shows 0.010"/yr. No calculation or design specs have been presented to support the lower value of 0.010"/yr; this value cannot be used as the basis for the low cost alternative, until demonstrated that it can be achieved.

Also, the Wind Erosion Loss Calculations (see Design Document sheets I8 - I9), include the assumption of watering for selection of the vegetation cover parameter. If indeed irrigation will be used, the costs should be shown. If irrigation will not be used, the wind erosion losses need to be recalculated.

For the 4 ft cover, the statement is made that it would have the same erosion losses as the 2 ft cover. This is not substantiated; the 4 ft cover can support a higher vegetation density, which would in turn decrease erodibility. The statement is made that there is no difference in protectiveness with cover monitoring and maintenance. The costs associated with the higher maintenance required for the 2ft cover, and the lower maintenance required for the 4 ft cover should be presented.

7. Structural Stability. For the 4-ft cover, the statement is made that it will require redesign. This is not a valid justification, as KH prepared the 95% design at its own risk without allowing EPA to review/comment on the preliminary versions (30% and 60% designs not presented to EPA for review).

8. Cover maintenance requirements. Please present modeling of the vegetative canopy cover that can be achieved with the 2 and 4 ft covers, and quantify the costs for inspection/repair of erosion, vegetation monitoring and reseeding, active management for burrowing animals and weed control. Specifically, please indicate what pesticides would be used and application costs.

9. Page 3 of 3 - Costs/Soil Cover only. Please break down the costs presented to indicate the cost for mobilization and demobilization and indicate the costing assumptions. It appears that mob/demobilization costs were counted twice in the 4 ft cover option.

10. Page 3 of 3 - Maintenance requirements for cover only. The assumptions in this item are not supported and therefore cannot be accepted. Please provide supporting evidence for the assumptions made; modeling of canopy cover achievable with the proposed soils; and specific pesticides to be used, quantities and application costs. Also please quantify the impact of the prevalent drought cycle/soil desiccation parameters for vegetation survival, and consider this item on cost calculations. Until these items are included, the cost comparison is deficient and misleading.

11. Page 3 of 3 - Impact on Design Cost and Impact to Construction Schedule. These items are not appropriate costs to be included in the cost comparison of the 2 ft vs. 4 ft cover. The 30% design would have been the stage at which these decisions would have been discussed, prior to significant expense in preparing a design document, however it was not submitted for review.

12. The revised cost comparison should be included in the IM/IRA in support of the selected option.

3/9/04

EPA Comments on IM/IRA APPENDIX F Wetland Mitigation Plan

1. The plan does not include or refer to corresponding scale drawings with proposed construction cross sections of the site. The drawings are needed in order to demonstrate compliance with the proposed mitigation.

2. Appendix F, Page 6: Performance Objectives, Success Criteria. The document indicates that the objective is to establish an area of emergent wetland with 40% native species. This presumes that 60% will be non-native species. This is federal property and the performance goal should be to achieve a much higher percentage of native species. It is recommended that the performance goal be to establish the areas using container plantings on one-foot centers using of native species only. We recommend that you strive for 100% native species.

3. In addition, the plan should state that weeds will be managed as a success criteria for the five year period and should be less than 5%.

4. Appendix F, Page 6: Rationale for Choice. The plan indicates that off-site mitigation is preferred since on-site mitigation in the form of widening the pond is not possible. Although it is not readily apparent as to why widening the pond is not possible, it is also noted that the East Landfill Pond has not been characterized and the ecological risk assessment associated with the pond is to be completed at a later date. Therefore, it is not known whether it would be appropriate to expand habitat in the immediate area. However, on site wetland mitigation would be preferable with other on site areas, such as No Name Gulch, considered as possible alternatives.

5. Appendix F, Page 9: Wetland in-situ Mitigation Site Plan. The wetland vegetative community in the area of permanent impact should be specifically described (i.e., dominant plant community) and the same or better quality plant community should be replanted as mitigation (i.e., similar species in similar numbers). The same is true for the temporary wetland impacts. For example, EPA does not want typha to repopulate the site when more diversity is possible (see Appendix F, Comment No. 2 above).

6. Appendix F, Page 10: Contingency Measures. The plan must state a commitment to contingency plantings within the next year of any reported problems (i.e., new plantings within the year).