alone would represent more than \$395 Million. Under these circumstances, the Klondike option would be even less costly than the on-site alternative.

Chapter 3: Affected Environment

- 33. Section 3.1.1.1: Moab Site Stratigraphy Need to Define Age of Quaternary Deposits (p. 3.6) previously we suggested that DOE needs to determine the age of nearby Quaternary deposits in order to establish if the river has a potential to migrate and undercut the pile (2/3/04 DEQ Comments on Preliminary DEIS, Chp. 3, Comment 1). DOE responded that the 11/03 DOE River Migration Report adequately addressed this concern. We disagree. Recent USGS modeling has established that the Colorado River can easily transport medium sized (1.45-2.91 inch) gravel materials under 100-year flood conditions (see Attachment 1 below, Fig. 47). Even larger particle sized can be transported by the river under higher flow rates and/or if the river scours its channel near the West Portal (ibid., Figs. 48-49 and 50, 53, and 56, respectively). Certainly the fine silts and sands found on the riverbank and under the tailings pile are much more prone to erosion. As a result, the need for this age dating is more important than before, should DOE select the on-site stabilization option.
- 34. Section 3.1.1.4: Geologic Hazards Omission of River Migration no mention is made in this section regarding horizontal river migration, channel avulsion, or possible undercutting of the tailings pile by the river. Clearly, the river has significant potential to migrate horizontally and undercut the pile, as demonstrated by recent USGS river velocity and shear force modeling where it was demonstrated that a 100-year flood event could easily move medium diameter (1.45-2.91 inch) gravel in the river's channel (see Kenney, Fig. 47 in Attachment 1, below). Certainly the finer grained silts and sands in the riverbank near the tailings pile would be even more prone to erosion under these conditions. Furthermore, higher river flow rates in a 500-year or larger flood, could move even larger particle sizes (ibid., Figs. 48 and 49). The same is true if the river scours its channel near the West Portal (ibid., Figs 50, 53, and 56). Recent experience with 100+ year floods on the Santa Clara River system have shown that horizontal migration of the river's channel can be swift and dramatic. DOE must thoroughly evaluate this geologic hazard in this section.
- 35. Section 3.1.3.1: Millsite Contamination (p.3-9) in addition to the focus on Radium-226 concentrations, DOE should also evaluate the mill site soils to determine the concentrations of other key contaminants. This evaluation should be done in order to ensure that all mill site soil contaminants are properly controlled and do not form source terms for future leaching and groundwater contamination. Emphasis needs to be put on heavy metals, ammonianitrogen, and other non-radiologic contaminants.
- 36. Section 3.1.6.2: Moab Site Groundwater Occurrence (pp. 3-19 and 20, Fig. 3-8) the description of the conceptual groundwater model on page 3-19 should include 2 important concepts, as follows:
 - A. <u>Vertical Extent of Legacy Groundwater Contamination</u> groundwater contamination from historic site operations have caused tailings related contaminants to be found below the freshwater-saltwater boundary (~35,000 mg/l TDS). We agree with your discussion on page 3-26 of how site operations generated a dense wastewater (TDS of 50,000 –

- 150,000 mg/l) that penetrated the 35,000 mg/l saltwater boundary, thereby contaminating the deep brine layer.
- B. Ongoing Contamination Effects of Diffusion from Contaminated Saltwater Layer contaminants are transferred from the deep saltwater layer to the freshwater layer thru diffusion. As a result, historic groundwater contamination found below the freshwater-saltwater interface will continue to contribute contaminants to the freshwater system and backwater areas for an extensive period of time. This diffusion will prolong the time it takes for the legacy plume to be eliminated from the freshwater system under both passive flow conditions or active groundwater remediation.
- 37. <u>Section 3.1.6.3</u>: <u>Moab Site Groundwater Quality</u> we have several concerns with DOE statements made in this section, as follows:
 - A. Need to Better Define Groundwater Surface Water Interactions (Fig. 3-9) Figure 3-9 of the DEIS shows the freshwater saltwater interface (35,000 mg/l TDS contact) as converging on the Colorado River. However, no nested piezometer data is available to confirm this relationship at the river's edge. Consequently, it is possible that this basal boundary to the freshwater system does not intercept the river at this location, but at some other location. To define this relationship, DOE should install nested piezometers at the river's edge and carefully monitor river stage and groundwater head in a very time dynamic way. Until this relationship is well defined, we won't know for certain how many receptors may be exposed to tailings contamination.

The lack of shallow groundwater convergence on the river is also evident in groundwater data collected by the University of Utah, where oxygen-18 to oxygen-16 ratios (δ^{18} O) indicate that groundwater in the freshwater system on the DOE side of the river has traveled under the river and is found in certain areas of the water table under Matheson Preserve. This groundwater underflow beneath the river is evident where groundwater under the Matheson Preserve has a similar δ^{18} O signature as groundwater found near the tailings pile, i.e., with δ^{18} O values between -13 and -12, which is indicative of Glen Canyon Group recharge from a lower elevation [see Gardner and Solomon, pp. 18-20, Figs. 15 and 16, and Table 5, wells BL-1 (D), BL-2 (S, M, and D) N8 (10 and 14m) N11 (4 and 7m), M11 (12 and 14m), BL-3 (S, M, and D)]. In contrast, other wells on the Matheson Preserve side of the river exhibited even smaller δ^{18} O values, in the range of – 15 to -14, which is indicative of a higher elevation precipitation and groundwater recharge on the nearby La Sal mountains [ibid., Fig. 2, Table 5, and wells N3 (4 and 8m), N4 (6 and 12m), N5 (7, 10, and 14m), N6 (6 and 9m), N7 (7 and 10m), and W1 (4 and 7m)]. For comparison, a river water sample collected by the University in April, 2003 during spring runoff at site CR1 showed a δ^{18} O value of -15.4, which is also indicative of high elevation precipitation (ibid., Table 5). If the Colorado River was a hydraulic barrier, as claimed by DOE, then all the wells on the Matheson Preserve side should show small δ^{18} O values, on the order of -15 to -14.

Since this is not the case, the University of Utah geochemical evidence indicates the groundwater / surface water relationship is complex near the Moab Tailings site. This relationship needs to be well understood so as to define the fate of the groundwater contamination and adequately design a remediation system to control it. This information was brought to DOE's attention previously during comments on the Preliminary DEIS (2/3/04 DEQ Comments, Chp. 3, Comment 8). However, DOE chose to ignore it.

- B. Need to Explain and Justify Background Groundwater Concentrations (pp. 3-21 thru 24 and Table3-7) review of Table 3-7 has found that the "background" concentrations were derived from the DOE SOWP, Table 5-11. In turn, these data were based on 2 groups of monitoring well data that need revision, as follows:
 - Fresh Qal Facies as based on wells RW-01, AMM-1 and MOA-456 (DOE SOWP, p. 5-51). However, no explanation is provided in the DOE SOWP on why these 3 wells represent background groundwater conditions. Further, well AMM-1 appears to be located downgradient of the former Atlas ore-storage area (compare SOWP, Fig 5-19 with DEIS, Fig. 3-7). Consequently, groundwater at this location may have been affected by historic site operations, and this well should be omitted from consideration in determining background ground water quality.

In addition, the average TDS in each of these wells varies by more than 10-times, e.g., 708 mg/l in well RW-01, 5,530 mg/l in well MOA-456, and 7,113 mg/ in well AMM-1 (DOE SOWP, Table 5-8). Such high variability in groundwater quality could be a product of natural conditions. However, given the long history of this site and the possibility that well AMM-1 could be located downgradient of the former ore storage area, this well should be eliminated from any determination of background groundwater quality.

Previously, DEQ recommended that DOE consider use of groundwater quality data from the nearby water supply well at the Arches National Park Headquarters, to represent background groundwater quality for this facies (2/3/04 DEQ Preliminary DEIS Comments, Chp. 3, Comment 11). Clearly, this geologic formation recharges the shallow alluvium found near the site, and this well is located at a sufficient distance from the tailings site, that it is unlikely to have been influenced by past tailings disposal activities. Unfortunately, DOE ignored this suggestion, and instead included the tainted well AMM-1 in its background determination.

2) Brine Qal Facies – was based on several wells apparently located in the Matheson Preserve, including: M11-14, N7-10, N7-11, W1-4.3, W1-7, and W1-10 (DOE SOWP, p. 5-54 and Table 5-9). The DOE SOWP also mentions that two other wells were used in this analysis, M9 and M10, from a 1994 Cooper and Severn Study. However, no information is provided in the SOWP to locate these last two wells (SOWP, Fig. 5-23) or to provide any groundwater quality data from them (SOWP, Table 5-9). Furthermore, no explanation is provided in the SOWP on why any of these wells represent background groundwater conditions in the Brine Qal facies.

As discussed above, well M11-14 should not be considered used in this background evaluation, in that it has a δ^{18} O signature that does not reflect the high elevation recharge of other wells in the Matheson Preserve, but instead has a signature similar to that seen on the opposite side of the river near the Moab Tailings (Gardner and Solomon, Table 5). This δ^{18} O signature indicates that groundwater found in well M11-14 may originated from Glen Canyon Group recharge from the DOE side of the river, and therefore may have been influenced by historic site operations and tailings seepage. This possibility needs to be thoroughly examined and eliminated before inclusion of this data into the background groundwater quality data set.

In summary, any determination of background groundwater quality for either of these facies must include a careful and detailed examination and justification of hydrogeologic and geochemical considerations, to ensure that the data so used represents natural

- groundwater quality conditions that have not been influenced or altered by man's activities.
- C. <u>Missing State Groundwater Quality Standards (Table 3-7)</u> no consultation was made with DEQ to determine State Ground Water Quality Standards that may be applicable to the site cleanup. These parameters and corresponding concentrations need to be added to Table 3-7 of the DEIS.
- D. <u>Unsubstantiated Ammonia Dilution Factor (p. 3-26)</u> we disagree that sufficient data is available to justify a 10-fold dilution factor for the ammonia-nitrogen transfer from shallow contaminated groundwater to the backwater habitat. Details comments regarding the problems with DOE's assumptions are discussed above.
- E. Need to Resolve Fate of Tailings Contamination in Deep Saline System (p. 3-26) we agree that:
 - There is a shallow freshwater system of groundwater that overlies or floats on a heavier saline groundwater system at the site,
 - 2) That historic tailings pile seepage has traveled downward to a depth greater than the saltwater interface (35,000 mg/l TDS) which forms the base of the freshwater system shown on Figures 3-8 and 9, and
 - That this historic pollution has created a deep "reservoir" of ammonia contamination that will continue to contaminate the shallow freshwater system thru diffusive processes.

However, no mention is made in the DEIS about advective transport of this deep contamination, or its fate in the environment. Instead the DOE DEIS focuses only on the shallow freshwater system at the site.

Previous work by the University of Utah has shown that the deep saline groundwater below the 35,000 mg/l TDS interface travels horizontally beneath the Colorado River and under the Matheson Wetlands (Gardner and Solomon, p. 15 and Figure 7). Other lines of geochemical evidence, such as groundwater δ^{18} O values, also support this conclusion (ibid., pp. 18-20 and Figures 15 and 16). This information conflicts with that shown on DOE DEIS Figure 3-9, which suggests the deep saline system discharges directly to the river. DOE needs to define local groundwater – surface water interaction, including the interaction of the river with the deep saline system, so as to determine the fate of this deep seated pollution and its possible future effects on the environment. This issue was brought to DOE attention previously in DEQ comments on the Preliminary DEIS (2/3/04 DEQ Comments, Chp. 3, Comment 8). To date, DOE has failed to resolve this issue in its groundwater cleanup efforts.

38. Section 3.4.5.3: White Mesa Site Groundwater Quality – Still Under Investigation (p. 3-142) - the claim made that 20 years of monitoring shows the existing tailings cells have not effected local groundwater quality in the shallow aquifer is still a matter of investigation. Anomalous uranium concentrations have been detected downgradient of existing Tailings Cell 4A that IUC is required to examine and explain as a mandate of their State Ground Water Quality Discharge Permit (12/1/04 Utah Division of Radiation Control Statement of Basis, pp. 6-7). With regards to the on-going chloroform contaminant investigation, the company has not yet completed its Groundwater Contaminant Investigation Report required by an August 23, 1999 Utah Division of Water Quality Ground Water Corrective Action

Order. Therefore, it is premature to conclude how many sources of chloroform actually contributed to the contaminant plume found along the eastern margin of the site.

Chapter 4: Environmental Consequences

39. Section 4.1.1.1: Construction and Operations Impacts at Moab Site, Geology – Omission of River Migration – horizontal river migration has been omitted from this section. No mention is made regarding channel avulsion, or possible undercutting of the tailings pile by the river. Clearly, the river has significant potential to migrate horizontally and undercut the pile, as demonstrated by recent USGS river velocity and shear force modeling where it was demonstrated that a 100-year flood event could easily move medium sized (1.45-2.91 inch) gravel in the river's channel (see Kenney, Fig. 47 in Attachment 1, below). Certainly the finer grained silts and sands in the riverbank near the tailings pile would be even more prone to erosion under these conditions. Furthermore, higher river flow rates in a 500-year or larger flood, could move even larger particle sizes (ibid., Figs. 48 and 49). Also the presence of any channel scouring near the West Portal could also increase the rivers erosive power (ibid., Figs. 50, 53, and 56). Recent experience with 100+ year floods on the Santa Clara River system have shown that horizontal migration of the river's channel can be swift and dramatic. DOE must evaluate this geologic hazard in this section.

Also, the recent USGS river velocity modeling shows that the river channel areas prone to this erosion in a 100-year flood event are extensive, being 1,000's of feet long, and are found both near the pile and adjacent to the mill site area (Kenney, , Fig. 47, see Attachment 1, below). As a result the small riprap diversion wall proposed in Fig. 2-3 is insufficient in both length and particle size to protect the tailings pile from river migration.

- 40. Section 4.1.3.1: Construction and Operations Impacts at Moab Site, Groundwater (pp. 4-6 thru 10) several concerns are apparent from DOE statements made in this section, as follows:
 - A. Failure to Describe Long-Term Impact of Ammonia Salt Layer on Groundwater Cleanup Project (p. 4-8 and Figure 4-1) the contaminant breakthrough curve shown in Figure 4-1 was based on a constant ammonia contaminant source term of 1,100 mg/l (DOE SOWP, pp. 6-11 and 12, and 7-23). However, by DOE's own estimates, the ammonia salt layer near the top of the tailings pile will be dissolved and transferred to the water table by infiltration seepage thru the on-site cover system. In turn, this seepage will then cause a 16-fold increase in the ammonia source term contamination applied at the water table (dissolved ammonia-nitrogen = 18,000 mg/l). Using DOE's estimates, this ammonia pulse would arrive at the water table about 1,094 years after cover construction (SOWP, pp. 6-11 and 12 and Fig. 6-3) and continue for about 440 more years or until the ammonia salt layer was depleted (DEIS, p. 4-7).

The impact of this ammonia pulse indicates that the 200-year break-thru curves found in the DEIS (Figs. 2-43 and 4-1), are not representative of the anticipated leaching of the ammonia salt layer leaching from the tailings pile, in that a second ammonia pulse will arrive at the water table after year 1,094. Because this pulse will then increase the ammonia contaminant source term by a factor of about 16-times, higher groundwater and backwater habitat concentrations should be expected, than those predicted by the DOE model. As a result, the DOE contaminant transport modeling (DEIS Figures 2-43 and 4-

1) does not represent the anticipated long-term ammonia concentrations in the groundwater system. Consequently, DOE's predictions that only 75-80 years of active groundwater remediation are needed are biased and un-defensible. It also means that even if only 200 years of active groundwater remediation were required, that sometime after year 1,100, the delayed ammonia pulse could cause the need for a second phase of active remediation might need to be sustained for another 440 years in order protect the backwater habitat. During this second pulse of ammonia contamination, the groundwater cleanup costs could be as high as \$396 Million (440 years time \$900,000/yr). If this were the case, the price tag for the on-site option could easily be double that currently estimated by DOE.

However, the long-term effects of this ammonia salt layer inside the tailings pile become mute, if the tailings pile is relocated.

- B. Applicable Groundwater Cleanup Standard (p. 4-9) as discussed above the groundwater cleanup goal for ammonia-nitrogen needs to be the chronic standard (0.6 mg/l) and not the acute standard (3.0 mg/l). Use of this lower cleanup goal would necessitate DOE actively groundwater remediation for at least 120 more years, which in turn would significantly increase the total remediation cost for the project.
- 41. Section 4.1.4.1: Construction and Operations Impacts at Moab Site, Surface Water (p. 4-12) we disagree that the on-site stabilization option will only require 80 years of active groundwater remediation. For reasons discussed above this figure is at least 200 years, and may be as long 640 years after consideration of the ammonia salt layer that will be leached from the tailings pile at sometime in the future.
- 42. Section 4.1.5.1: Construction and Operations Impacts at Moab Site, Floodplains and Wetlands (p.4-13) – we disagree that the buried riprap wall shown in Figure 2-3 will be sufficient to protect soil in the floodplain and the tailings pile from the effects of river migration. Recent USGS modeling shows that the in-channel water velocity and shear forces are high enough during a 100-year flood event to erode particles as large as medium sized (1.45 - 2.91 inch) gravel (Kenney, Fig. 47, see Attachment 1, below). Even larger particl sizes can be transported by the river under higher flow events, or should the river scour its channel near the West Portal (ibid., Figs 48-49, and 50, 53, and 56, respectively). Certainly the finer silts and sands found on the riverbank and under the tailings pile are much more prone to erosion. In light of this recent USGS modeling, it is clear that any riprap wall design sufficient to protect the tailings pile would have to be 1,000's of feet long, extend across both the toe of the pile and the mill site area, and consist of very large diameter riprap in order to resist the projected erosive forces (ibid.). Design, construction and long-term maintenance costs for such a long riprap wall would be significant, and need to be factored into the total costs for the on-site option. Without such a robust erosion protection design, DOE should expect river migration and related erosion will adversely impact floodplain soils and the tailings pile.
- 43. Section 4.1.6.1: Construction and Operations Impacts at Moab Site, Aquatic Ecology Chemical Impacts (p. 4-16 and 17) we strongly disagree with DOE's proposed groundwater cleanup goal for ammonia-nitrogen of 3.0 mg/l. As discussed in our comments on Chapter 2, above; only the chronic ammonia-nitrogen standard, 0.6 mg/l, is applicable to the backwater habitat. Also, DOE's assumption of a 10-fold dilution of ammonia at the groundwater to surface water transition is unsubstantiated. Until DOE can confirm this assumption thru time

dynamic and representative field studies, the 0.6 mg/l ammonia-nitrogen standard must be applied as a groundwater cleanup goal.

- 44. Section 4.1.17: Disposal Cell Failure from Natural Phenomena (p.4-50 thru 56) we disagree with several DOE statements made in this section, as follows:
 - A. Error in Slow, Passive River Migration Assumption (p. 4-50) the DOE has simply understated the forces that control and govern river migration. Channel avulsion is a highly time dynamic process that can occur catastrophically over very short periods of time. Recent loss of more than 25 homes on the Santa Clara River in Utah over the course of just a few hours is a clear reminder of how swift and immense these forces can be. DOE's claim that river migration will always be a slow and easily controlled phenomenon is a tremendous show of hubris. Consequently, river migration must be considered as a part of a catastrophic upset of the tailings pile.
 - B. Need to Remediate Downstream Beaches (p. 4-54) the DOE statements made on page 4-54 downplay the risk of radium-226 tailings contamination to nearby sandbars and beaches, and the impact of this pollution on the local tourism economy. From DOE calculations presented in Table 4-18 and the maximum sediment exposure level for camping provided in Table 4-19 (1,700 pCi/gm radium-226 in sediments), it would appear that only about 36% of the pile would need to be washed into the Colorado River before sand bar and beach sediments near the Moab site would meet this maximum camping exposure criteria for radium-226 [(1,700 pCi/gm / 944 pCi/gm)* 20%]. This is not a far-fetched scenario when you consider that the river has the ability to transport medium sized (1.45 - 2.91 inch) gravel under a 100-year flood event (see USGS modeling in Kenney, Fig. 47), and that large expanses of the local riverbank appear to be composed of sediments that are much finer (silts and sands). This possibility is also reasonable after you consider that: 1) larger river flows can transport even larger sediment sizes (Kenney, Figs. 48 and 49), and 2) the river's capacity to erode its riverbank and undermine the tailings pile is increased further, should the river scour its channel at the West Portal (see Kenney, Figs, 50, 53, and 56).

For sand bar and beach sediments below the Green River confluence, it would appear that only 66% of the tailings pile would need to be washed away in order for this same camping exposure criteria to be met [(1,700 pCi/gm / 515 pCi/gm)* 20%].

From this information it is clear that the loss of control of the tailings due to river migration would be a catastrophic failure scenario and would create an unacceptable exposure to downstream river recreation users and campers. It is also clear that such losses would require significant expenditure of public funds to capture and regain control of this contamination. Given the remote locations and difficult access to the impacted areas, the cost to cleanup the contaminated sandbars and beaches would be astronomical. Such loss would pose a lengthy and significant adverse impact on the local tourism economy. For all these reasons, it would be prudent to prevent the problem in the first place and relocate the tailings to a more stable location away from the Colorado River.

C. Error in Assumed Direction of River Migration (p. 4-55) – we strongly disagree with DOE's statement that the river can only migrate away from the tailings pile. Errors have been found in DOE's November, 2003 River Migration Report that prove that the Colorado River has migrated both towards and away from the tailings pile in the last several decades. For details regarding these errors we refer the DOE to comments

- provided by Dr. John Dohrenwend. Again, DOE's claim that the river can only migrate away from the tailings pile is a blatant insult of common sense.
- D. Problem with Riprap Diversion Wall (pp. 4-55 and 56) after review of the recent USGS river velocity and shear force modeling, it is clear that an extensive length of the river is prone to erosion under a 100-year flood event, and given the presence of fine grained silts and sands in the local riverbank and under the tailings pile (Kenney, Fig. 47, see Attachment 1, below). This same USGS modeling also showed that even larger sediment can be transported by the river, and even longer stretches of the river are prone to erosion, should higher flow events occur, or should the river scour its channel near the West Portal. This same modeling also demonstrated how the pile will impede river flow and create significant water velocity and shear forces near its southeast corner (ibid., Figs.32 and 33). Significant velocities and shear forces will also be generated in large areas across the mill site and in the floodplain near the tailings pile (ibid., Figs. 47, 48, and 49). All of these findings reinforce the conclusion that the small and limited riprap diversion wall shown in DOE Figure 2-is insufficient to control river migration. Instead, any riprap diversion wall that has any hope of controlling river erosion will need to be 1,000's of feet long and extend both along the toe of the pile and across the entire mill site area. Because the depth of the river will be great under the possible maximum flood (25 feet, Kenney, Fig. 19), the vertical extent of this riprap will also need to be great. The added costs for these erosion protection measures need to be incorporated into the on-site cost option. However, the need for such structures and erosion protection would be eliminated should DOE move the tailings pile.

Chapter 7: Regulatory Requirements

- 45. Section 7.1.2 Uranium Mill Tailings Radiation Control Act, 42U.S.C. §§ 7901 et. seq, as amended as mentioned previously in comment 19A, Utah is now an Agreement State for regulation of uranium mill tailings under Title II of UMTRCA that includes the White Mesa Mill. Standards relating to the protection of groundwater at this alternative in the DEIS are found in Utah Water Quality rule, R317-6. As part of the amended Agreement, the Nuclear Regulatory Commission approved an "alternative groundwater standard" and the State of Utah uses its own groundwater protection rules in lieu of 40 CFR 192. Since Utah is an Agreement State, the White Mesa Mill must amend its current Radioactive Materials License to accommodate this disposal option as well as modify the facility's Ground Water Discharge permit. The EIS should be modified to reflect this state authority under Section 7.3
- 46. Section 7.3 State Regulatory Requirements previously as stated in comment 12A, DOE has not recognized state groundwater authority under Utah Water Quality rule, R317-6. Under this state authority, DEQ has classified the shallow aquiferat the Moab Tailings Site as a Class 1C aquifer that needs protection in order to sustaain a nearby wildlife habitat, that being the backwater area that is being fed by groundwater on the nearby banks of the Colorado River. There should be recognition of the state groundwater program in Section 7.3 because of the demonstrated authority in comment 20 even if DOE disagrees with the assertion of groundwater authority at the Moab Millsite.

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- Gardner, P. and D.K. Solomon, December 11, 2003, "Investigation of the Hydrologic Connection between the Moab Mill Tailings and the Matheson Wetland Preserve", University of Utah Department of Geology and Geophysics, unpublished consultants report, 29 pp., 6 tables, 22 figures, 3 appendices.
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- U.S. Department of Energy, March 17, 2004, Draft Responses to Moab PDEIS, email correspondence from Kim Bevan to Loren Morton, 1 p., includes 10 attachments (WORD documents): UDOT Chaney 1-16-04.doc; State SHPO 1-16-04.doc; State-DEQ Morton Chp 1 1-16.doc; State DEQ Morton Chp 2 1-16.doc; State DEQ Morton Chp5-11 1-22-04.doc; State DEQ Morton River 1-16.doc; State DEQ Morton Chp3_RV1.doc; State DEQ Morton AppF 1-16.doc; State Obrian 1-16-04.doc; and State UDWR1-16-04.doc.

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- Utah Division of Radiation Control, December 1, 2004, "Ground Water Quality Discharge Permit Statement of Basis for a Uranium Milling Facility at White Mesa, South of Blanding, Utah", unpublished agency document, 57 pp. and 12 attachments.
- Utah Division of Water Quality, August 23, 1999, "White Mesa Uranium Mill: Notice of Violation and Groundwater Corrective Action Order, Docket No. UGW20-01", unpublished agency enforcement action, 3 pp., includes 2 pp. transmittal letter from William J. Sinclair to David Frydenlund, 2 pp.



State of Utah

JON M. HUNTSMAN, JR. Governor

GARY R. HERBERT Lieutenant Governor State of Utah
GOVENROR'S OFFICE OF PLANNING AND BUDGET

Resource Development Coordinating Committee
JOHN A. HARJA
Executive Director

February 9, 2005



Dianne Nielson, Executive Director Department of Environmental Quality 168 North 1950 West P O Box 144810 Salt Lake City, Utah 84114-4810

SUBJECT:

Remediation of the Moab Uranium Mill Tailings - DEIS

Project No. 04-4659

Dear Ms. Nielson:

The Resource Development Coordinating Committee (RDCC) has reviewed this proposal. The Division of Wildlife Resources comments:

The Department of Energy (DOE) has not yet selected a preferred alternative. We offer the following remarks for their consideration in selecting a preferred alternative and preparing the final Environmental Impact Statement.

The UDWR and the Nature Conservancy jointly own the Matheson Wetlands Preserve and Waterfowl Management Area (WMA). This 900-acre property is just across the river and adjacent to the DOE property where the uranium tailings pile currently exists. This makes us one of the nearest neighbors to the site and heightens our concern about this project.

Disposal Sites

The DEIS is clear that off-site disposal of the tailings pile is the best solution for improving water quality in the Colorado River and the adjacent Matheson Wetlands WMA. This conclusion is further verified in the Gardner/Solomon report. This independent study provides evidence that groundwater in the Moab Valley may move beneath the river (from the tailings pile south), potentially contaminating the WMA. It is also clear that the current tailings pile lies on a precarious foundation of sand and gravel which previous river meanders have inundated during the last millennia. Uncertainties discussed in the DEIS for on-site disposal, in our opinion, may continue to jeopardize endangered fish, as well as water quality in the Colorado River and the WMA.

In addition, 100 and 500-year flood events could partially inundate the disposal cell if left in place. Armoring Moab Wash and the Colorado River to prevent this phenomenon could have detrimental impacts to river morphology, the WMA, and fish habitat, and it may prove ineffective. We support off-site disposal as the best long-term solution for fish and wildlife.

5100 State Office Building, Salt Lake City, Utah 84114 • telephone (801) 537-9230 • facsimile (801) 537-9226

Page 2

The Klondike Flat disposal site appears to be the most acceptable from a wildlife perspective. Because it is the shortest distance from the current tailings pile, its impact to wildlife from any of the transportation alternatives is minimized. Because of nearby existing disturbances (county landfill and airport), its proximity to important wildlife habitat is also comparatively negligible. We do recommend, however, the avoidance of any disturbance to white-tailed prairie-dog (a state sensitive species) colonies at this site and at all borrow areas.

The Crescent Junction disposal site would be the second best choice for wildlife. It is farther away (possibly imperiling more wildlife during materials transportation), and in closer proximity to important wildlife habitat in the Book Cliffs. It also lies within a belt of ferruginous hawk nesting and foraging habitat that skirts the Book Cliffs at the edge of the pinyon-juniper vegetation zone. If this alternative is chosen, we suggest avoiding white-tailed prairie-dog colonies, and recommend surveys for kit fox and ferruginous hawks. All three of these species are currently identified as state sensitive species.

The White Mesa Mill disposal site would be the most detrimental to wildlife. Because rail transportation is not an alternative to this site, truck transport or the slurry pipeline are the only other possibilities. Either of these options traverses miles of important habitat for many wildlife species. The slurry option to this site would also skirt Gunnison sage-grouse habitat near Monticello. Gunnison sage-grouse is currently a federal candidate for listing under the Endangered Species Act. Transportation to this site would necessitate crossing the Colorado River and many other perennial and ephemeral streams and washes. Truck transport to this site would increase deer and elk vehicle collisions and threaten other species of wildlife.

Transportation Methods

Railroad transportation to off-site disposal areas would have the least impact to wildlife resources and habitat. The resulting increase in animal-vehicle collisions from increased truck traffic on US-191 makes the trucking option undesirable. Truck traffic will substantially increase anyway, as borrow materials are transported under either action alternative. To truck the contaminated materials to an off-site disposal area would create an unnecessary risk to several high profile wildlife species including, desert bighorn sheep, mule deer, elk, Gunnison sage-grouse, golden eagles, white-tailed prairie-dogs, and potentially black-footed ferrets (federally listed as endangered).

The UDWR is concerned that the slurry option will cause unnecessary depletions in the Colorado River and further impact habitat for endangered fish species. Although such depletions are mitigated under the Upper Colorado River Endangered Fish Recovery Program, we recommend that this unnecessary impact be avoided by choosing another transportation alternative. The slurry option will also disrupt terrestrial wildlife habitat, especially if it is installed all the way to the White Mesa Mill site near Blanding.

Other Concerns

Borrow Areas

The DEIS discussion of borrow areas does not consider effects to wildlife and wildlife habitat. We suspect these borrow areas may include habitat for several state sensitive

Page 3

species including while-tailed prairie-dog, kit fox, burrowing owl, and ferruginous hawk. Although it is likely that a site can be chosen which will not impact these species, the specific proposed sites should be surveyed for these species and the survey results should be discussed in the forthcoming final Environmental Impact Statement.

Utilization of the Floy Wash borrow area requires round-trip truck traffic on seven miles of Interstate 70. This is an area where golden eagles frequently collide with vehicle traffic, yet no discussion of impacts to golden eagles is made in the DEIS. Road improvements to borrow areas and the resulting impacts to wildlife are also not discussed or mitigated.

Electric Power Lines

Any alternative except the No Action alternative will apparently require some construction of electrical power lines. Any power line, no matter how small, should be constructed in such a manner that raptors or other birds cannot be electrocuted when using the power poles for perches or nest-sites. There are several ways this can easily be accomplished. Perch preventors can be installed on power lines, and wires can be spaced in a manner that is safe for perching birds. Contact our office for details, if necessary.

Colorado River Pump Station

The DEIS was vague about the process for diverting water from the Colorado River for any of the alternatives. There are pumping designs and procedures that can minimize the impact to endangered Colorado River fishes. We recommend procedures detailed in the recovery plan be followed and outlined in the forthcoming final EIS. This should include screens over the intake to prevent juvenile fish from being drawn into the pumps and destroyed.

Black-footed ferret

Every discussion in the DEIS dismisses the possibility of black-footed ferrets. Although it is unlikely that ferrets have moved down into this area from release sites in Colorado and northern Utah, it is not impossible that indigenous ferrets could potentially be found in the Cisco desert. Habitat potential for the species should at least be considered. Anywhere there are prairie-dog colonies, there is potential black-footed ferret habitat.

Burrowing Owls

Both the Klondike Flats site and the Crescent Junction site and nearby borrow areas have the potential for burrowing owls, a state sensitive species. Anywhere there are existing or unoccupied prairie dog colonies, there is the potential for burrowing owls. This is misstated in the DEIS.

Kit Fox

Kit fox is a state sensitive species with habitat and confirmed sightings in the vicinity of Klondike Flats and Crescent Junction. It should be added to the list of species that may occur at those sites and at nearby borrow areas.

Page 4

The UDWR appreciates the opportunity to review and comment on this important project. Notwithstanding the minor exceptions noted above, the DEIS was comprehensive, well written, and thoroughly researched. We hope to continue to work cooperatively with the DOE to implement this project with minimal detrimental impacts to fish, wildlife, and their habitats. Should you require further information, please contact Leroy Mead, habitat biologist, at our Price office (435-636-0274).

The Committee appreciates the opportunity to review this proposal. Please direct any other written questions regarding this correspondence to the Resource Development Coordinating Committee at the above address or call Carolyn Wright at (801) 537-9230 or Kim Frost at (801) 538-7326.

Sincerely,

John Harja Executive Director

Resource Development Coordinating Committee



State of Utah

JON M. HUNTSMAN, JR. Governor

GARY R. HERBERT Lieutenant Governor State of Utah
GOVENROR'S OFFICE OF PLANNING AND BUDGET

Resource Development Coordinating Committee
JOHN A. HARJA
Executive Director

February 9, 2005



Dianne Nielson, Executive Director Department of Environmental Quality 168 North 1950 West P O Box 144810 Salt Lake City, Utah 84114-4810

SUBJECT:

Remediation of the Moab Uranium Mill Tailings - DEIS Project No. 04-4659

Dear Ms. Nielson:

The Resource Development Coordinating Committee (RDCC) has reviewed this proposal. Additional comments were received from the Division of Forestry, Fire and State Lands after our initial letter was sent dated February 9, 2005. The Division of Forestry, Fire and State Lands comments:

The Division of Forestry Fire and State Lands supports moving the tailings because of potential river migration that may breach containment under the on-site disposal alternative.

The slurry pipeline to White Mesa Mill alternative is FFSL's least-favored alternative for off-site disposal. The slurry pipeline would have to cross the Colorado River. A break in the slurry pipeline could result in discharge pipeline contents into the river, thereby adversely affecting sovereign lands and resources.

The Committee appreciates the opportunity to review this proposal. Please direct any other written questions regarding this correspondence to the Resource Development Coordinating Committee at the above address or call Carolyn Wright at (801) 537-9230 or Kim Frost at (801) 538-7326.

Sincerely,

John Harja Executive Director

Resource Development Coordinating Committee

5100 State Office Building, Salt Lake City, Utah 84114 • telephone (801) 537-9230 • facsimile (801) 537-9226

ATTACHMENT 1

U.S. Geological Survey Scientific Investigations Report No. 2005-5022

Initial-Phase Investigation of Multi-Dimensional Streamflow Simulations in the Colorado River, Moab Valley, Grand County, Utah, 2004

by Terry A. Kenney

February 11, 2005

ATTACHMENT 2

Investigation of the Hydrologic Connection Between the Moab Mill Tailings and the Matheson Wetland Preserve

by
Philip Gardner and D. Kip Solomon
Department of Geology and Geophysics, University of Utah

December 11, 2005

Document #559 Rosson, Clay Individual

Dear Don Metzler and DOE Staff-

Even though a preferred alternative was not listed in the Atlas Tailing's Pile DEIS, persuasive argument was made for removal of some material at the mill-site based on the information provided in the report. In the alternative of capping the pile, the EIS states that the pile will eventually subside and reach the water table. Will the increased pressure of capping increase the rate of subsidence? The EIS states that levels of contaminants to the river will be restored to flux rates equivalent to the previous groundwater levels once the base of the tailing pile comes into contact with the water table. An argument could be made that the pile would be left behind for future generations to remove with the addition of the material that would comprise of the proposed cap. This would make future removal even more expensive.

If we were mining and processing uranium in 2005, it would not be taking place on the bank of a major river. Therefore, the mess was left behind from a more naïve time in the 1940's where legal environmental constraints or the awareness of point source contamination did not exist, and the public had little knowledge of cancer or the effects of uranium and radon on human health.

Contaminants of concern listed in the Draft Report are not necessarily emphasizing radioactive metals, the source of radon and ammonia. The plumes of radionuclide and other metal contaminants reaching background levels within miles downstream may be misleading for reassuring the public. In the case of radionuclides, Grand County has many radioactively hot creeks and disturbed uranium mining areas along the Colorado River as well as radioactive geological layers that all combine to naturally and unnaturally increase the background levels in the river.

Lake Powell and Lake Mead have been sinks in the their lake bed sediments for uranium and other metals for the past 50+ year lifespan of the tailings pile due to their anoxic depths. This could continue for hundreds or thousands of years if the pile is capped in place creating places where the pile will continue to increase the background radiation. The river system will continue to concentrate uranium processing metals as they are soluble in their mobile oxidative state and insoluble and immobile when reduced in anoxic waters of deep reservoirs. Sinks such as the reservoirs along the Colorado River will slowly increase their radiation in the depth of their lake beds. Any future disturbance of water flow as during prolonged drought and increasing demand on the waters of the Colorado River will at times create low water levels in the reservoir once again making the metals mobile downriver. Once the metals and other contaminants of concern are in the current in an oxidative state, any attempt at downstream remediation will not be cost effective. It should be said that the cheapest alternative may be removal of the pile because the true cost of leaving the pile on the bank or capping it in place may not be calculable in terms of future effects to human health or downstream remediation efforts.

I truly believe that any money spent on this site should be on removal of material from the pile and processing ponds rather than dumping more material at the site. Immediately spending \$166 Million on material removal by truck would be a more effective means of re-contouring the pile, lessening the subsidence effect, and remediating the hottest areas like processing ponds which are creating larger contaminant plumes than the pile itself. Taking the barrels of materials

out of the pile could also be done in this first stage. Another important step would be to remove a portion of the pile likely to be in contact with the river at higher flood stages.

The DOE should choose the least expensive option of moving the materials by truck to Klondike Flats, and setting up a disposal cell removing as much material as can be for the \$166 Million. A smaller pile can be recontoured, vicinity properties can be remediated, and processing sites adjacent on the mill site can be excavated to the Klondike Flats location. The most important first action would be to make the biggest impact on the site for the least amount of money in the same fashion as the Interim Groundwater Remediation has provided----the biggest effect for the money available. We have a window of opportunity at this time with all the current political momentum to give this site and the river some relief.

Six or seven years ago this pile was not in the media, papers, or discussed amongst politicians. It had only been the subject of scientific studies yet not a part of public discourse. The public was not informed about the nature of this site whether locally or nationally. Information was not readily available about the Atlas Tailing Pile. The pile is no longer a mystery.

I want to thank the DOE office of Grand Junction for providing information for the law makers, and state and federal agencies as well as the public to weigh in on the fate of this site. I still believe that this site should be completely remediated without regard to cost because the awareness to do so in the past did not exist. This is a vestige of the atomic age and military endeavors, and it is all our duty to our national heritage to make sure that this land that we have inherited is not destroyed at the same time that it is defended with nuclear arms and powered by nuclear energy. Moreover, this site is violating the Clean Water Act as it is impairing a water body and Endangered Species Act. There will not likely be a chance to meet TMDL criteria at the Cane Creek location as stipulated by the Utah Department of Environmental Quality in the future if the complete pile is capped in place or the No Action alternatives are followed.

The Atlas Tailings pile is within the watershed of the Colorado River. As part of the eventual comprehensive watershed plan that will be developed for protecting the Colorado River in the upper basin states, sensible efforts should be made to mitigate sites such as this mill site, as well as mining sites just upriver, and the tailings pile submerged beneath Lake Powell to their effects on water quality. Materials should be removed from the mill site not brought to the mill site. If the pile is to be capped, I believe that some of the worst materials should be removed completely from the site first as mentioned. The pile could be recontoured only after the core of highly contaminated sediments and slimes have been removed. Much of the pile near the river would be scaled back away from flood stage and determined if it should be removed from site or relocated on-site. A plan to satisfy all parties for now would be to remove the hottest materials and sources of pollution, and evaluate the next steps once these initial goals were accomplished and plumes re-characterized.

I provide these comments as a private citizen who once inhabited in Grand County, and as a scientist in the field of hydrology and environmental engineering in an effort to bring forth fresh ideas. I do not represent SAIC, my employer, in these comments.

Clay A. Rosson

Document #560 Carlson, Virginia Individual

From: Ginny Carlson [ginny@wyn.org] Sent: Friday, February 18, 2005 9:59 AM

To: moabcomments

Subject: Comments on draft EIS

I have pasted my comments in text below in case you have difficulty reading the MS-WORD formatted attachment. Both the text in the email and the attachment are identical.

COMMENTS ON: Remediation of the Moab Uranium Mill Tailings,

Grand and San Juan Counties, Utah

Draft Environmental Impact Statement, November 2004

(DOE/EIS-0355D)

SUBMITTED BY: Virginia Carlson, Moab, Utah

DATE: February, 17, 2005

To Whom It May Concern:

I am a resident of Moab, Utah and live a few miles away from the tailings pile. I drive by the pile several times a week and am often downstream of the pile. For the following quality of life issues I support moving the tailings pile north of its present location either to Klondike Flats or Crescent Junction.

- 1. The pile is located in a very scenic area bordering both Arches National Park and the Colorado River. The pile is visually ugly and greatly distracts from the beautiful vistas. Residents of Moab should not have to live with this visual impairment just because the current location of the pile was convenient during the uranium era.
- 2. If all or part of the tailings pile was undermined by high waters of the Colorado, the economic impact on Moab would be catastrophic. It would also put downstream river users (including me) at risk for an unknown number of years.
- 3. The Colorado River is one of the great rivers of the west and it must be taken care of. Leaving a large tailings pile on its flood plain does not make any kind of sense.
- 4. All cooperating agencies have agreed that the best long term solution is to move the tailings pile.
- 5. I have been near the pile during the spring winds and have seen dirt and dust blow from the site.
- I have reviewed the draft EIS and I have the following specific comments on the document and on other information I have read about the tailings pile.
- A. Page S-41 Consequences of Uncertainty;
- 9. If river migration and encroachment were to occur to a great degree, significantly lessening the transport distance from the disposal cell to the

river, surface water ammonia concentrations and concentrations of other contaminants of concern could revert to nonprotective levels, and additional engineered remedies or pile relocation could be necessary to meet UMTRCA requirements, potentially increasing program costs by tens to hundreds of millions of dollars. At the extreme, perpetual treatment or mitigation might be required, or the pile would have to be relocated after all on-site reclamation efforts and costs had been committed.

Since the historical tracking of the river is for a very short time frame (100+ years) and the DEIS is supposed to provide a 200-1,000 year solution, the DOE has not proved that leaving the tailings on the bank of the Colorado River is a safe long term solution. Both the State of Utah and the USGS disagree with conclusions use in the DEIS that the Colorado River is migrating away from the tailings pile. Since there is major disagreement among scientists and engineers, and since a miscalculation by DOE could result in moving the pile after it is stabilized at an enormous increase in costs, then a reasonable solution is to move the pile, not cap it in place.

B. Page S-41 Consequences of Uncertainty;

10. If 20 to 80 percent of the tailings pile were washed into the river, it would have serious adverse impacts on the riparian plant and animal life and would affect the health and safety of residents along the river and of river guides who may spend up to 50 days on the river in a given year. Such a flood event could also affect the tourist economy of Moab if users of the river corridor avoided the area after such an event.

There was no suitability study done before the tailings pile was located on the banks of the Colorado River. This location was not selected for any reason other than convenience for transportation for uranium mining. The DEIS contains no proof that the current location is appropriate for long term storage of toxic materials. Again a prudent and reasonable conclusion is to move the tailings pile. If the tailings pile were washed into the river, the DEIS contains no discussion on how the river banks could be cleaned up which makes one come to the conclusion that the river banks could never be made safe for use in the foreseeable future.

- C. COSTS. I have tried to reconcile the costs quoted in the management summary and from Pages 2-180 and 4-40. It appears that the costs in the management summary do not reflect the total costs of any of the options. The EIS must state clearly the costs of EACH option and must provide backward compatible tables so that a reasonably adept person can review the cost tables for errors and omissions.
- D. MOVING OTHER TAILINGS PILES. I understand that there were 22 tailings sites located near rivers. For all others it was deemed appropriate to move them. That is overwhelming evidence that Moab Tailings pile should also be moved away from the Colorado River banks. The DEIS did not specifically discuss remediation of other riverbank sites in the DEIS. Remediation of similar sites must be included.
- E. US GOVERNMENT RESPONSIBILITY. The US Government has a responsibility to clean up toxic materials that it caused. Clean up does not mean capping in place on a flood plain.
- F. GROUND WATER. It is stated in the DEIS (page S-9) that "Ground Water Remediation $\,$
- ? Cost \$10.75 million for design and construction and \$906,000 annually under both on-site and off-site disposal alternatives

? 75 to 80 years to complete under either on-site or offsite disposal alternatives

This does not make any sense. Ground water remediation should not cost the same for a large pile left on the site versus the remediation of "leftover" dirt after moving the tailings. The DOE did not include information that supported this theory. It also does not make any sense remediation should take 75-80 years whether of not the tailings pile is moved. If the pile is not moved, remediation should take much longer.

- G. WIND AND FLOODING. The DEIS assumes that if the Colorado River had a major flood, the waters would be slow moving and flood the lowlands near the current site. What was not mentioned that if the river did this type of flooding, once the flood receded, the dried residue would become airborne during spring winds, which are strong and constant over the entire Colorado Plateau.
- H. REASONABLE SOLUTIONS. The purpose of a DEIS is to discuss reasonable solutions to a problem. There is nothing reasonable about a proposal of using slurry to White Mesa. Why was this alternative even included? Or if it had to be included, why didn't the DOE state that it was not a reasonable alternative as they did on storing the wastes in empty salt mine caverns?
- I. UPRIVER DAM FAILURE. I did not see an analysis of the result of a possible dam failure up river from the Tailings pile except in the Consequences of Uncertainty. A detailed analysis of the upriver dams must be prepared if the DOE wishes to select a Cap In Place Alternative.

Please remember, we are neither smart enough nor strong enough to beat "Mother Nature". The only prudent decision is to move the tailings pile out of the path of potential flooding.

Sincerely,

Virginia Carlson 3136 Far Country Moab, Utah 84532 Email: ginny@wyn.org

Document #567 Lynch, Esq. Robert Irrigation & Electrical Districts Association of Arizona

rage 1 of 1

Cathy Thomas

From: Bob Lynch [rslynch@rslynchaty.com]
Sent: Friday, February 18, 2005 11:59 AM

To: moabcomments

Subject: Draft Environmental Impact Statement on the Remediation of the Moab Uranium Mill Tailings

Please see attached comment letter.

Robert S. Lynch, Esq. Robert S. Lynch & Associates 340 E. Palm Lane, Suite 140 Phoenix, Arizona 85004-4603

Phone: 602-254-5908 Fax: 602-257-9542

E-mail: rslynch@rslynchaty.com

2/18/2005

IRRIGATION & ELECTRICAL DISTRICTS ASSOCIATION OF ARIZONA

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SECRETARY-TREASURER

7567,

ROBERT S. LYNCH ASSISTANT SECRETARY-TREASURER

R.D. JUSTICE VICE-PRESIDENT

E-MAILED ONLY

February 18, 2005

Don Metzler Moab Federal Project Director U.S. Department of Energy 2597 B3/4 Road Grand Junction, Colorado 81503

Re: Draft Environmental Impact Statement on the Remediation of the Moab Uranium Mill Tailings

Dear Mr. Metzler:

We are pleased to write to you to support your efforts to identify a strategy for removal of the Moab uranium tailings pond near the Colorado River in Utah. Your draft EIS identifies that the tailings pond itself is partially located within the 100-year flood plain of the Colorado river. Additional sites likely contaminated around the tailings pond are also more extensively included in the 100-year flood plain.

It seems to us who rely on the Colorado River downstream of this potential disaster that the only sane thing to do is to move the tailings pond out of both the 100-year and 500-year flood plains of the Colorado River. We will not comment on which of the ultimate destinations is best nor will we comment on the various methodologies you have identified for moving the tailings pond. Suffice it to say that any strategy for leaving the tailings pond in place is, in our view, not worthy of further consideration in this EIS. This is a ticking time bomb and it is only a matter of time before it goes off.

Additionally, we are pleased to note that the Department of Energy proposed budget for fiscal year 2006 contains a significant increase in investment in dealing with this problem. The \$26 million proposed for this effort will go a long way toward meeting the ultimate requirement of nearly a half billion dollars for accomplishing this critical environmental cleanup.

Thank you for consideration of our views. Please keep us advised of further developments in this Environmental Impact Statement process.

Sincerely,

Robert S. Lynch Counsel and Assistant Secretary/Treasurer

RSL:psr

Arizona Congressional Delegation **IEDA Members**

SERVING ARIZONA SINCE 1962

Document #568 Weisheit, John

Living Rivers and Colorado Riverkeeper

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LIVING RIVERS

PAGE 02

#568, pl



February 18, 2005

Mr. Don Metzler Moab Federal Project Director U.S. Department of Energy 2597 B 3/4 Road Grand Junction, CO 81503

Sent Via Fax: 970-248-7636

Re: Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement (DOE/EIS-0355D).

Dear Mr. Metzler,

Living Rivers, Colorado Riverkeeper, Colorado Plateau River Guides, River Runners for Wilderness and Colorado Outward Bound West submit the following comments concerned with the Draft Environmental Impact Statement (DEIS) for the Moab Uranium Mill Tailings. Collectively our mission statements promote protection of the natural and cultural heritage of rivers. We would like to thank the Department of Energy (DOE) for their efforts to prepare this DEIS for public review and appreciate this opportunity to participate.

1. Summary

It is our position that the Moab Mill's tailings pile be moved by the existing railroad to an off-site disposal area in the Mancos shale deposits north of Moab. We agree with the Environmental Protection Agency that the Off-Site Disposal Alternative at Crescent Junction is superior to the disposal alternative at Klondike Flats. The site at Crescent Junction is more isolated from human activity, has a thicker deposit of shale and is more protected from the agents of erosion.

It is also our position that the ground water pollution from the Moab Mill site should be remediated to successfully remove all jeopardy to the threatened and endangered species of the Colorado River downstream, including the wetlands of the Moab Sloughs. We are convinced that this can not be accomplished by leaving the pile capped on-site and adjacent to the Colorado River.

Our position also includes moving the pile off-site to eliminate future risks to human health for residents of developed areas along the Colorado River downstream, and to the visitors of federally protected public lands downstream. These public lands include the national parks at Canyonlands and Grand Canyon, the national recreation areas at Glen Canyon and Lake Mead, and the wildlife refuges of the Lower Colorado River Complex. This also includes the water users identified by the Colorado River Compact, specifically Arizona, Nevada, California and the Republic of Mexico.

PO Box 466 • Moab, UT 84532 • (435) 259-1063 • Fax (435) 259-7612 www.livingrivers.org

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Page 2 Mr. Don Metzler

It is also our position that the White Mesa Mill Alternative in San Juan County should be abandoned for the reasons stated by the Ute Nation from the White Mesa Reservation, as presented to the DOE at the public meeting held there on January 27, 2005. This alternative will affect the Ute Nation's quality of life and their values concerning the protection of their culture heritage and their sacred sites.

The DOE must also acknowledge the official position of the City Council of Moab and Grand County Council, which have identified the Off-Site Disposal Alternatives at either Klondike or Crescent Junction as superior. This alternative will meet the objectives and goals of the local citizens in order to remove them from environmental and social harm.

The members of our organizations that live in Grand County strongly object to moving the toxic contents of the Moab Mill site to any other county in Utah. This is a Grand County problem and the impacts from these toxic materials should not be passed on to our neighbors in San Juan County.

2. The DOE is unsuccessful in removing doubt concerning the compromise of the On-Site Disposal Alternative during a probable maximum flood

We are convinced that the tailings pile at the Moab Mill must be moved away from the Colorado River because the suggested reasons identified with the On-Site Disposal Alternative in the DEIS are, at best, speculative.

- a. The Moab Mill site was originally chosen for reasons of convenience and not for reasons of providing long-term environmental protection from the consequences of historic flooding along the Colorado River.
- b. The federal government has already moved uranium waste piles away from the floodplains of the Colorado River and its tributaries and it is reasonable to expect the federal government to remain consistent with this precedent.
- c. Independent scientists have demonstrated that it is reasonable to suggest that Colorado River flooding may compromise the Moab Mill's tailings pile during a probable maximum flood in the next 200 to 1000 years. That ground water remediation may not be geologically feasible with the pile capped in place. These scientists are associated with the National Academy of Sciences, U.S. Geological Survey and academics from the state universities at Salt Lake City and Tucson.
- d. The Bureau of Reclamation manages high dams, both concrete and earthen, on the Gunnison and Dolores rivers. These dams will likely be decommissioned in the next 200 to 1000 years. At some point in this time-period these dams will no longer provide flood control for the downstream environment. It is also possible that, as these dams age and fill with sediment, the spillway mechanisms will experience flood flows greater than the original design specifications, which could result in a possible catastrophic breach that could subsequently compromise a tailings pile capped in place at Moab Valley.
- e. The threat of flooding that could compromise the On-Site Disposal Alternative is significant when considering the intent behind the legislation for protection of downstream resources. This legislation includes the National Park Service Organic Act,

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LIVING RIVERS

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Page 3 Mr. Don Metzler

the National Historic Preservation Act, the Clean Water Act, the Rivers and Harbors Act and the Endangered Species Act. This would also include Executive Orders such as #11990 (wetlands protection) and #13007 (sacred sites).

3. The DOE must ensure consultation with the work performed by the University of Utah at Salt Lake City and the University of Arizona at Tucson

We request that all findings from Mr. Phil Gardner and Mr. Kip Solomon, at the University of Utah at Salt Lake City, be included as a part of the public record for the Final Environmental Impact Statement (FEIS). These studies indicate that ground water remediation at the Moab Mill site would best be served by moving the pile from the river.

We also request that all findings, pending the completion of work now being performed by Mr. John Dohrenwend and Mr. Victor Baker from the University of Arizona at Tucson, be considered as part of the public record for consideration by the FEIS. These studies will concern itself with the effects of a probable maximum flood at the Moab Mill site and would serve as a valuable exercise in the peer-review process of DOE's contractor-based science and engineering reports that are deemed speculative.

We would also request that the work already completed by Mr. Dohrenwend be submitted as part of the public record for the FEIS. Mr. Dohrenwend's reports were recently published in the *Times-Independent*, the weekly paper of Grand County. By using existing photographic evidence from over-flight and satellite imagery, Mr. Dohrenwend has demonstrated that the findings of the DOE contractors concerning river migration are speculative and that a reasonable doubt does exist to conclude that the Moab Mill site could be compromised by a probable maximum flood.

4. The DOE must ensure consultation with applicable federal agencies

The DEIS is not thorough because consultation with the Bureau of Reclamation (Bureau) was not sought in an official capacity. This is an oversight on the part of the DOE that must be corrected. The Bureau is the federal regulatory agency that has jurisdiction over water quality for the Colorado River. The Bureau is also a partner in the Upper Colorado River Endangered Fish Recovery Program and the Lower Colorado River Multi-Species Conservation Program. The Bureau has already produced publications analyzing and modeling a probable maximum flood in the Colorado River drainage and their expertise in this regard should be fully considered.

Some of the dams that the Bureau has designed have had engineering components that have become problematic. Some Bureau dams have failed entirely, such as Teton Dam. The Colorado River basin dams that have had design problems include Fontenelle, Flaming Gorge, Navajo, Glen Canyon and Hoover. The problems include seepage erosion at the earthen dams and river outlet and spillway failures at the concrete dams.

Living Rivers brought this oversight to the attention of the Bureau of Reclamation at Salt Lake City on January 27, 2005. We formally ask DOE that consultation with the Bureau is initiated and that their comments be included in the FEIS.

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PAGE 05

Page 4 Mr. Don Metzler #568, p4

We also remind DOE that a full consultation with the U.S. Fish and Wildlife Service (USFWS) concerning the Endangered Species Act is required for the FEIS. This would include the reasonable and prudent alternatives of USFWS's Biological Opinion.

We also request consultation with the U.S. Geological Survey in the FEIS concerning this agency's recent analysis and modeling of a probable maximum flood in the Moab Valley; *Report 2005-5022* became publicly available on February 11, 2005.

We also request that the State Department should be allowed to weigh in on FEIS concerning U.S. treaty obligations with the Republic of Mexico, and because the Colorado River delta has been designated as an International Biosphere Reserve.

IV. Global warming and climate change

The DOE sponsored the Accelerated Climate Prediction Initiative (Initiative), which was administered by the Pacific Northwest National Laboratory. Much of the consequent analysis and modeling from this Initiative has been recently published and would be useful in the consideration of alternatives for the Moab Mill's tailings pile. We request the DOE consult with the principle scientists of the Initiative for the FEIS concerning the effects of climate change on the Colorado River. The report of the Initiative acknowledges that extreme variables of climate are likely to occur and due to the impacts of increasing greenhouse gases in the atmosphere. Examples of impacts from climate change would include reduced water quality as a result of diminished flows, increased sediment loads, channel narrowing of the river, and catastrophic flooding in local and regional watersheds.

V. Cost analysis

Human health, national parks, endangered species and cultural heritage are priceless things. We will support the DOE to save taxpayer money so that the savings could be applied to other worthwhile service projects to protect the general health and welfare of the American people. However, because it is reasonable to assume that the On-Site Disposal Alternative may fail and that subsequent clean-up costs would be astronomical, the On-Site Alternative should be abandoned for reasons that it would potentially save taxpayer's money in the long-term. The Off-Site Disposal Alternative, though more expensive, provides greater economic and environmental security. The additional cost is therefore justified and potentially serves to be the most affordable alternative in the DEIS.

VI. The river community

People depend on the Colorado River for economic security and for the enrichment of their lives through visitation at Canyonlands National Park and Glen Canyon National Recreation Area. Living Rivers, Colorado Riverkeeper, Colorado Plateau River Guides, River Runners for Wilderness and Colorado Outward Bound West represent various parts of a constituency we call the river community. The intent of this community is to partake in the organizing and participation of river trips through Canyonlands National Park and Glen Canyon NRA. The reasons include recreation, employment, education in the sciences and arts, and the monitoring of the Colorado River's environmental quality and cultural heritage.

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LIVING RIVERS

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Page 5 Mr. Don Metzler

The professional river guides represent the day-to-day users of the Colorado River. Over 300 active professional river guides have hundreds of multiple-day river trips and thousands of one-day trips that have spanned a career, for some, as long as 40 years. Their clients (numbering in the thousands annually) include the general public, special populations, and educational and cultural institutions. Another large constituency of the Colorado River users that are represented by the thousands are the non-commercial river runners who come to enjoy the benefits of Canyonlands National Park for the same reasons as stated above, which includes employment through incidental support services.

The On-Site Disposal Alternative must be abandoned for the reasons that this river community would suffer economic and social hardships should the Moab Mill's tailings pile fail in a probable maximum flood with the eventual outcome of irradiating the river corridor of Canyonlands National Park and Glen Canyon NRA. This could also affect the river community of Grand Canyon National Park and Lake Mead NRA.

In conclusion the risk to the downstream ecosystems and the health of millions of people is much to high to justify keeping the Moab Mill site along the shores of the Colorado River. The principle objective of the Final EIS must be the safe removal of the pile from the Colorado River, to stop the groundwater contamination of the Colorado River and the Moab Sloughs, and to contain these toxic materials at an off-site location in a responsible and efficient manner.

Thank you again for this opportunity to provide comments. Please do not hesitate to contact us should you require assistance in regard to this letter.

Sincerely yours,

John Weisheit, Conservation Director Living Rivers and Colorado Riverkeeper

On behalf of the following groups:

Colorado Plateau River Guides PO Box 344 Moab, UT 84532

River Runners for Wilderness PO Box 17301 Boulder, CO 80308

Colorado Outward Bound West PO Box M Moab, UT 84532

Document #572 Indergard, RG Lantz M. Individual

Kym Bevan

From: Sent:

To:

lindergard@frontiernet.net Friday, February 18, 2005 2:09 PM moabcomments DEIS Comments

Subject:

#572, pl



DEIS Comments.doc

Hello All: Please find comments to DEIS attached. Thank you.

To:

U.S. Department of Energy Grand Junction 2597 B¾ Road, Grand Junction, CO 81503

From:

Lantz M Indergard RG

P.O. Box 443 Moab, Utah 84532

Re:

Comments

Moab Uranium Mill Tailings

Grand and San Juan Counties, Utah

Draft Environmental Impact Statement (EIS)

General Statement

The tailings pile is here to stay. That is the physical and fiscal reality of the present time. Floods may come just like tsunamis. We cannot control this. It's time to get over it, and fix what is fixable. We may not be able to move the pile, but we can mitigate the present source of ground water and surface water contamination. The objective of my comments is to re-focus the DOE on source area remediation, and solicit a technical response.

In general, the DOE needs to demonstrate more innovation with regard to the consideration, testing, and design of groundwater remediation alternatives at the site. The EIS focuses on an outdated pump & treat (P&T) alternative that largely ignores the environmental industry's modern, source area-focused, in-situ alternatives. The alternative identified in the EIS is designed to treat the symptom, and not the cause of groundwater contamination. The estimated time for cleanup (>70 yrs) corroborates this, and subtly qualifies the site for continued, long-term abuse of tax dollars.

Lack of innovation aside, a wasteful amount of characterization work has been conducted to date. This work has **not** been focused on the remedy. As a result, the DOE is planning to implement a long-term, expensive, and outdated technical approach.

Comments and Questions

The DOE has experience with in-situ reductive zone (IRZ) processes, including
permanent reactive barriers (PRB). However, only limited references to these
processes are included in either the EIS (DOE 2004) or Site Observational Work
Plan (DOE 2003). Discussion or consideration of these processes is not expanded

in any of the documents. Modern IRZ processes are not limited to the robust, yet depth-limited and expensive PRB. In addition, these processes are not prone to plugging issues, such as experienced at the Monticello site. The DOE should consider modern IRZ processes, both biological and abiotic, as an alternative, or as a supplement to the planned P&T alternative.

- 2. The P&T alternative is forecasted to remediate groundwater in 75 years with off-site disposal and 80 years with on-site disposal. Making this statement diminishes the value of moving the pile, (particularly the political value), and further diminishes the efficacy of P&T. In addition, a 75-80 year cleanup period suddenly makes the 100-yr flood appear more threatening.
- 3. Oxidizing conditions in combination with microbiological activity are believed to exist beneath the tailings pile and within the aquifer in general. Under these conditions, ammonia species react to form nitrite, nitrate, or nitrogen gas (EIS 2003). This condition is corroborated by the chemically reducing conditions measured in wells located in contaminated areas. Given this condition, and the availability of modern IRZ techniques to enhance this condition, why have in-situ pilot studies not been conducted? Giving this equilibrium a little "push" may literally take decades off of the cleanup time, and will diffuse the concerns of so many stakeholders regarding pollution of the Colorado River.
- 4. The vertically stratified, saline groundwater, and hydraulically conductive aquifer provides a unique remedial opportunity. The higher salinity (more dense) groundwater pumped from the deeper aquifer should be tested as an IRZ reagent delivery mechanism. Groundwater containing 80,000 total dissolved solids (TDS) will sink vertically if injected into 20,000 TDS groundwater due to the density contrast. This is why the deep groundwater is more saline at the site. It is a density-driven equilibrium. A simple simulation of the vertical fate of 80k TDS groundwater injected into 20k TDS groundwater can be easily, and inexpensively conducted using the Sandia Waste Isolation Flow and Transport (SWIFT) model. Even at 20:1 vertical anisotropy, it will sink. Rather than worrying about groundwater "upconing", pilot studies should be conducted to quantify the fate. The resistivity contrast between the two waters is great enough that it should be measurable using conventional cross-well tomography or a mise a la masse technique. Assuming the results of this testing demonstrates a vertical fate, pilot testing should be conducted to determine the fate of various IRZ reagents. The results should be used for IRZ remedial design, and to diffuse the "upconing" concern.
- 5. The toe of the tailings pile is over 2,000 feet wide, yet the groundwater contamination is much less laterally extensive. Conventional IRZ pilot studies should be conducted in the "hot" areas. The pilot studies should include both carbohydrate-type and nano-scale zero valent iron reagents to test both the biological and abiotic response. If the results are positive, the lateral and vertical (spatial) extent of the induced reducing conditions should be investigated. The

current limitation of conventional IRZ alternatives (non-PRB) is the lateral extent of effectiveness. "Lateral extent" is something which no contractor (other than GeoSierra) appears willing, or able to measure. Assuming pilot studies demonstrate that the site is appropriate for IRZ development, a laterally extensive delivery mechanism, including, but not limited to horizontal wells should be considered. This mechanism appears particularly viable with regard to the availability of saline groundwater. Dense (saline) groundwater injected horizontally into the surface aquifer will sink. Ostensibly, the result will be a vertically and laterally extensive IRZ. The challenge of this approach is in the application, not the science.

 The design and costs associated with the planned P&T approach should be reconsidered in light of the site-specific IRZ remedial opportunity. The evaluation should consider the potential reduction of cleanup time.

References

DOE (U.S. Department of Energy), 2004. Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement (DOE/EIS-0355D). November

DOE (U.S. Department of Energy), 2003. Site Observational Work Plan for the Moab, Utah, Site, GJO-2003-424-TAC, U.S. Department of Energy, Grand Junction, Colorado, December.

Document #573 Fong, P.E., Leighton Glendale Water & Power

From: Fong, Leighton [LFong@ci.glendale.ca.us]

Sent: Friday, February 18, 2005 10:45 AM

To: moabcomments **Cc:** Kavounas, Peter

Subject: Moab EIS Comments

Mr. Don Metzler

Moab Federal Project Director U.S. Department of Energy 2597 B 3/4 Road Grand Junction, CO 81503

Dear Mr. Metzler,

The City of Glendale, California, has a population of just over 200,000 and receives about 24,000 acre-feet (over 70%) of our annual water supply from the Metropolitan Water District of Southern California. The threat of the Moab uranium mill tailings to the quality of our water supply from the Colorado River is of considerable concern to our City.

Glendale suffered greatly when our groundwater was lost due to VOC contamination. It took almost two decades and significant expense to restore that water supply with the construction of the Glendale Operable Unit. Considerable resources will continue to be expended in the operation of treatment facilities for decades to come. We have learned the hard way that Ben Franklin knew water quality when he said an ounce of prevention is worth a pound of cure.

We can appreciate that moving the tailings will be a difficult task. However is would not compare to the efforts of remedial treatment if our water supply became contaminated from these tailings.

Thank you for your consideration.

Leighton Fong, P.E. Water Quality Manager Glendale Water and Power 141 N. Glendale Avenue Level 4 Glendale, CA 91206

Document #574 Roberts, Robert E. U.S. Environmental Protection Agency

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8 999 18TH STREET- SUITE 300 DENVER, CO 80202-2466 Phone 800-227-8917 http://www.epa.gov/region08

FER 18 2005

Don Metzler Moab Federal Project Director U.S. Department of Energy (DOE) 2597 B ¾ Road Grand Junction, Colorado 81503

> Re: Draft Environmental Impact Statement, Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, CEQ # 040520

Dear Mr. Metzler:

The Environmental Protection Agency (EPA) offers the following comments regarding potential environmental impacts associated with the long-term management of the Moab uranium mill tailings and associated vicinity properties and clean-up of the contaminated ground water at the site. Since 2001, EPA has participated as a cooperating agency, along with other federal, state, and local governments to analyze the alternatives for remediation of these uranium mill tailings. DOE has provided a technical analysis in the Draft EIS and afforded an opportunity for public comment and review of five different alternatives: one on-site remediation alternative; three off-site remediation alternatives; and a no action alternative. Later this year, DOE will select a preferred alternative as the final remedy and ground water clean-up plan that will be further analyzed in the Final EIS and Record of Decision. We offer the following comments based on our technical analysis of the Draft EIS and related documents.

EPA conducted this review under the National Environmental Policy Act (NEPA) and in accordance with our responsibilities pursuant to §309 of the Clean Air Act (CAA), 42 U.S.C. §§ 7401 et seq., regarding our independent review of other federal agency actions. Certain environmental standards established by EPA apply including limiting radon emissions from the tailings pile under the CAA §112, National Emission Standards for Hazardous Air Pollutants (NESHAPS) at 40 CFR Part 61 Subpart T, and requirements for uranium mill tailings remediation and ground water clean-up under the Uranium Mill Tailings and Remediation Control Act (UMTRCA), 42 U.S.C. §§ 7901 et seq. at 40 CFR Part 192.

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<u>EPA's environmental ratings</u>: Because DOE has not selected a preferred alternative, EPA rated the potential environmental impacts and sufficiency of the information regarding the four action alternatives analyzed in the Draft EIS.

On-site Alternative	Klondike Flats Alternative Site	Crescent Junction Alternative Site	White Mesa Mill Alternative Site	No Action Alternative
EU-2	EC-2	EC-2	EQ-2	not rated

The following is an explanation of the environmental ratings above.

EU (Environmentally Unsatisfactory) The basis for our Environmental Unsatisfactory rating for the On-site Alternative is the potential for prolonged environmental and public health risk that could result from the continued release of toxic contaminants to ground and surface waters because of potential failure of the proposed remedy. The on-site remedy does not include a liner beneath the disposal pile, thus allowing river flooding to continually reintroduce contaminants in to the river. Under such circumstances, the on-site remedy would not satisfy the requirements of 40 CFR 192 and the groundwater protection mandates of the State of Utah. In addition, the river could migrate towards the pile, and the salt-bed underlying the pile could dissolve, over the life of the remedy. Such natural actions would greatly compromise the integrity of the remedy.

EO (Environmental Objections) The basis for our environmental objection for the White Mesa Mill site is that DOE's conceptual plan for tailings disposal will likely be inconsistent with Utah's ground water protection standards. This concern could be corrected by project modifications.

EC (Environmental Concerns) EPA has identified environmental impacts that should be avoided for the Klondike Flats Site and the Crescent Junction Site in order to fully protect the environment. Corrective measures may require additional mitigation measures that can reduce the environmental impact.

<u>Category 2 (Insufficient Information)</u> EPA finds that the draft EIS does not contain sufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment. The identified additional information, data, analyses, or discussion should be included in the Final EIS.

On-site Alternative: The Moab site lies adjacent to the Colorado River, the principal surface water resource for the area, which has been classified by the State of Utah as protected for warm-water game fish and other aquatic life. The River continues to be adversely affected by site-related contamination, mostly because of groundwater discharge. Contaminants from the tailings pile include uranium and ammonia, which during low river flow conditions exceed water quality standards. For example, ammonia concentrations in the River in the vicinity of the tailings pile exceed 300 mg/L, resulting in conditions that are, at times, toxic to native and endangered fish. The on-site remedy would result in

continuing exceedances of water quality criteria over the long term. Indeed, the DOE estimates that after remediation and ground water clean-up, ammonia will remain in toxic concentrations to aquatic life for 80 years.

Presently, river flooding periodically saturates the toe of the pile and continually reintroduces contaminants into the ground water and the river. Moreover, although the draft EIS presents information that supports the notion that river migration may be away from the pile to the south and east, DOE also accepts that the direction of river migration remains uncertain in the long term. Consequently, it is very unlikely that the proposed on-site remedy will be able to provide sufficient long-term pile stability due to the potential for the Colorado River to migrate north and west towards the pile. Additionally, the eventual dissolution of the salt-beds underlying the disposal site will result in prolonged saturation of the toe of the pile. Moreover, the dissolution of the salt-beds will result in subsidence in the vicinity of the disposal site, which will compromise the integrity of the cap, which would lead to radon release and increased rate of water infiltration through the pile.

Based on the above, the on-site alternative, in the long-term will not be able to satisfy the requirements of 40 CFR 192 or the State of Utah's groundwater protection requirements. Consequently, EPA strongly recommends that this alternative be eliminated from consideration because it cannot meet the established purpose and need for the project.

Klondike Flats Site: This remedy would require relocating the Moab tailings 18 miles north to land managed by the Bureau of Land Management (BLM). Klondike Flats is remote and there are no perennial streams or other surface water features in or near this area; therefore, there are no significant aquatic ecological resources or wetlands that would be affected. Truck or rail transport to this site would not require the transport of tailings through a community. The Klondike Flats location has suitable depth to groundwater protected by the impermeable Mancos Shale. Constructing the optional slurry line to transport the Moab tailings would reduce the highway safety concerns, but does not eliminate them, because a substantial portion of the tailings may prove to be unsuitable for slurry transport. This could require significantly more truck transport for the slurry line not considered by DOE. Transport by slurry requires dewatering the material upon arrival at the site to achieve optimal moisture content. This is a concern because if dewatering fails to achieve optimal moisture, there is a risk of increasing leachate volumes and extending the transient leaching time through the disposal cell. It should be noted that rail transport has the lowest accident rate potential. The site has some environmental concerns due to conflicts with recreational vehicles and will require transporting cover material from another location on BLM lands. Because the conceptual cover as designed may result in rain water infiltration due to clay desiccation, selecting a cover design based on a soil-water balance will further reduce infiltration.

Crescent Junction Site: This remedy would relocate the Moab tailings 30 miles north to land managed by BLM. The site covers several square miles of desert terrain and no perennial streams are present. However, ephemeral streams may carry high flow during heavy rains. Because no perennial steams or other surface water bodies are present, aquatic ecological resources and wetlands would not be adversely affected by activities at this site. The Crescent Junction location has suitable depth to groundwater protected by the impermeable Mancos Shale. Truck transport and slurry transport have similar environmental concerns to those we identified for the Klondike site. Rail transport requires a longer haul than the Klondike site, but this does not increase cost significantly since the expense of rail haul is primarily associated with loading and unloading material. Rail transport to Crescent Junction can use the existing separate grade crossings. This site has an environmental advantage compared to other sites, because suitable cover material can be obtained at the proposed cell location resulting in less land disturbance. As noted above for the Klondike Flats site, DOE's proposed disposal cell cover may allow leachate movement; therefore EPA suggests selecting a cover design based on a soil-water balance that will further reduce infiltration.

White Mesa Mill Site: This remedy would co-locate the Moab tailings 85 miles south to privately-owned lands at the uranium mill managed by the International Uranium (USA) Corporation (IUC). Other than the tailings disposal ponds, no perennial surface water is present at this site. Wetlands at the site are restricted to very small areas. In addition, there is also a concern with the adequacy of ground water protection from disposal of uranium mill wastes at this site. IUC is in the process of installing a double cell liner in order to meet Utah's Ground Water Protection Program requirements. Changes to the design of the proposed disposal cells are needed to adequately protect ground water in the Burro Canyon formation, which is the uppermost aquifer. DOE acknowledges that this could potentially contaminate surface springs within several thousand years. Such contaminants could contain uranium, other radioactive constituents, and mill-sourced pollutants. This site may require significant improvements to the proposed waste cell design in order to assure compliance with the ground water protection requirements for the State of Utah.

Transportation concerns and long-term risks to ground water of this remedy, as proposed and designed, could be significant unless additional design measures are implemented. Truck transport along narrow US-191 presents a high risk of vehicular accidents and would significantly increase noise in the communities of Moab, Monticello, and Blanding. Slurry transport has similar environmental concerns to those we identified for the Klondike site and would also disrupt wetlands by crossing the Scott Matheson wetlands preserve and impact numerous Anasazi-culture or older archeological sites.

DOE also needs to consider that locating these tailings at the White Mesa Mill site adversely affects ten or more Native American traditional cultural properties. The Ute Mountain Ute Tribe, which represents the White Mesa community four miles

south of the mill, does not support selection of the White Mesa Mill site, due in part, to the predicted impact to these traditional cultural properties.

No Action Alternative: Under the No Action Alternative, no contaminated materials would be remediated or removed from the Moab site. EPA is not rating the No Action Alternative, because the Agency does not believe this is a feasible alternative considering the stated purpose and need and applicable environmental laws and regulations. If DOE identifies the No Action Alternative as a preferred alternative, EPA will fully analyze and rate the alternative at that time.

Thank you for the opportunity to review and comment on DOE's alternatives to remediate the Moab uranium mill tailings pile, one of a few remaining uranium mill tailings piles located within a river floodplain. In conclusion, we suggest DOE fully consider the benefits of either the Klondike Flats site or the Crescent Junction site using rail transport in order to provide a secure geologic setting that offers the best opportunity for long-term public health and environmental protection.

Based on the rating for the On-site Alternative, we may refer this matter to the President's Council on Environmental Quality unless a satisfactory agreement can be reached. We would like to formally consult with DOE regarding the two alternatives that EPA rated as "Environmentally Unsatisfactory" and "Environmental Objections." Please contact me at (303) 312-6308 to begin our consultation process. Your staff may wish to contact Weston Wilson at extension 6562 regarding NEPA procedures, Robert Duraski at extension 6728 regarding 40 CFR 192 and the NESHAPS standards, Paul Mushovic at extension 6662 regarding remediation engineering and material transport, and Helen Dawson at extension 7841 regarding ground water clean-up.

Sincerely,

Robert E. Roberts Regional Administrator

Enclosure

cc: David Wood, National Park Service, Moab, Utah
Margaret Wyatt, Bureau of Land Management, Moab, Utah
Henry Maddox, Fish and Wildlife Service, Salt Lake City, Utah
Myron Fliegel, Nuclear Regulatory Commission, Washington, D.C.
Ken Jacobson, Corps of Engineers, Grand Junction, Colorado
Bill Sinclair, Utah DEQ, Salt Lake City, Utah
Selwyn Whiteskunk, Chairman, Ute Mountain Ute Tribe, Towaoc, Colorado
Rick Bailey, San Juan County, Monticello, Utah
Judy Bane, Grand County, Moab, Utah
Chris Webb, City of Blanding, Blanding, Utah
Patrick McDermott, Bluff Service Area Board of Trustees, Bluff, Utah
Harold Roberts, IUC, Denver, Colorado

Detailed Comments by the U.S. Environmental Protection Agency on the Draft Environmental Impact Statement for the Remediation of the Moab Uranium Mill Tailings

Grand and San Juan Counties, Utah

A. Description of the Proposed Action: DOE has been given responsibility for the now-abandoned Moab uranium mill tailings site near Moab, Utah. These tailings consist of approximately 12 million tons of previously milled uranium ores which contain radioactive materials that exceed concentrations limits set to protect human health as established in 40 CFR 192. DOE intends to take action to remediate the Moab site in accordance with UMTRCA Title 1. DOE is proposing to: 1) remediate these approximately 12 million tons of contaminated material, 2) remediate about 40,000 tons of contaminated material located in Moab, known as 'vicinity properties' consisting primarily of residential and commercial buildings in the Spanish Valley, and 3) to develop a ground water remedy to clean up the contaminated ground waters underlying the tailings site. The alternatives analyzed in detail include either on-site or off-site locations to place these contaminated materials in a secure location. DOE needs to demonstrate for these remedies that the disposal cell cover and liner, institutional controls, and custodial care as required under UMTRCA, would be capable of providing long-term protection for at least 200 years or longer

B. Environmental and human health risks if no action is taken: The information provided by DOE, the National Academy of Sciences, and others demonstrated that a remedy must be capable of providing reliable long-term protection for people and the environment. If the tailings pile were left in place without remediation, the pile could emit radon gas, causing human health risks on-site.

For stream water quality, the primary contaminant of concern at the tailings pile includes uranium and ammonia. Uranium concentrations above 5 mg/L can occur in the river near Moab Wash which is about one hundred times the EPA-established requirement for uranium in drinking water of 0.044 mg/L (30 pCi/L). Ammonia currently exceeds 1000 milligrams per liter (mg/L) in ground water and at times exceeds 300 mg/L in river backwater areas which is toxic at times to native and endangered fish. These concentrations exceed by a factor of 100 the aquatic toxicity criteria for ammonia, which is 3.0 mg/L based on the hardness, temperature and alkaline pH of the Colorado River. The pile without remediation is likely to leach ammonia in toxic concentrations to aquatic life for centuries or even up to 1500 years.

C. Comments of the application of certain regulatory requirements. In 1982, EPA produced the Final Environmental Impact Statement for Remedial Action Standards for Inactive Uranium Processing Sites to support the standards in 40 CFR 192 (EPA 520/4-82-013-1). This Final EIS document will be referred to as the 40 CFR 192 EIS. DOE, the Nuclear Regulatory Commission, and other federal agencies reviewed and commented on the Draft of the 1982 EIS. In many cases, statements and risks as

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presented in the Moab EIS differ significantly from the 40 CFR 192 EIS regarding application of the 40 CFR 192 standards. We suggest that the DOE's Final EIS for Remediation on the Moab Uranium Mill adopt the same procedures and conclusions used to calculate human cancer risks as presented in EPA's 40 CFR 192 EIS.

Section 112 of the Clean Air Act is the legislative authority used by EPA to establish the National Emissions Standards for Hazardous Air Pollutants (NESHAPS). The Draft EIS indicates that NESHAPS requirements for radon flux do not apply during active remediation. NESHAPS requirements under 40 CFR 61 Subpart Q do not apply after final disposal or during periods of active remediation for Title II sites. However, Subpart T of the NESHAPS requirements is applicable two years after a Title I uranium mill site has become inactive (See 40 CFR 61.220 and 61.222 (b)). The Moab Uranium Mill tailings pile has been inactive and under DOE's authority for longer than two years. The Subpart T rule states that such tailings piles are required to meet the 20 pCi/m²-s Radon (Rn-222) flux standard unless a compliance agreement is reached because it is not physically possible for the owner or operator to complete disposal within the two-year time frame. DOE's selection and implementation of its remedy to be defined in the Final EIS and the eventual ROD would likely satisfy the latter condition. It should also be noted the DOE is in compliance with Order 5400.5 as described in the Moab Annual Site Environmental Report (DOE-EM/GJ677-2004).

The calculation of radon daughter concentrations above the pile may not be consistent with 40 CFR 192 methods. The radon concentration above the pile is listed as being at 0.096 working level (WL) which corresponds approximately to 21 pCi/L of radon gas. Were both of these numbers the result of samples, or was an Equilibrium Ratio (ER) assumed? If an ER was assumed, it may not be valid. An ER of 0.45 above a tailings pile appears to be large since the samples were collected at a location where the radon decay daughters would have been removed when air migrates out of the tailings. Stripping of the radon daughter products should result in a lower ER as described in the 40 CFR 192 EIS. See page 46 of that EIS regarding in growth of radon decay products.

Department of Transportation (DOT) Transport Exemption. On January 26, 2004, the DOT changed the hazardous materials transportation rules as described at 49 CFR 171, 172 et al. Compliance with this new rule may mean that the Moab uranium mill tailings will have to be transported as Class 7 material. If the current exemption for these mill tailings from Class 7 material transport rules is no longer valid, this would increase the cost and time, due to the limited availability of Class 7 shipping containers. DOE should verify whether the current DOT hazardous waste transport exemption is still in effect under this new rule and state this in the Final EIS and recalculate costs and schedules accordingly.

D. Comments on the Alternatives

1) Cap-in-Place On-site Because the tailings pile may continue to serve as a source of contamination for several hundred years, it will be difficult to achieve the remediation target goal in 80 years. The uncertainty of length of time needed for

completion of the ground water clean-up remedy on-site should be clearly stated as part of DOE's upcoming decision to select a preferred alternative.

The key assumption used to estimate drainage from the tailings pile is that the infiltration rate after construction of the cap will be 1×10^{-8} centimeters per second (cm/s.) Other similarly constructed caps have shown that this low infiltration rate is difficult to engineer and maintain and therefore is likely to be higher. If the rate of infiltration through the cap is a magnitude greater, at 1×10^{-7} cm/s, drainage from the tailings pile will be an order of magnitude greater, significantly affecting the estimates of the impacts of the tailings pile on ground water contaminant concentrations. The result will be much higher concentrations in ground water, which may adversely impact surface water after the projected 80-year operation period for the ground water remediation system. The Draft EIS indicates that the infiltration rate through the tailings will decrease from the current conditions to 10^{-8} cm/s following construction of a cover. This would suggest that the gravity drainage would decrease from an estimated 8 gpm to 0.8 gpm with resulting transient drainage decreasing from the present estimate of 12 gpm to having no transient drainage within 20 years. Constructing a cover on the site meeting these hydraulic conductivities is problematic based on monitoring of other similar covers over time.

Long-term risks to maintaining pile stability without remediation are due to the well-established risk of river flooding. Four flood events since the 1880s had a river stage high enough to inundate a portion of the tailings pile. As noted in our cover letter, river flooding is a significant long-term management problem that is compounded by unstable geologic conditions associated with possible river migration and dissolution of the underlying salt-beds. EPA concludes that selection of an off-site remedy, which would avoid these geologic uncertainties, is needed in order to secure that DOE's long-term protection goals be achieved.

A very large flow event in Moab Wash may compromise long-term pile integrity. A probable maximum flood (PMF) in Moab Wash could occur during the summer rather than late spring snow-melt affected conditions which are more typical of Colorado River flooding conditions. We suggest the Final EIS provide more information than that provided which indicates that such flood flow velocities would be quite low over the Moab Wash bank. In the event of a such a catastrophic storm event in the Moab drainage basin, flows in Moab Wash could cause a re-routing of this stream channel and may undermine and potentially remove a portion of the engineered pile. Tailings and debris from the flood would be deposited on river banks and along sandbars immediately downgradient from the confluence of Moab Wash and the Colorado River.

2) Klondike Flats Alternative Site: This site does not have geologic uncertainties like that on-site. The Klondike Flats location has a depth to groundwater protected by approximately 1000 feet of the impermeable Mancos Shale. Constructing the optional slurry line to transport the Moab tailings would reduce the highway safety concerns, but does not eliminate them, because a substantial portion of the tailings may prove to be unsuitable for slurry transport. This could require significantly more truck

transport for the slurry line not considered by DOE. The site has some environmental concerns due to conflicts with recreational vehicles within the same valley. Borrow materials for cover material will need to be hauled from locations on BLM lands.

- 3) Crescent Junction Alternative Site: This site also lacks the problems with future geologic uncertainties like that on-site. The Crescent Junction location also has suitable depth to groundwater protected by approximately 4000 feet of impermeable Mancos Shale. Although rail transport requires a longer haul than the Klondike site, this does not increase cost significantly, as the costs are principally related to the conveyer operational costs associated with loading and unloading material. Rail transport to Crescent Junction can use the existing separate grade crossings under US-191 and Interstate 70. This site has an environmental advantage compared to other sites because suitable cover material can be obtained at the proposed cell location resulting in less land disturbance.
- 4) White Mesa Mill Alternative Site: The White Mesa site is overlain by windblown soils and there is a perched ground water table in the Burro Canyon Formation
 immediately underlying the site. DOE proposes waste cells to meet UMTRCA standards.
 EPA does not object to the application of UMTRCA requirements for geologically
 suitable site conditions. However, this site will require significant improvements to the
 proposed waste cell design in order to assure long-term compliance with the more
 rigorous ground water protection requirements of the State of Utah. For example, the
 design that is presently being employed for the reconstruction of disposal cell 4A would
 meet the groundwater protection regulations for the state of Utah.

Transportation concerns and long-term risks to ground water of this remedy, as proposed and designed, could be significant unless additional design measures are implemented. Truck transport presents a high risk of vehicular accidents. The increase in truck traffic along US-191 would be up to 1200 trucks per day resulting in almost a doubling of the truck traffic along this highway.

There will be a significant increase in ambient and night-time noise in the communities of Moab, Monticello, and Blanding. Since US-191 passes residential properties in Moab, residents in these homes could be exposed to noise levels above the Moab residential standard of 65 dBA. As haul trucks increase their speed south of Moab, the area that will experience ambient noise conditions greater than 65 dBA will be over 400 feet from the highway (Draft EIS at page 4-139.) Residents in Monticello and Blanding will also likely experience noise levels above this standard, even though speed limits are 30 mph within these communities. Because these communities now experience little nighttime disruptive noise conditions, this will result in a significant impact to these residents.

E. Comments on the Transport Alternatives:

Truck and Rail Transport: Alternatives to using petroleum diesel fuel –
 For the truck and rail transport options, DOE should investigate the environmental and

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equipment operational advantages of using a mixture of vegetable oil and diesel fuels known as biodiesel. Combustion of biodiesel fuels emits less carbon monoxide and offers up to a 10 to 15 percent reduction in particulates and hydrocarbon emissions compared to petroleum diesel. Using biodiesel fuels results in releasing less climatechanging CO2 emissions based on initially capturing atmospheric carbon during oil-plant growth. Usually these fuels are produced from dry-crop farming of soy, canola or mustard seed, which do not require supplemental irrigation water. Heavy equipment run on twenty percent blend of vegetable oil and petroleum diesel, known as B20 fuel which is 20% vegetable oil and 80% petroleum diesel, has proven reliable in winter conditions with climates more severe than eastern Utah. The twenty percent blends, or lower, do not gel in severe cold. Biodiesel fuels provide engine operational advantages due to their viscosity properties which may extend engine life and reduce engine maintenance requirements. Biodiesel can also increase engine efficiency because it has a higher cetane rating than petroleum diesel. Although B20 fuel costs more than petroleum diesel fuel, a renewable energy subsidy will become effective in 2005 for blender of biodiesel fuels. This federal subsidy will provide one cent per percent of blended vegetable oil to the fuel blender companies. This means that a blender of B20 biodiesel fuels will receive a tax credit of 20 cents per gallon which could offset the cost differential so that B20 biodiesel fuel prices may then equal the cost of petroleum diesel.

- 2) Rail Transport: DOE has indicated that as many as 2,200 trucks would be required to transport oversized and demolition debris to the off-site alternatives. The upper size-limit constraint for a conveyor belt might be several inches to a foot in diameter. Therefore, if the pile contains additional oversized material than currently estimated, this should not be a significant issue for rail transport.
- 3) Slurry Transport: The average particle size is critical to operating the slurry pipeline option. The upper-size constraint for the slurry pipeline will be less than .03 inches. The amount of material unsuitable to be slurried could be a significant problem with potentially tens times as much material in the pile that must be truck-hauled if the slurry line is selected. The Final EIS should also include a thorough discussion of the uncertainties associated with the process of evaporative drying of slurried tailings in order to meet optimal moisture content for placement and compaction. Once placed into a cell, even if placed at optimal moisture content, transient drainage will continue for perhaps 25 years. If the tailings were to be placed at conditions above the optimal moisture content, then transient drainage from such tailings may extend considerably longer. Because the Mancos Shale beneath the Klondike and Crescent Junction provides much greater protection to surface and ground water than does the White Mesa site, the differences in slurry transport by alternative should be defined. DOE has estimated that the Klondike site and Crescent Junction site would provide ground water protection for upwards of 25,000 years. At the White Mesa site, it is estimated that ground water travel time to points of exposure at surface springs is estimated to be within 3,600 years. A possible discharge point is Ruin Spring, located about two miles south-southwest of the White Mesa Mill.

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The possibility of pipe ruptures or leaks and potential contamination of underlying ground water and surface water resources needs to be discussed. The proposed slurry pipeline route to Klondike Flats crosses an area of shallow groundwater in the Cedar Mountain Formation. The slurry pipeline route to White Mesa crosses the Colorado River and Matheson Wetlands. Ruptures in any of these areas could result in undesirable environmental consequences and this should be addressed in the Final EIS.

F. Comments regarding groundwater remediation

- 1. The time frame for operating a groundwater remediation system is given as 75 years for the off-site alternatives and 80 years for the on-site alternative. EPA agrees with the estimate for the off-site alternatives, but believes the time frame for the on-site alternative should be expressed as much longer range, for example, 80 1000+ years considering the very large uncertainties in the concentrations leaching through the tailings pile and long time frame the tailings pile is likely to serve as a source of leachate. The 80-year time frame is intended to represent only the period needed to flush the legacy plumes and not potentially more leaching that could result if the cover failed to all subsequent additional infiltration.
- Several long-term impacts of the on-site alternatives need to be discussed in the summary section, including:
 - a. The high ammonia concentrations (one order of magnitude higher than current concentrations) that are anticipated to exit the tailings pile in approximately 1000 to 1500 years and potentially adversely impact ground and surface water concentrations for hundreds of years.
 - b. The rate at which salt-bed-based dissolution subsidence under the pile could lower the pile relative to the Colorado River level which may be 1 to 1.5 foot per 1000 years. In the near term, this may lead to wetting of the base of the pile during high river stages and potentially increased contaminant concentrations entering the groundwater system. In the longer term, the subsidence will result in permanent tailings contact with the ground water.
- 3. The EIS addresses only ammonia standards, as these are currently the driver for surface water impacts. The assumption is made that the other constituents of concern will be reduced to acceptable levels in the same time frame as for ammonia, but no basis is provided for this assertion. The identified constituents of concern have different solution chemistries and sorptive characteristics and, consequently, are likely to have different fate and transport projections.
- 4. Potential to increase the rate of leachate flushing using a pond. The following option for ground water clean-up could be investigated as a means to reduce the length of time necessary to meet surface and ground water criteria. We suggest

evaluation of the advantages of creating a new hydraulic head in order to more rapidly drive the ground water plume. For the off-site alternatives, the area exposed after tailings pile removal could be designed for a shallow pond of from 4 to 6 feet. With an increased hydraulic head driving the legacy plume, the ground water and surface water quality may be able to meet standards sooner, thus reducing costs of the proposed ground water clean-up remedy.

G. Comments regarding the cell cap design:

DOE should emphasize that the assumptions related to capping performance for on-site remedy critically affect the estimated time to achieve the ground water remedy. The critical assumption to constructing and then maintaining the cover to assure hydraulic conductivity remains at the 10⁻⁸ cm/sec infiltration limitation. If this is not assured, contaminants may leach into ground water at a significantly higher rate and persist longer than currently predicted by DOE.

The advantages of a waste cell cap design based on achieving a water balance through soil and vegetative evapo-transpiration (ET) should be investigated. DOE participated with EPA and the State of Utah in the final design and construction of an ET-water balance cover for the Monticello Mill Tailings Site. EPA's Alternative Cover Assessment Program, a program that DOE has participated in, has also shown the advantage of similar type construction in semi-arid environments. We believe that the 10 -8 cm/s hydraulic conductivity that DOE needs to attain on the cover for the cap-in-place alternative is more likely to be assured with an ET - water balance cover.

EPA studies in the ACAP program have suggested that constructing covers with compacted clay liners to achieve hydraulic conductivities of 10⁻⁷ cm/s has been difficult, requires extensive QA/QC, and in the long term may be problematic. Will there be lysimeters or other moisture probes in the cover to determine if the necessary saturated hydrologic conductivity and or flux through the cover is being met? Although the initial UMTRA program requirements included predictive modeling methods must show success, the latest revision of DOE's Technical Approach Document (page 220) recognized that monitoring of the cover to assure that performance criteria were met might also be necessary.

Evidence from the Monticello water balance - ET cover, indicates that the hydraulic conductivity has met or exceeded the design criteria. The Monticello cover performance data shows that the NESHAPS requirements for radon emissions were adequately met following placement and compaction of the vicinity property material. The clay barrier constructed over the vicinity property material provided redundant protection for radon emissions.

The need for a bio-intrusion barrier will depend upon the risks to cover integrity from the terrestrial rodent species present and any other rodent species which might occupy the area following completion of waste disposal cell. What additional studies will DOE conduct before making a decision as to whether or not a bio-intrusion barrier will

be required? Should a bio-intrusion barrier be required, then additional rock material (cost and transportation impacts) has not been considered in the present scenarios. In addition, if construction of capillary barrier in a six-inch lift across the entire cover appears to be prohibitive due to constructability problems, then perhaps a one-foot lift would be required to meet the performance goals assumed in the design. Based on EPA's review of the conceptual design, as much as 18 additional inches of rock material over the entire cover might be required. These quantities have not been addressed in either the cost or transportation segments of the EIS or the impacts upon potential borrow areas. Note that for the Crescent Junction site, rock material necessary for both the capillary break and/or a bio-intrusion barrier appears to be available from sources close to these sites or necessary materials could be hauled in by rail to avoid additional truck hauling through Moab.

H. Comments by page number:

Executive Summary, Page S-8 Off-Site Disposal, and second sentence: DOE estimates that the total volume of material to be removed from the site is approximately 11.9 million tons. However, DOE recently provided information that the contaminated soil adjacent, or off-pile, was at least twice the volume used to provide the 11.9-millionton estimate (i.e., off-pile contaminated soil has increased from 234,000 tons to greater than 500,000 tons). DOE has also used in its projections a contaminated sub-pile soil thickness of only 2 feet (which results in sub-pile amount of 566,000 tons). This thickness and volume was based on limited bore hole data. EPA believes that the sub-pile contaminated thickness is understated significantly and is not supported based on conditions found at other UMTRCA piles. In order to quantify the range of materials for the alternative transportation modes, it would be prudent to use a higher estimate, perhaps up to 13 million tons. This would allow for volumes associated with off-pile contamination and contaminated materials needing removal beneath the pile.

Page S-10 Ground Water Compliance Strategies: The enclosed text indicates that DOE may apply for supplemental standards. Supplemental standards have to be approved by the NRC. Does the NRC support the application of supplemental standards for ground water at this site?

Page S-10; Section 1.4.3 Groundwater Remediation: Last paragraph; Section 2.3.2.2. Implementation of Ground Water Remediation. Figure 2-42; Section 2.3.2.4. Active Remediation Operations; Section 2.6.1. Impacts Affecting the Moab Site and Vicinity Properties....; Table 2-32. In each of these sections, the time frame for the onsite alternatives should be expressed as a range (such as from 80 – 1000+ years) to account for the significant uncertainties in the concentrations leaching through the tailings pile and the long time frame the tailings pile is likely to serve as a source of leachate. The 80-year time frame represents with any certainty only the period needed to flush the legacy plumes.

Page S-10 Ground Water Remediation: The second paragraph on this page identifies ammonia and other site-related constituents. Please identify the other

constituents that have elevated concentrations in the Colorado River adjacent to the site. Are there concentrations or volumes in the pile that could cause excessive environmental damage in either the short-term or long-term scenario?

Page S-12 Disposal Site, Transportation, and Vicinity Property Impacts, Geology and Soils Note that the estimate of approximately 234,000 tons of contaminated site soil needs to be increased per DOE's subsequent estimates. Please also consider the impact on the amount of soil that would be necessary to reclaim the site. DOE has indicated that 424,867 yds³ of material would be brought back to the site for reclamation in the event that the pile is moved. Since much of the remaining off-pile contaminated material appears to be at the toe of the pile and/or in levees constructed during operations at the site, does DOE believe this estimate for reclamation is adequate or should this be increased?

Page S-14 Surface Water: DOE states that the removal of the pile coupled with the estimated 75 years of active ground water remediation would result in permanent protection of surface water quality. In the next sentence, DOE suggests that equal protection will be provided for the on-site disposal alternative if active ground water remediation continues for an estimated 80 years. DOE should mention the critical assumptions under which this will occur and how this is connected to the designed hydraulic conductivity of the cover of achieving the 10⁻⁸ cm/sec design and how would this time be extended due to the potential effects from a 100-year and or 500-year flood event?

Page S-17 Cultural Resources: Because 20 to 25 cultural resource sites potentially impacted with the Klondike and Crescent Junction alternatives are principally due to the slurry pipeline new construction and the new Klondike borrow areas, this summary seems to overstate these cultural resource impacts with respect to both the truck or railroad alternative transport methods.

Page S-19 Visual Resources: The newly constructed disposal cell need not necessarily have a strong contrast with the surrounding natural landscape. This will depend on the final cell configuration, the materials used to construct the cover, and other landscaping that DOE employs to mitigate the contrasts. Elsewhere in the EIS it states that the present pile has a moderate contrast with the surrounding landscape. If proper materials are selected, it would appear that the final disposal cell would not be significantly different from the current moderate contrast to visual conditions.

Page S-33 text and Figure S-24 Borrow Material: Based on prior experience by EPA staff, we believe the amount of rock riprap and the gravel necessary for construction of an adequate capillary break may be underestimated. The construction of a 6-inch capillary break across the pile may have significant constructability and performance issues. If a bio-intrusion layer were needed, it would also increase the amount of rock required for the on-site cell significantly.

Page S-34 Consequences of estimating cost and impacts, third paragraph: This states that: "DOE has employed reasonable conservatism in characterizing the costs, resources and impacts..." However, the volume of material could be greater, diesel prices may increase, and the schedule may be extended. DOE estimates a total volume of tailings of 11.9 million tons; however, the volume of tailings that was eventually moved at other UMTRCA sites usually exceeded the volume characterized during the planning period by significant percentages. If DOE would use an estimate of 13 million tons to estimate cost for off-site disposal, this might better reflect upon this prior experience. Second, diesel fuel prices have increased significantly since the initial draft EIS information was prepared. DOE's proposed schedules are optimistic projections. During public presentations, the DOE staff usually identify that its predicted schedules are optimistic and may not be realized. Significant time delays will also increase the overall cost.

Page S-36 Table S-1, Ground Water and Site Conceptual Model
Assumptions: A significant uncertainty which needs to be addressed in the Final EIS is
the problem of constructing a cap or cover which will retain the necessary hydraulic
conductivity over the long term (cover capable of assuring a hydraulic conductivity of
less than 10⁻⁸ cm/sec).

Page S-38 Table S-1, Consequences of underestimating mass and volume of excavated contaminated soil and reclamation soil: DOE states that under the on-site disposal alternative, there would be a commensurate increase in the amount of material to be disposed of in the Moab pile (surcharge). If DOE intends to construct a convex cover with positive drainage, the existing bowl within the concave repository could accommodate the off-pile contaminated materials. As stated previously, there are other reasons to believe that the amounts of material to reclaim the site and construct the repository cover may be significantly underestimated.

Page S-45 Table S-1 Consequences of low cost estimates: The uncertainties of cost projections of each alternative should be highlighted, since the uncertain factors included in this table could result in significant cost changes to each alternative, perhaps on the order of 50 percent greater than the present cost estimates, if the worst case of each uncertain factor did occur.

Page S-47 Major Conclusions, fourth bullet: There are many uncertainties as to whether the construction and performance of the cap-in-place will perform as designed. If the cap fails to perform as designed, this will potentially impact the length of time necessary to remediate the ground water because maintaining the design hydraulic conductivity of the cover over the long term will be difficult to assure.

Page S-47 Major Conclusions, fifth bullet: The way that this statement is worded suggests that the White Mesa Mill already has a cell constructed. While the IUC Corporation has received a permit for a cell suitable for disposal of the Moab tailings, a final cell design may require extensive modifications prior to attaining final approval. The overall impact of constructing the cell at White Mesa and all the ancillary facilities

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that will be required for the slurry pipeline, coupled with the inherent operational uncertainties of such an endeavor, need to be carefully considered and more thoroughly evaluated prior to selecting this alternative.

Page S-47 Major Conclusions, ninth bullet: EPA concurs with DOE that the "No Action" alternative poses the greatest risk to human health over the long term and exposures to the public at vicinity properties poses the greatest risk. DOE should go forward with clean-up of the vicinity properties at its earliest opportunity independent of any delays associated cap-in-place or moving the tailings to an off-site repository.

Chapter 1.0 Introduction

Page 1-7, Off-Site Disposal Option: We suggest that DOE consider increasing its estimate from 11.9 million tons of contaminated material up to 13 million tons. This will provide a more conservative estimate for purposes of addressing overall costs and the transportation impacts associated with the various alternatives. This is also supported by recent DOE surveys which indicate the off-pile contamination has increased to more than 500,000 tons. It will also account for an increase in the depth of contamination beneath the pile based on similar DOE experience at other UMTRCA sites. The estimated depth of contamination beneath the pile of 2 feet is based on limited borehole data and may not include tailings placed in the hole that resulted from the excavation and construction of the berms that surrounded the original tailings impoundment.

Page 1-8, White Mesa Mill: Perhaps DOE should remove the word *likely* in the statement that reads "...expansion of the existing facility would likely be necessary". Such a statement suggests that the disposal cell necessary for the Moab tailings alternative has already been constructed.

Page 1-10, 4th paragraph, 2nd sentence: With all the unknowns surrounding the selection of an alternative, the transportation mode, and clean-up of the off-pile contamination, the statement that the ground water remediation system will be completed in 2009 or approximately 5 years after issuance of a ROD appears to be optimistic.

Chapter 2.0 Description of Proposed Alternative Actions

Page 2-9, Borrow Material Storage Area: EPA recognizes that this is only a conceptual plan. However, we would question the proposed size of the borrow storage area. Based on the sequencing proposed (i.e., radon barrier, sand and gravel, water storage layer and riprap would all need to be available on site to construct the side slopes), does DOE believe five acres would be a sufficient area based on the quantity of materials necessary to maintain a construction schedule and the size and mobility requirements of the tandem trucks that would be hauling the material to the site?

Page 2-20, Section 2.1.3.1 Borrow Material Standards and Requirements, Riprap: Will 12-inch nominal riprap material be adequate to construct the riprap diversion wall necessary to protect the pile?

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Page 2-22 through 2-25, Section 2.1.3.2 Borrow Material Excavation and Transportation Options through Section 2.1.5.2 Equipment: EPA staff provided comments as part of the Cooperative Agency review on the preliminary Draft EIS document, that the number of truck trips, number of trucks, and the number of truck drivers necessary to move borrow materials for reclamation and/or cover materials to the site could not be verified based on the data provided in this section, the accompanying tables and subsequent sections in the EIS. Many of the problems addressed previously still remain in the present draft.

For example, page 2-22 item 4 indicates that approximately 5 trucks would be necessary to haul the borrow material, cover material, and radon barrier material to the site. Elsewhere, Table 2-2 indicates a total of 43 daily round trips are required for the movement of borrow material for the on-site alternative. Table 2-4 Average Annual Labor Requirements indicates that a total of 41 truck drivers are necessary and Table 2-5 indicates that the number of tandem trucks needed to haul borrow materials is 28. These tables and numbers do not appear to be consistent with those presented in Tables 2-16 through 2-21. It is difficult for DOE to establish the costs of the on-site alternative without using consistent sets of information to prepare the project cost estimates.

Page 2-32, Figure 2-13 - Although this is only a schematic, one area proposed for tailings handling raises a potential concern. DOE proposes tailings handling and processing areas within the 100-year floodplain of Moab Wash and the Colorado River (See Appendix D, page D-2). Is it correct that these tailings handling areas will not be lined? The proposed storm control berms and the tailing processing area would be flooded in the 100-year event and perhaps even in a 50-year flood event.

Page 2-49, Figure 2-10 Summary Logistics for Rail Transportation: DOE has estimated there will be 2,188 truckloads of debris which would not be suitable for rail transport because of size constraints and the handling ability of the conveyor belt. Elsewhere in the Draft EIS, the same number of truckloads for transport of debris is used for an off-site alternative, despite the size requirements for transport of particles via the pipeline (i.e., material could not exceed .03 inches in diameter in order to be transported by slurry). What characterization studies have been conducted of the on-site and off-site vicinity property material to substantiate this estimate?

Page 2-51, Line 1 - question follows up on the comment pertaining to Figure 2-10 - DOE has estimated that approximately 35,000 yd³ of oversize debris material would need to be hauled by truck to the Crescent Junction or Klondike Flats disposal site. Further on in Table 2-20, Average Annual Equipment Requirements - Rail Transportation Mode, and Table 2-21 Slurry Pipeline Transportation Mode DOE estimates that 2 to 5 tandem trucks would be required to haul the debris to the Crescent Junction or Klondike Flats sites. Elsewhere (and in a prior response to EPA comments) DOE indicated that debris would be hauled in 16-yd trucks. Please note that these tables need to be changed to reflect 16-yd capacity trucks as stated elsewhere in the document.

Page 2-51, Conveyor System: If rail transportation is going to be successful, the conveyor system and loading facility (hopper at the load-out) will be key pieces of equipment. Assuming continuous operation and the throughput volume of material, the conveyor belt and hopper system will need to have a capacity of approximately 500 tons an hour to sustain a schedule of loading four (4) trains per day. To provide some certainty in the loading of a train, it may require that the hopper have the capacity to fill out a complete car set of 30 cars at 100 tons per car for 3000 tons per train. This information should be included in the Final EIS.

Page 2-52, Klondike Flats Site Rail Construction and Reclamation and Figure 2-22 — The Final EIS should include the explanation that this is a conceptual plan and suggests one possible site configuration for providing access to the Klondike Flats site. Alternate access and egress sites are possible and will need to be evaluated carefully prior to settling upon a final design.

Page 2-77, Soil Rock Admixture Layer - This paragraph indicates that the maximum diameter of the rip-rap material would be 12 inches. However, the intended thickness of the rock admixture layer is only six inches. Although a nominal riprap of 12 inches may be appropriate and constructible for the side-slopes over the buttress, it may not be readily constructible over the cover, nor is it desirable as part of the water storage component of the cover.

Page 2-82 Table 2-17, Average Annual Labor Requirements - Rail Transportation Under the heading 'Transportation Labor', please re-evaluate the need for 3 to 6 truck drivers to haul debris or oversize material. Based on DOE's estimates of the volume of debris that would need to be hauled by truck to the Klondike Flats and Crescent Junction sites, this number of truck drivers appears to be high. However, this number may be appropriate for the White Mesa alternative site because of the time needed to complete each round trip for this significantly longer haul distance.

Page 2-83, Table 2-16, Table 2-17 and Table 2-8 Average Labor
Requirements - Slurry Pipeline Transportation: Why will there be a need to increase the Construction Labor Site Support staff under the double-shift scenario for truck or rail haul? This does not seem appropriate for the slurry pipeline alternative since this is presumed to be a continuous 24-hour daily operation. The text and footnotes for these tables should indicate these dual numbers to indicate the difference for a single shift versus the double shift. Wouldn't site support at Moab need to increase by 67 percent in the two ten-hour shift scenario? This increase in labor for site support is not reflected in the tables.

Page 2-88, Table 2-23, Estimated Annual Fuel Consumption The Final EIS should provide greater detail on the consumption of fuel. This section on fuel consumption is not yet fully supported and rather abbreviated. Figure 2-51 on page 2-127 indicates the comparison of fuel consumption by alternative disposal site and transport modes. The information on this figure should be converted into a table and should replace the existing table on page 2-88.

Section 2.3.2.4. Active Remediation Operations, page 2-107 Table 2-31. This table indicates that remediation target goals will be achieved by the on-site alternative after 80 years of operation of the ground water remedy. This appears to be unlikely, given the certainty that the tailings pile will continue to serve as a source of contamination for hundreds to thousands of years. This issue is discussed in some portions of the EIS (e.g., Page 2-109), but it is not fully considered in the discussions regarding the on-site, cap-in-place alternative.

Page 2-125, Visual Resources - There will be strong visual contrasts at the Moab site during the five-year to ten-year construction period for either an on-site or off-site disposal alternative. However, it is not clear why the on-site alternative would have strong adverse impacts to visual resources during the long term. If the existing pile creates a "moderate" contrast as stated in the Draft EIS, then it is very likely that the final pile after 10 or 15 years would also result in being considered a "moderate" contrast. The present emphasis suggests that the contrast following construction of the cap in place would be a 'strong visual contrast.' This degree of visual contrast will be dependent upon the slope of the pile, and the materials utilized (i.e., soils, riprap and vegetation). The Final EIS for this section should include the mitigation measures as addressed in Section 4 regarding reducing the visual contrast.

Page 2-166, Table 2-33 - Consequences of Uncertainty, Item 1 - Ground Water and Site Conceptual Model Assumptions: EPA technical and professional staff concur that there are tremendous uncertainties associated with the ground water and site conceptual models. However, DOE's assessment that without catastrophic events surface water quality would be sustained for 1000 years cannot be assured. This is because the non-catastrophic events also significantly impact surface and ground water in the relatively short term. For example, what are the impacts for the proposed the cover on the tailings pile if it cannot achieve a saturated hydraulic conductivity flux rate of 10 -8 cm/s? Secondly, we suggest that the 100-year flood should be categorized as a 'catastrophic event.' Based on the recent historical record, there have been at least four such flood events since the 1880's. Such flood events will inundate the toe of the tailings pile and depending on the duration of the flooding, may reintroduce additional contaminants into the ground water plume.

Page 2-167, Table 2-33 Consequences of Uncertainty, Item 2 - Tailings Characteristics (Nonradiation): We concur with the observation regarding uncertainties for average moisture content; however, the Final EIS information should include a discussion of the uncertainties associated with the process of pressing and drying of tailings to meet optimal moisture content for placement and compaction. Once placed into a cell, even if placed at optimal moisture content, transient drainage will continue for perhaps 25 years and if the tailings were to be placed at conditions above the optimal moisture content, then transient drainage from such tailings may extend for longer periods of time. The Mancos Shale beneath the Klondike and Crescent Junction provides much greater protection to surface and ground water than does the White Mesa site. DOE has estimated that the Klondike site and Crescent Junction site would provide

ground water protection for upwards of 25,000 years. At the White Mesa site, it is estimated that ground water travel time to points of exposure at surface springs is estimated to be within 3,600 hundred years. A possible discharge point is Ruin Spring located about 2 miles south-southwest of the White Mesa Mill.

Page 2-175, Table 2-33 Consequences of Uncertainty, Item 18 - Salt Layer Migration: DOE acknowledges the possibility that a salt layer exists at some depth in the pile. Modeling has indicated that the layer could reach the ground water in approximately 1,100 years and could continue to impact ground and surface water for 440 years. When these numbers were projected, the saturated hydraulic conductivities and flux were assumed to be 10⁻⁸ cm/s. What would be the time frame if the saturated hydraulic conductivities and or flux into the tailings were 10⁻⁶ cm/s? This uncertainty should be discussed and addressed in the Final EIS.

Page 2-175, Table 2-33, Consequences of Uncertainty, and Item 19 Use of Tandem Trucks: The EIS notes that for the tailings haul, there is a question whether permissions from UDOT will be obtained to allow the use of tandem trucks. However, will sand and gravel, riprap and other required reclamation materials for the cap-in-place necessarily be delivered via tandem truck? DOE needs to address these different and uncertain methods of truck hauling into the Final EIS regarding the transport of riprap, borrow material, and sand and gravel. It appears that utilizing trucks that contractors currently have available would be more likely. Recognizing these specific uncertainties will also be consistent with the assumptions utilized in the NRC's EIS regarding this matter.

Chapter 3 Affected Environment

Page 3-9, Millsite Contamination. Please see previous comment regarding the volume of tailings. To properly clarify the range of the expected volume of material, we suggest that the volume of contamination for purposes of projecting impacts use an estimate of 13 million tons. As stated previously, this is probably more realistic based on the recently increased estimates of off-pile contamination and the relatively paucity of data available regarding the depth of contamination under the pile.

Page 3-11, Section 3.1.3.1 Mill site Contamination. The range, as well as average concentrations of contaminants, should be given.

Page 3-61, Section 3.1.15 Visual Resources: Please clarify whether the BLM presently characterizes the Moab site as Class II, or does the pile already cause the site to be classified as Class III? Why do the existing conditions in the Spanish Valley with its residential and commercial development aspects, meet a Class II objective? Recognizing that the valley is presently a Class III visual resource is important for identifying impacts of various alternatives in subsequent impact analysis.

Page 3-58, line 64 and 65 - DOE makes reference to the day/night dBA-weighted sound level which uses a ten-fold or ten-decibel penalty, for night time sound. The Final

EIS should more thoroughly address the night time and potentially sleep-disruptive noise impacts for the community residents along the White Mesa truck haul route, particularly for the double shift haul method.

Page 3-65, Figure 3-21 Transportation Routes and Selected Roads in the Moab to Crescent Junction Area The Final EIS should provide an estimate of traffic into Arches National Park to complete the picture of vehicle traffic in the vicinity of the site. The National Park may have suitably reliable traffic information which can be used to improve the accuracy of the traffic data and Figure 3-21 for this section of US 191. DOE may wish to verify counts, including turning movements along this section of highway, as these conditions must be considered to address the traffic conditions related to truck-haul of the tailings to either Klondike Flats or Crescent Junction sites.

Chapter 4 Environmental Consequences

Section 4.1.3.1.Groundwater, page 4-6, Construction and Operations Impacts at the Moab Site. This section specifically states that the "available information is insufficient to reliably estimate the inventory of soluble mineral salts in the tailings, estimate the time for the salts to be completely depleted, or predict the future geochemical transformations that may occur." However, this seems to be ignored in other sections when discussing the anticipated time frame needed for groundwater remediation in the on-site alternatives.

Section 4.1.4.1 Surface Water, page 4-11, Construction and Operation Impacts at the Moab Site. In the third paragraph of this section, we suggest the sentence: "Surface water concentrations should decrease as well." be deleted based upon our above concerns.

Page 4-12, Section 4.1.4.2 - Impacts from Characterization and Remediation of Vicinity Properties Because human health risks at the vicinity properties is the greatest immediate risks, we are pleased to understand that DOE will begin the remediation of the vicinity properties upon issuance of the ROD.

Page 4-30, Section 4.1.11: DOE has responded adequately to most of EPA's comments regarding visual resources. However, EPA believes that this section should include the statement that "based on the assumption that the BLM Class II objective is not presently met at the Moab site". As stated previously (comments on the preliminary draft) the visual impacts (i.e., strong contrast) would be evident during the major construction phases associated with on-site construction. EPA would agree that strong contrasts would continue for a relatively short period of time (perhaps 3 to 10 years) after remediation was completed and until vegetation was re-established on the side slopes. EPA agrees that overall, a moderate contrast with the surrounding landscape would be expected. Re-contouring of the pile to make it a positive drainage pile may allow DOE to decrease the slopes on the north and east side of the pile and using reddish sandstone and a red-textured soil could further mitigate these visual contrast concerns.

Page 4-43 (Section 4.1.15.1): The document states that the concentration of radon at the Maximally Exposed Individual is 1.9 pCi/l. Is this an indoor or outdoor sample? If it is indoor, this is the average concentration in a home. If this is an outdoor reading, this concentration combined with seepage into the structure from the local terrain could result in the structure exceeding the 40 CFR 192.12(b)(1) 0.02 WL or 0.03 WL standards. Please specify the location of the sample in the Final EIS.

Page 4-44, (Section 4.1.15.2): The section states that the EPA remediation standard for vicinity properties is 0.02 WL (or about 3 pCi/l). The actual EPA standard is that the responsible party must make a reasonable effort not to exceed an annual average of 0.02 WL, and in any case, not exceed 0.03 WL (see 40 CFR 192.12(b)(1)). Also, EPA assumes an ER of 0.5 in residential homes, which means that 0.02 WL is about 4pCi/l, and not 3 pCi/l as stated in the DOE's Draft DEIS. The way the paragraph is structured, it implies that the risks stated are EPA conclusions. The Final EIS should clarify that these numbers are not exactly consistent with EPA's risk assessments pursuant to 40 CFR 192 or these estimates of risk should be changed to the risk levels as specifically discussed in the 40 CFR 192 EIS. See the discussion on Appendix D that follows.

Page 4-48, (Table 4-14): The risk assessment should include a guide and local rafter which have potentially longer exposure times than this camper-assumption procedure. See the discussion on Appendix D that follows.

Page 4-54 & 55, (Section 4.1.17): The impacts predicted by the model for cell failure due to natural phenomenon, appears to result in excessive risks and the assumptions used are not clear. For example, the document provides the "volume" of the tailings in "tons" and claims that 25% of this "volume" is pore water. It is not clear how to calculate the volume of pore water to understand if the model predictions remain plausible. To check the predictions, EPA staff used information obtained from the Moab Project Site Groundwater Subcommittee Minutes, July 12, 2002, which states that the pile initially contained 15 million gallons of leachate (Minutes at page 7.) Given that the assumptions used that the erosion of the pile could occur over a 10-hour period and assuming all the pore water escapes, the pore water flow rate would be 56 cubic feet cfs. The model assumed this river flow during such a failure event would be 150,000 cfs. It is not clear how mixing a 56 cfs fluid at 6.63 mg/L uranium with 150,000 cubic feet per second (cfs) river flow at background concentration of about 0.008 mg/L uranium, would result in a final mixture of 1 mg/L uranium at a 20% release or 4 mg/L at an 80% release. We understand there would be some leaching of uranium from the solids within the pile, but given the short time of this rapid event and the volume of river water that would be exposed to the tailings, this contribution would seem to be negligible compared to the pore water.

Similar inconsistencies appear to exist for the estimated concentrations shown in Tables 4-18 and 4-19. The contamination levels are a few thousand pCi/g, yet the average Ra-226 concentration is 516 pCi/g in the pile. Based on the data provide in the 40 CFR 192 EIS, uranium mill slimes have about twice the Ra-226 concentration as

sands (pg 18), so it is not clear how such significantly higher Ra-226 concentrations at 3,776 pCi/g would exist.

Page 4-87, 4.2.14 Socioeconomics: This section and the section which addresses socioeconomics for the Crescent Junction site need to reflect that the economic benefits of this project are short-lived and many of the economic benefits that DOE projects, (e.g., annual expenditures and labor earnings) will occur outside the two county region extending into Carbon and Emery Counties in Utah and Mesa County in Colorado. In particular, DOE must address either in section 4.2.14 Socioeconomic analysis for Klondike and 4.3.14 Socioeconomic analysis for Crescent Junction or in Table 2-33 Consequences of Uncertainty that should the alternative selected be an off site alternative north of Moab, a significant portion of the potential socioeconomic impacts (i.e., employment multipliers) may shift to Carbon and Emery Counties and Mesa County, Colorado.

Page 7-5, (Section 7.1.11): This seems to indicate that NESHAP requirements do not apply during active remediation. The section states that 40 CFR 61 Subpart Q applies only after final disposal and that NESHAP requirements do not apply during periods of active remediation. Subpart Q regarding designation of facilities lists which facilities need to apply Subpart Q and since this is a Title I site under UMTCA, 40 CFR 61.190, this subpart does not apply. However, Subpart T of NESHAP requirements would be applicable two years after the site has become inactive (See 40 CFR 61.220 and 61.222 (b)). (The Moab Uranium Mill tailings pile has been inactive and under DOE's authority for longer than two years.) The Subpart T rule states that such tailings piles are required to meet the 20 pCi/m²-s Rn-222 flux standard unless a compliance agreement is reached because it is not physically possible for the owner or operator to complete disposal within the two-year time frame. DOE's preparation of the Final EIS and the eventual ROD would satisfy the latter condition. It should also be mentioned in this paragraph that DOE is presently following the radon guidelines in DOE Order 5400.5 as described in the Moab Annual Site Environmental Report (DOE-EM/GJ677-2004).

Appendix A

Page A1-2 Figure A1-2 Typical Cross Section of the Disposal Cell, On-Site Disposal Alternative. The proposed figure illustrates a water storage cover and suggests a capillary break design of 6 inches. Will a 6-inch thick capillary break over the aerial extent of the pile (i.e., 130 plus acres) be sufficient? Does DOE feel confident that pile subsidence (differential settlement resulting from dewatering activities) and regional subsidence within the Moab Valley (due to salt dissolution) is likely to be evenly distributed to maintain the integrity of a 6-inch capillary break layer over the 200 to 1000-year life of the pile as required under 40 CFR Part 192?

Page A1-7 Last Paragraph. DOE indicates that it would remove tamarisk trees and replace that vegetation with native riparian species that would be of "higher functional value for wildlife." In view of the USGS sediment transport modeling results, what species would be planted to provide greater bank stability? Is it likely that a native

species, such as southwestern willow, can out-compete the tamarisk even after tamarisk removal? What measures will DOE take to minimize disturbance of vegetated areas at the Moab site during remediation efforts for either the on-site or off-site alternatives?

Appendix B Assumed Disposal Cell Cover Conceptual Design and Construction:

Page B-5, B4.0: DOE should consider conducting further evaluation of the proposed cover at White Mesa based on experience gained in its long-term surveillance and maintenance responsibilities for the UMTRCA Title I sites, as well as the recent design and construction of the Monticello Mill Tailings site. In the document, DOE noted that the NRC had approved the cell designs. However, NRC had previously approved the cell design at Moab and later required that the Atlas Corporation submit a revised closure plan. If a decision is made to relocate the tailings to White Mesa, specifically, what studies will DOE conduct to make certain that the proposed cover at White Mesa is acceptable? These would need to be addressed in the Final EIS.

Appendix D, Human Health

We recommend that a revised Appendix D address a rafter guide and a frequent local rafter that may recreate on the river below the site to address potential human health risk scenarios.

Radium in soils: When establishing the Health and Environmental Protection Standards for Uranium and Thorium Mill tailings (40 CFR 192), the primary Contaminant of Concern (COC) was identified as radon gas produced from the decay product of Ra-226. EPA's 40 CFR 192 EIS evaluated the risk for multiple alternatives including the "no action" alternative and the standards presently applicable to the Moab Uranium Mill Tailings. The results based on using the 40 CFR 192 EIS risk assessment method and that shown by DOE for the Moab tailings risk assessment are significantly different. For example, in Section D3.4 of the Appendix it is assumed that after the site has been remediated, clean surface soils are imported and there are no longer risks from either radon or gamma exposure. If the DOE were to excavate all soils down to background conditions for the primary COC, the additional risk to an on-site resident would be zero as stated in Table D-12 for an adult and stated in Table D-13 for a child. If the DOE plans to use the 5-15 Pico-Curies per gram (pCi/g) limit established in 40 CFR 192.12, then the residential risk could be 2 in 100 (40 CFR 192 EIS; Table 7-2, pg 110 alternative L2). The reason the risk exceeds the 10⁻⁴ risk limit is that Ra-226 is prevalent in uncontaminated soils, hence EPA established a standard near background as opposed to the conventional 10-6 to 10-4 range. To illustrate this, the 5-15 pCi/g standard is designed to bring the average. concentration value below a residential structure down to 5 pCi/g. Assuming linear behavior, to reduce the risk from 2 in 100 down to 10⁴, the average value for radium would have to be as low as 0.025 pCi/g. But noting that the average background concentration of Ra-226 throughout the Colorado Plateau is about 2

pCi/g, establishing a risk based standard would result in a cleanup level 80 times less than background.

For the capped pile, Appendix D should note that the 20 pCi/m²-s standard is considered protective for all but the residential alternative (40 CFR 192 EIS, pg 119).

The Appendix should summarize the 40 CFR 192 EIS risk conclusions and simply reference EPA's 40 CFR 192 EIS. For the no-action alternative, the appendix should use the 'rule-of-thumb' contained in the 40 CFR 192 EIS:

5pCi/g average below a structure (the 5 -15 standard) = 0.02 WL in a structure equals 2 in100 risk

Contaminated surface waters: The analysis contained in this appendix only considers water ingestion in the camping scenario. Two other likely exposure scenarios should be addressed for completeness. As mentioned on page 23 of The National Academy of Science report of June 11, 2002, rafting guides are likely to have the highest exposure risk for publicly accessed areas. In addition to the guide, a local recreational frequent rafter could also receive a significantly higher exposure than a camper.

For the guide, we can assume this person:

Works 5 days per week for 5 months per year for 6 years (for example, a college student working part time); Takes two trips per day; and Swallows 1 Tablespoon (14.8 ml) of contaminated water per trip.

This would result in the consumption of 17.8 liters of contaminated water. In the camping scenario, the DOE assumed 2 liters consumed for one day resulted in a 10^{-7} risk. So using the conservative values above, a guide consuming about 10 times the water of a camper would be exposed at the 10^{-6} risk range. For a local and frequent resident rafter, we can assume one (1) trip per week for 5 months, over 30 years. Assuming the same ingestion rate, 8.9 liters would be consumed. This would be below the 10^{-6} risk range.

Appendix G White Mesa Mill Operations, G3.0 Facility

EPA understands that the current liner in Cell 4A is being removed and this cell will be reconstructed with a double liner based on commitments made by IUC to the Utah Department of Environmental Quality. What is the likelihood, now that regulatory authority has transferred from NRC to the Utah Department of Environmental Quality, that cell 4B (the proposed wet cell to handle the tailings slurried from the Moab site), and cell 5 (proposed to be the final repository for the Moab tailings) will also be required to be similarly lined? Is the DOE working with UDEQ to determine how the transfer of

regulatory jurisdiction from the NRC to UDEQ might affect the design of the cell and the overall cost of a White Mesa disposal alternative?

Appendix H

Page H-4, H2.1 Transportation Accident Rates, Table H-2 Utah Specific Accident and Fatality Rates: DOE has utilized Utah specific accident rates taken from data provided in Saricks and Tompkins for rail and heavy combination trucks. Are the truck accident rates based on a statewide average or are they based specifically on accident rates along US 191? If a statewide accident rate for state highways was utilized, did DOE check accident rates provided or available from the Utah Department of Transportation to determine if US 191 had comparable rates? Has the DOE requested any information on locations or segments of any of the haul routes which have significantly greater accident incident rates than might be expected on such highways?

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Document #598 Keeler, Bruce Red River Canoe Company

From: redriver [redriver@redrivercanoe.com] Sent: Thursday, February 17, 2005 7:48 PM

To: moabcomments

Subject: Atlas Tailing Comments

Department of Energy, Atlas EIS Comments,

As a River Outfitter who operates on the Colorado River adjacent to and below the location of the Atlas tailings I must strongly recommend that the tailings be moved away from the Colorado River flood plain. My day trip business by canoe from the boat ramp above the tailings to several destinations several miles below the pile has stopped being a viable business option since the official reports have come out. The Moab area is tourist based and keeping the tailings in place will harm our current local economy.

I also serve as the Mayor of the Town of Castle Valley located approximately 16 miles from the pile. We shop for our groceries and all necessities in Moab so our concern is very personal here also. The Town Council has voted to support a resolution promoting the moving of the pile north of Moab.

There are several other points that need to be considered in the choice to relocate the tailings pile. The amounts of ammonia, radium, lead and others are too high to leave in the flood plain because no one can account for disaster related to flooding from a major regional river system. We have a responsibility to the future generations to leave them with clean, safe water not water contaminated by nuclear waste. The health of the Moab Community is also tied to the moving out of their "air space", not to mention the current and future down stream users. Health and safety should hold sway over cost, although we should try to keep the necessary costs as low as possible. This would lead to moving the pile north to Klondie Flat.

Moab has produced this waste to help with the cold war and is still willing to keep the waste locally, it just needs to be moved away from the Colorado River.

Thanks for your consideration.

Bruce A. Keeler Mayor, Town of Castle Valley General Manager/Owner Red River Canoe Company Castle Valley, Utah

Document #602 Paterson, Lisa Individual

From: Lisa Paterson [lpater1@hotmail.com] **Sent:** Thursday, February 17, 2005 9:08 PM

To: moabcomments

Subject: Atlas Tailings Removal

To Whom It Concerns:

Thank you for accepting my comments on the safe removal of the Atlas tailings. The tailings are leaking ammonia and radioactive waste into the Colorado River now. It has been demonstrated that a large flood could carry a significant amount of radioactive tailings down the Colorado River thus contaminating drinking and irrigation water. Capping the tailing on site will not eliminate this possibility. Therefore, the tailings must be moved.

It is the removal of the tailings that concerns me as a citizen of Moab. To insure the safety and health of all citizens of the Moab Valley and our tourists, the removal of the tailings must be done in such a way as to produce NO DUST. Some sort of negatively pressured building must be erected in which the tailings will be scooped into whatever vessel used to carry them north to the repository. The train cars/trucks or whatever is used to transport the tailings must also be sealed so well that no radioactive tailings are allowed to escape.

It does no good to move the tailings for the safety and benefit of those downriver at the expense of Moab citizens and our tourist economy. Please! remove them without allowing radioactive dust to escape.

Thank you.

Sincerely, Lisa P Paterson

Document #662 Roberts, Harold International Uranium (USA) Corporation

Kym Bevan

#662, p.1

From:

Harold R. Roberts [hroberts@intluranium.com]

Sent:

Friday, February 18, 2005 4:58 PM

To:

moabcomments Ron Hochstein

Cc: Subject:

Comments on Moab Draft EIS



EIS Comments International Ura...

Gentlemen:

Attached as a MS Word document are comments from International Uranium (USA) Corporation on the Draft EIS for the Moab Uranium Mill Tailings Project. A hard copy of these comments will be sent by regular mail.

Harold R. Roberts Vice President - Corporate Development International Uranium (USA) Corporation (303) 389-4160

Remediation of the Moab Uranium Mill Tailings Draft Environmental Impact Statement

Comments from International Uranium (USA) Corporation 1050 Seventeenth Street, Suite 950 Denver, Colorado 80265

International Uranium (USA) Corporation ("IUSA") has reviewed the Draft Environmental Impact Statement ("EIS") on Remediation of the Moab Uranium Mill Tailings and has the following comments and concerns on the content of the Draft EIS. Our comments are divided into two categories; general comments that address concerns that are found in numerous locations within the EIS, and individual comments that address specific issues that are referenced by section and page number.

GENERAL COMMENTS:

Truck Option

IUSA will not be making any comments on the Trucking Option to the White Mesa Mill. Our initial analysis of the project, and the historical opposition to trucking of the Monticello tailings to the White Mesa Mill, caused us to conclude that this option is not viable for the Moab Tailings. IUSA did not propose the Truck Option and does not support further evaluation of this option at this time.

<u>Cultural Resources and Traditional Cultural Properties</u>

Potential impacts to cultural resources for all options are referenced in numerous places in the EIS, with DOE stating that the greatest impacts will be from the White Mesa slurry pipeline option. The EIS indicated that up to 121 eligible sites could be impacted from the White Mesa slurry pipeline option. The majority of these sites are projected to be along the pipeline route. DOE acknowledges that no field surveys were conducted along the proposed pipeline route and that the number of cultural sites is based on an estimated average density of sites in the project area. DOE's proposed route description confirms that the majority of the pipeline route will be within or adjacent to existing pipeline rights-of-way, highway rights-of-way, or through areas previously disturbed by agricultural activity. These areas will have already been cleared of cultural sites or in the case of agricultural land, the cultural sites will most likely have been disturbed by the agricultural activity. In addition, DOE's analysis does not take in to account the flexibility of pipeline construction to avoid cultural sites through adjustments in routing. For these reasons, IUSA believes that the potential impact to cultural resources along the pipeline route is grossly overstated in the EIS. Even though

Page 1

the distance to the White Mesa Mill is further than the other pipeline routes, IUSA believes impacts to cultural resources will be no greater than the other alternatives. DOE must take into account the ability to avoid cultural resources through the flexibility of pipeline routing that is not available for highway and railroad construction.

The cultural sites that exist on the White Mesa Mill site have been well documented, and the potential impact to those sites was included in the original Environmental Statement, and subsequent Environmental Assessments, supporting the construction and licensing of the facility. The previous operator of the White Mesa Mill (Energy Fuels Nuclear, Inc.) took great care in preserving and protecting existing sites on the property and altered construction plans when possible to avoid sites.

All of the sites which may be impacted by the construction necessary to accept the Moab tailings were also included in the original site evaluation. Therefore, the DOE should not consider these in the evaluation of the White Mesa site unless they are outside of the already licensed area. The DOE EIS should only consider incremental impacts to the White Mesa Mill site, which will be minimal.

While it is possible that some existing sites will be disturbed as a part of future construction on the White Mesa Mill site, excavation or mitigation of cultural resource sites is not without recent precedent. The State of Utah provided IUSA a list of authorized archaeological projects in San Juan County. The list includes all known projects since the State began keeping records through to the year 2002. The list includes not only the excavations on White Mesa, but also several listings for highway improvement projects on Highway 191, State Road 95 and Comb Ridge, Recapture Dam pipeline project, City of Blanding 4th Reservoir Project, the DOE's Monticello project, mitigation efforts for Union Oil, several excavations at national parks and recreation areas, reference to several burials, as well as references to excavations conducted by the Edge of the Cedars Museum, and State of Utah agencies and universities.. The recent examples of archaeological excavations in conjunction with other projects should be acknowledged by DOE as a common occurrence in San Juan County and activities at the White Mesa Mill site are not unique in any regard. DOE statements in the EIS lead the reader to conclude that the potential to impact cultural resource sites will make the White Mesa pipeline option impossible to permit.

While IUSA is respectful of Native American history and beliefs, the lack of protest by the local Native American community on destruction of cultural sites on other recent projects, including the up-grades to Highway 191 through the White Mesa community leads IUSA to believe that the protests regarding the potential impact to cultural sites, as a part of the Moab tailings project, is a reflection of broader objection, by a small segment of the Native American community and its non-Native American supporters, to the operations of the

White Mesa Mill. The lack of similar objection on recent projects by the local Native American community should be noted in the EIS and DOE must defend why the impacts to cultural resources are so unique to the White Mesa Mill.

The State of Utah has historically been in support of the archaeological projects on the White Mesa Mill site. In a letter written to the NRC in the early 1980's, J. Phillip Keene, Executive Director and Utah State Historic Preservation Officer stated that the work on the White Mesa Mill site "undertaken by the State Archaeologist was at the insistence of and with the complete cooperation of Energy Fuels." The letter further states that, with respect to the recovery of archaeological information, "the significance of these sites lies not with their becoming public attractions or monuments, but rather with the information they have yielded about certain prehistoric cultures. Sites of this nature are plentiful throughout the southeastern part of Utah, but have not been tested. It is only the opportunity presented by the desire of Energy Fuels to build a uranium mill in this area that permitted us to devote the time and energy to a thorough study of such sites." Mr. Keene concludes that "there is no doubt in my mind that the proposed project should go forward and that in doing so will recover significant scientific data which could not be recovered if the project didn't proceed."

During this same time period David Madsen (the Utah State Archaeologist) is on record, in a response to a question concerning whether the sites were worth preserving, as stating "that these sites are not unique and that sites of this nature are plentiful throughout southeastern Utah." He supported this by stating that there are 25,000 recorded sites in Utah and 8,000 of these are in San Juan County. "In fact, he added, because of the heavy prehistoric population in this region, it is virtually impossible to find an area that was not similar."

This supporting documentation has previously been provided to DOE by IUSA. IUSA believes that DOE should fairly assess the potential impacts to cultural resources posed by the White Mesa slurry pipeline option, and justify it's conclusion that any such impacts are unique, unacceptable and pose unusual issues for the Native American community.

Project Costs

The lack of cost detail provided in the EIS makes it impossible to reasonably evaluate the alternatives. The EIS cost estimate for the slurry pipeline option to White Mesa is more than double the estimated costs provided to the DOE by IUSA for the construction and operation of the slurry pipeline, the slurry preparation plant and the disposal cell at the White Mesa site. Without additional cost information it is difficult to evaluate whether the White Mesa option has been fairly evaluated.

#662, p.5

Water Requirements

The EIS estimates that over 400 gallons per minute of makeup water will be required for the slurry pipeline option. This appears to be significantly higher than previous estimates done by IUSA, especially considering that:

- the majority of the existing tailings material is most likely higher in moisture content than the projected optimum moisture for final disposal; and,
- the majority of the water used for slurry transport will be re-cycled back to the Moab site for re-use in the slurry operations.

The EIS is incorrect in the statement that the White Mesa slurry pipeline option will require the same amount of Colorado River water as the other off site pipeline options (see Figure 2-46). In fact, selection of the White Mesa slurry option reduces the demands on the Colorado River relative to the other options. The majority of the water required for the White Mesa option will come from existing sources controlled by IUSA on the Mill site or from IUSA's water rights from Recapture Reservoir. The benefits of reducing the water demands on the Colorado River by selection of the White Mesa slurry pipeline option needs to be clearly stated in the EIS.

Furthermore, IUSA believes that the need for large quantities of water for construction of the disposal cells and dust control at the disposal site has not been addressed. The White Mesa Mill has an adequate supply of water for all needs. The source, cost, potential difficulty in obtaining this water, and the cumulative impacts to local water sources have not been addressed for disposal of tailings at the other two off-site locations.

Schedule

The schedule presented for the two other off-site locations appears to be overly aggressive given the need to fully develop the infrastructure at these locations and to complete the necessary studies and permitting efforts to begin construction. DOE needs to justify why the normal permitting process will not be necessary for these sites. If DOE considers these schedules accurate, the licensing requirements for the White Mesa Mill site will be shorter than the greenfield Klondike Flats and Crescent Junction sites because the site is already licensed to dispose of uranium mill tailings.

DOE also needs to more fully evaluate the effects on the schedule for the trucking options during the summer months when tourist traffic is at its peak.

Tailings Conditioning

DOE has acknowledged the need to dry the majority of the tailings material prior to transport to the off-site locations by the truck or train option. The time required to dry the material may be correct for the summer months of the year, but 3 to 7 days seems overly optimistic for the late fall, winter and early spring months. A single thunderstorm could cause a significant reduction in production rates from the site. DOE needs to include contingencies in the project schedule for the truck and rail options for difficulties in getting the tailings material dry enough for transport and placement.

IUSA is also concerned that the DOE has not properly accounted for the reduction in potential radon emanation for the slurry pipeline option as a result of the elimination of the 50 acres of drying areas at the Moab site, which are not required.

Project Benefits

A potential benefit of the White Mesa slurry pipeline option that was mentioned, but only briefly, is the ability of the White Mesa Mill to process the recycle water to recover uranium. At the present time uranium prices have increased to over \$20.00 per pound, which are at levels not seen in over twenty years. The United States currently consumes approximately 60.0 million pounds of uranium annually and produces only 2.0 million pounds. As a result, the country is very reliant on external sources to provide fuel for its commercial nuclear reactors that provide nearly 20% of the country's electrical power. Although it is difficult to accurately determine the potential amount of uranium which could be recovered from the tailings, the ability to pursue this with the White Mesa option needs to be discussed in further detail and should be a potential issue for consideration in the relocation of the pile.

SPECIFIC COMMENTS:

Page 1-12 DOE has been repeatedly asked during public meetings to include the potential of re-use of the slurry pipeline in the evaluation of the off site alternatives. The EIS mentions the potential long term use of the slurry pipeline system after the completion of the project however it discounts the need to do the study and potential impact of the infrastructure due to the perceived speculative nature of the use of the pipeline system. Preliminary engineering indicates that the contamination concerns raised by DOE are speculative, and that with minimal additional engineering, this perceived issue could be eliminated.

#662, p.7

The long-term socioeconomic benefit of the pipeline infrastructure for San Juan County is significant and should not be discounted. The ability to turn short-term expenditure for the relocation of the tailings pile into a long-term economic benefit for one of the most depressed counties in the United States should not be eliminated with little to no analysis. San Juan County is very reliant on the agricultural industry, which over the past several years has been nearly decimated due to the lack of water in the area. The ability to provide another more stable source of water for irrigation, beyond a normal reliance on surface run-off and collection, would result in a significant increase in the number of irrigable acres and overall productivity of the agricultural industry in the area.

Water rights from the San Juan River currently go un-used and could be transferred to the Colorado River because of the common collection point at Lake Powell. Use of these water rights in the areas surrounding the communities of Blanding and White Mesa could dramatically affect the economies and well being of the area residents. DOE should include this potential benefit in the evaluation of the slurry pipeline option to White Mesa.

- Page 2-29 DOE should evaluate the pipeline diameter based on an engineering analysis of the construction and operating costs of the pipeline. Selecting the pipe size based on matching an alternative schedule may not yield the most cost effective option.
- Page 2-56 The addition of electrical substation upgrades at the White Mesa Mill site will not be necessary unless the Mill is also processing uranium ore in the conventional Mill circuit.
- Page 2-62 IUSA's pipeline consultant did not specify the need for aerial crossings along any of the pipeline route. Exposing the pipeline at any point along the route may be un-advisable due to the issues of vandalism and mechanical damage acknowledged by DOE.
- Page 2-88 Table 2-21 is misleading. DOE should separate the equipment required for construction from that required for operation and present the information in two tables.
- Page 2-118 The reference to "minor geologic instabilities" on the White Mesa site is misleading. This statement could lead the reader to believe that the final disposal cell could fail when in fact the only issue is the potential for erosion or sloughing of the canyon walls to the west of the site. DOE needs to clarify the basis for this statement or remove it from the text.

#662 p.8

Under the Air Quality discussion, DOE needs to clarify that the potential for greater emissions on the White Mesa option is for the truck option only.

- Page 2-120 The reference to wetlands on the White Mesa site is misleading. The only areas qualifying as a wetland are the wildlife diversion ponds on the east edge of the property. These areas would not be affected by the Moab project.
- Page 1-122 Figure 2-47 is inaccurate in that it indicates a large area of new disturbance for the disposal cell on the White Mesa site. The original Environmental Statement for the White Mesa Mill evaluated the potential disturbance of all but 30 acres of the area projected to store the Moab tailings. This Figure should be revised to indicate only the additional disturbance caused by the Moab tailings.
- Page 2-125 The visual impacts from the slurry pipeline are overstated. The majority of the pipeline route visible from Highway 191 will be adjacent to or within existing pipeline rights-of-way that have been previously disturbed. The southern part of the pipeline route is either well away from the highway or crosses agricultural land. This text needs to be changed to accurately reflect the minimal visual impact for the White Mesa slurry pipeline option.
- Page 2-135 In Figure 2-61 the DOE indicates a rate of fatalities from pollution health affects for the White Mesa Slurry pipeline option. This is the only option which indicates the potential risk from pollution health effects and there is no mention or discussion of this risk in the text. The rate should be no different than the rates for other pipeline options.

Document #663 Goddard, Terry Office of the Attorney General



OFFICE OF THE ATTORNEY GENERAL STATE OF ARIZONA

TERRY GODDARD ATTORNEY GENERAL

February 18, 2005

Mr. Don Metzler Moab Federal Project Director U. S. Department of Energy 2597 B % Road Grand Junction, CO 81503

Re: Comments on the Moab Uranium Mill Tailings Draft EIS

Dear Mr. Metzler:

With this letter, I am providing comments on the Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement released for public comment by DOE in November 2004.

The Colorado River is a vitally important resource for Arizona, and its long-term health matters enormously to the people of this State. In general, I concur with Governor Schwarzenegger of California, Governor Guinn of Nevada, Governor Richardson of New Mexico and our own Governor Napolitano that the Moab Uranium Mill Tailings pile should be removed from the bank of the Colorado River, rather than stabilized in place, to ensure the protection of human health and the environment of downstream users. I am concerned that despite your Agency's best efforts, if the pile is left in place, natural subsidence of the pile and future flood events may result in future releases of contamination to groundwater and the Colorado River. note that part of the Moab tailings impoundment currently sits in the floodplain of the Colorado River and that during a 100-year flood event, the estimated water level would be three to four feet above the base of the tailings pile. I also share Utah's concern that by leaving the tailings in place, the remediation goal for ammonia discharges to the Colorado will never be achieved. Prolonged, elevated concentrations of ammonia could have a severe adverse impact on the health and safety of the residents of Arizona and Utah living along the Colorado River. It could also cause great harm to aquatic life and their habitat and adjacent wetlands.

I have also examined the three off-site remedial alternatives. While all of these alternatives are superior to the on-site alternative, I find the off-site disposal of the uranium tailings at the White Mesa Mill Site the least desirable. Disposal of the uranium mill tailings at either the Klondike Flats or Crescent Junction is preferable because of their proximity to the Moab site, their proximity to existing rail lines and their proximity to off-site borrow areas that can be used for clean backfill and capping purposes. Further, I am concerned that disposal of the uranium tailings at the potential White Mesa Mill disposal site will result in substantially increased truck traffic, with a concomitant increase in the risk of traffic accidents along the US-191 corridor, and in a disturbance of the cultural and historical resources of the Ute Tribe.

Thank you for considering my comments.

Arizona Attorney General

1275 WEST WASHINGTON, PHOENIX, ARIZONA 85007-2926 • PHONE 602.542.4266 • FAX 602.542.4085

Sincerel

Terry Goddard

Document #669 Kamala, Laura Grand Canyon Trust

February 18,2005

To The Department of Energy,

The Atlas Mill Tailings must be removed from the banks of the Colorado River and moved to a safe contained area well away from the river.

I have been a resident of Grand County for 28 years. I've seen the Colorado River lapping up against the Atlas uranium mill tailings pile in the high water years of '83 and '84. The best available science says that 12 million tons of radioactive waste will wash downstream if left in place, it is just a matter of time. A National Academy of Science report confirms this as well as the USGS. You are well aware of the scientific facts.

I stood with Congressman Matheson last October on the riverbank next to the tailings pile and took water samples that dramatically illustrated the rapid outflow of a toxic brew of chemical waste into the current of the river. After all, 57,000 gallons per day of this toxic plume have been pouring into the river for the past 40 years.

The existence of an alternative in the DEIS that considers capping the tailings pile in place is a blatant disregard of the health and welfare of 26 million downstream water users and demonstrates an utter lack of responsibility for the economic disaster that will occur when the Colorado River washes the tailings downstream. Such a scenario should be included in an analysis of the real costs of capping the pile in place.

Residents of Moab are threatened with contamination of their culinary aquifer by the toxic plume emanating from the tailings pile. For many years I watched as high Spring winds sent thick clouds of toxic tailings dust airborne, to settle over the residents of the Moab valley. This community has suffered enough from the long range effects of uranium mining and milling and waste storage.

The Department of Energy should choose an alternative that removes the mill tailings from the banks of the Colorado River. I vote for the Klondike Bluffs site.

Laura Kamala Director of Utah Programs Grand Canyon Trust HC 64 Box 1705 Castle Valley, Utah 84532

Document #672 Peschong, Jon Duratek Federal Services

From: Jon Peschong [JCPESCHONG@duratekinc.com]

Sent: Friday, February 18, 2005 4:06 PM

To: moabcomments

Subject: Moab Mill Tailings EIS Comment

Section 102 [42 USC 4332] (C) (ii) requires the responsible government official to provide a detailed statement on any adverse environmental effects which cannot be avoided should the proposal be implemented. With the proposed two alternatives, unavoidable impacts are either those impacts resulting from leaving the waste in place (Alternative 1) or impacts resulting from disposal cell construction activities (all three locations analyzed in Alternative 2). The EIS should consider a third alternative - rail and truck transportation of the waste to an existing, licensed disposal cell. This third alternative would not incur the impacts from leaving the waste in place, nor the impacts from disposal cell construction activities. When this alternative is analyzed in the EIS, the existing, licensed disposal cell should be chosen appropriately distant from Moab so as to bound transportation environmental impacts.

Jon Peschong

Duratek Federal Services

e:mail: jcpeschong@duratekinc.com

Document #673 Clark, Monette Individual

From: Monette Clark [clarkcom@frontiernet.net]
Sent: Friday, February 18, 2005 3:52 PM

To: moabcomments

Subject: Comment on the EIS, Moab, Utah UMTRA Project

Donald R. Metzler, Moab Federal Project Director

U.S. Department of Energy

Office of Environmental Management

2597 B-1/4 Road

Grand Junction, CO 81503

February 18, 2005

RE: Comment on the EIS, Moab, Utah UMTRA Project

Dear Mr. Metzler:

I am a resident of San Juan County, Utah, living in the upper end of the Moab Valley, just across the Grand County line. I am writing to make a comment on the Draft Environmental Impact Statement (EIS) issued by the DOE for the Moab, Utah UMTRA Project Site. I am in favor of moving the uranium tailings pile away from the banks of the Colorado River and relocating the contaminated soil, by rail, to the Crescent Junction site within Grand County.

I believe it is imperative that the tailings be moved off the river bank because it is a big health and safety risk, both for residents of the Moab Valley and for the huge population living downstream of the Colorado River. Several years ago, a study showed that the tailings pile is already contaminating the nearby river water with ammonia that is strong enough to kill the fish. Another recent study has found that contaminants are leaching into the ground water across the river, in the Matheson Wetlands Preserve! This is scary and is bound to get worse the longer the pile remains where it is. It is only a matter of time before the Moab Valley ground water becomes polluted and the people of Moab will have unsafe drinking water coming out of the wells that supply us. The tailings pile has been there all my life. I grew up in Moab during the 50s and 60s, when the uranium mill was actively processing uranium. The yellowcake and dust from the tailings pond and mill site was blowing all over the valley when I was a kid. I have been exposed to enough radioactivity already.

The conclusions in the EIS about the river moving southward and the valley floor subsiding have been challenged by other studies and other scientists. I ask you to consider the following items:

- Grand County and governors and representatives across the region are **unanimous** in their position that pile should be moved to a safe, contained area within the county.
- The National Academy of Science says that it is a near certainty that the river's course will run over the Moab uranium mill site at some time. A major flood or storm event will cause radioactive waste and other chemicals to wash into the Colorado River. The fact that a 100 or 500 year flood has not occurred in recent history is not a good enough reason to suppose that such an event will not occur in the future. In the scheme of geologic and meteorological history, recent history means nothing. To confine ourselves to the limited purview of recent history is both dangerous and irresponsible. We have the opportunity and responsibility to protect future generations and millions of people in the lower Colorado River Basin.

Moving the Moab Uranium Tailings Pile is a justice owed to the Moab community. The government started the Uranium Boom and created the market for it. Moab people, including my relatives, produced the radioactive material for America's defense. And everybody in America benefited by being "protected." Many of the mill workers are now dead of cancer. Fifty-plus years later, the government should be responsible enough to defend the local people that are left (and all the new people moving in here due to our new tourist economy) against the very real terror of radioactive pollutants on the riverbank! The cost of moving the pile should be shared by the nation that shared in the "benefits" of nuclear defense.

Please move the tailings pile NOW.

Thank you for considering my comment.

Sincerely,

Monette Clark

22 West Coronado Street

PO Box 1274

Moab, UT 84532

Document #684 Weber, Ivan Weber Sustainability Consulting

Page 1 of 1

Kym Bevan

To:

rom: Ivan Weber [ivan@webersustain.com]

Sent: Friday, February 18, 2005 2:21 PM

moabcomments

Subject: Moab Atlas Mill Tailings DEIS Comments

Dear Mr. Metzler and Staff:

Please accept and consider the attached commentson the DEIS, respectfully submitted today, February 18, 2005, the last day of the alloted comment period.

Sincerely yours,
Ivan Weber, Principal/Owner
Weber Sustainability Consulting
953 1st Avenue
Salt Lake City, Utah 84103
(801)355-6863 / (801)651-8841 cellular
ivan@webersustain.com
www.webersustain.com (under construction)

2/21/2005

#684, p2

February 18, 2005 953 1st Avenue Salt Lake City, Utah 84103

Mr. Don Metzler Moab Federal Project Director U.S. Department of Energy 2597 B3/4 Road Grand Junction, Colorado 81503

Subject: Comments, Atlas Mill Tailings Remediation DEIS

Dear Mr. Metzler:

In commenting on the Atlas Tailings DEIS, we can do no better than to echo and endorse the comments furnished to you by Lance Christie, longtime Moab resident and capable critic of plans for Atlas Tailing Remediation. It is our sense that he, along with Sarah Fields of the Glen Canyon Group of the Sierra Club Utah Chapter, have identified nearly every conceivable issue of concern, very conscientiously on behalf of the public, the town of Moab and regional wildlife populations.

Of those raised to date, the single one of greatest concern amounts to a strenuous objection to leaving in place and capping of the tailings. The reasons that I will cite for this objection, and for the corollary favor for tailings pile relocation, are these:

- River undercutting: River morphology will undermine the site, repeatedly and emphatically, not only through extreme high water event dynamics, but also through the more frequent annual high water scouring. It is extremely important to register objection to the DOE hydrological model for river cutting, which apparently failed to incorporate suspended sediment effects. With increased velocity that occurs in high water events, suspended particle size also increases. One would see that very large rocks are among suspended sediments being tumbled and swirled along the bottom/outside of a river bend, such as that occupied by the Atlas Tailings. The DEIS's arguments that the river will cut downward in the channel's center defy common sense, not to mention the accumulated body of knowledge on river morphology. Study of channel migration mechanics need stray no more than a few miles from the Atlas site to find many examples to belie the DEIS model, and show that the site is in a great deal more jeopardy than DOE postulates.
- Capping won't prevent Colorado River centrifugal undercutting: Surficial "capping" or "armoring" of the pile will do little to prevent undercutting and collapse of the pile. As the pile rests on gravels and alluvial sediments of previous river-course migrations in other words, the river has been there, in the past there is no valid basis for assuming that the river channel cannot go through the site again. Given the potential for significant precipitation pattern changes due to regional global climate change impacts (as projected in Preparing for a Changing Climate: The Potential Consequences of Climate Variability and Change Rocky Mountain/ Great Basin, Feb 2003, Dr. Fred Wagner et.al., Utah State U.), the possibility that the historical range of variability of flows may be exceeded does exist. This introduces the possibility that our certainty about Colorado River behavior and dynamics may be reduced greatly. DOE may find itself armoring the site repeatedly, as has been the experience of many other river channeling projects (e.g., Mississippi and Missouri), or of harbor protection projects worldwide. This future risk must be factored into the calculus of this decision, especially the likelihood that the estimated lower costs of capping in place have been assigned erroneously. Initial costs may be lower, perhaps; but long-term costs, perhaps even in a timeframe of only a few decades, may be multiples of the initial cost.
- Site structural instability: The subsurface fault trending NW-SE through the tailings site cannot be predicted
 to be stable, and may provide to the river a point of weakness to induce more northwestward cutting than
 could be supposed if the site consisted of homogenous strata. It is through rock structural weaknesses such
 as these that this great river manages to cut through great ramparts to seek the most hydrologically direct

AtlasTailingsDEIS 1 I.Weber/2-18-05

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route to the sea. In terms of the Colorado River's history, to follow the path of least resistance enough to completely remove the Atlas Tailings site is a relatively small matter. It is not a geotechnically "strong" site.

- Biogeochemistry neglected, Source control not accomplished by capping-in-place: Leaving tailings in place does not accomplish contamination source control. The DEIS is inadequate in its consideration of the processes by which ammonia and other "contaminants of concern" are leached from the tailings pile. Capping with relatively impermeable materials (clay from decomposed shale) and subsequent armoring may retard percolation of the meager precipitation that falls on the cap, but it will not stop capillary flow from below, or upflow induced by the area's hydrological gradient and zones of rock weakness, such as the fault. Moreover, bacterial action, which is surely involved in ammonia formation, may not be retarded by capping if key microbiological communities will thrive on anaerobic conditions. This is often the case in tailings and waste rock piles, in which even some oxidizing bacteria require little or no air to perpetuate their effects.
- Tailings contamination behavior if swept into the Colorado: Recent newspaper commentary suggesting that the contamination produced by the tailings would be diluted and homogenized into Colorado River waters and sediments, then sequestered in Lake Powell, are simplistic and probably wrong. Rivers only homogenize some materials, usually those of similar density and other physical characteristics. Materials of greater density get sorted and classified by rivers, accounting for placer deposits of gold, silver, tin, and other metals. Again, tisk is involved in the objectionably negligent attitude that it's OK to let the river take away the tailings and 'naturally attenuate' the contamination. This would be a very bad decision, based on extremely reprehensible ethics and miserably deficient science.
- Human health impacts: Radon may undergo repeated episodes of release if and when the cap is
 compromised by collapse or cutting, due to outward river migration under the site. These episodes could be
 quite significant, depending on weather conditions, endangering human health to a far greater degree than
 projected for the relatively steady-state modeled in the DEIS.
- Wetlands impacts: The Matheson Wetlands Preserve may well be receiving contaminated flows passing under the river and emerging downgradient in the wetlands. This observation points out the complexity of hydrology in the area, and the urgent need to remove the source in order to remediate ground water contamination. Without source removal, this ongoing threat to wetlands and wildlife cannot be mitigated or halted. Selenium, particularly, appears not to have been accounted for it its potential teratogenic effects on birds, fish and amphibians --- particularly on birds in the Matheson Wetlands Preserve. The maximum selenium concentration reported in Appendix A2, 0.026 mg/L (26 ppb) is well beyond the appropriate limits for wildlife reproductive integrity, according to a growing body of literature on selenium aquatic biology (Lemly and others). The possibility, moreover, of synergistic effects exists. Literature cites, for example, selenium-vanadium interactive effects on wildlife, which cannot be ruled out as a condition created by continued presence of the Atlas Tailings on this site, and failure adequately to remediate ground water beneath the site, including extended effects into the deeper aquifer.
- Relocation is the only option: As a consequence of recognition of all these risks, moving the tailings is
 imperative. Other risks, such as from dust and radon during the relocation, can be reduced acceptably
 (indeed, <u>must</u> be controlled) by 'engineering controls.'
- Transport options: Practical considerations elucidated in the DEIS warrant respect, it goes without saying. As one involved in relocation of significantly greater quantities of various types of tailings, sludges and waste rock on Kennecott Utah Copper's unprecedented cleanup projects in the 1990s, I can only encourage the choice of least energy-consumptive option. Intuitively, rail is preferable if systems of excavation/loading and unloading/placement can be devised. The option that is obviously not adequately considered, that we believe may be critical to the feasibility of rail transport, is conveyor use at each end. It is a proven technology, utilized over longer distances than will be encountered at either Klondike or Crescent disposal sites, with ample flexibility to minimize multiple handling events and dust. Pressure slurry may be acceptable as an alternative transport means, but adequate treatment of slurry waters must be taken into account before discharge, under some conditions. Truck transport involves less chance of multiple handling, and greater flexibility of placement, but also involves much greater energy consumption than a rail/conveyor system. Truck activity at the tailings loading site may also present the greatest risk of uncontrollable dust, as well as of diesel emissions, which could contribute to already marginal air quality conditions in Moab during temperature inversions.
- · Disposal site options: Klondike Flats seems the preferred option, with White Mesa Mill absolutely ruled out.

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- ➤ White Mesa Mill has one of the worst records of contaminated materials handling we have ever encountered. In the course of recent review of process cell construction, we have learned of the woeful inadequacy of cell design, liner specification, subgrade preparation, drainage and monitoring system design and installation, and of liner installation, but particularly of liner covering with 'protective' soil materials. Instead of sand for bedding and covering liners, the cells are shown in QA/QC report photos to have been covered with soils characterized by large, angular rocks that almost certainly caused perforations in liners even before construction was completed. There is no reason, based on IUC's record, to suppose that they are capable of doing any better with future lined basins, even with the assumption of regulatory authority by a more attentive staff at UDRC. IUC has not earned the public's trust. Beyond this fact, the construction of a long pressure-slurry pipeline is fraught with construction and operational risk, and presents the inevitability of disposal of contaminated water, contaminated by the slurry event, itself. This 'choice' is no choice; White Mesa must be rejected prima facie.
- Given our preference for rail/conveyor transport, Klondike Flats is the most appealing. Compared to the Crescent Junction site, there may also be factors of visual impacts and possible health exposures that should be considered. Either site is, by such a great margin, preferable to all the other alternatives that we find no objection to either.
- Costs: The costs estimated by DOE, as well as by NRC and Price Waterhouse Coopers before DOE
 assumed responsibility for the site, appear beyond reason. We appreciate the need to be conservative in the
 direction of assuring adequate funds to do the job well, but we find no other cleanup in recent years to
 approach the per-unit relocation costs outlined. If any part of the project seems likely to exceed projected
 costs, we submit that it may be ground water remediation. Given the apparent inadequacy of DEIS analysis
 of sub-site geology and hydrology, there may be surprises in store.

Conclusions: The "bottom line" conclusions of our following of the issue, and our review of the DEIS document, supplemented by some modest investigation into subsurface geology and hydrology, as well as comparative visual survey of river morphology at others of the many curves in the region, are that 1) the tailings simply must be moved, and 2) they must be moved either to Klondike Flats or Crescent Junction, if another more suitable site is not identified between now and the time DOE commences these activities. There is no real choice. "No action," "cap in place" and "relocate to White Mesa Mill" are not responsible options, by any stretch of imagination, or applied engineering/environmental science. This is such a patently obvious case of governmental failure to hold a responsible corporation responsible that we can only hope and pray that DOE is able to pursue recourse for financial recovery from Atlas of some of these costs. As we say in the vernacular, "This just ain't right!" Emphatically, neither is it "right" to leave the tailings in place!

Thank you sincerely for this opportunity to comment on the DEIS.

Gratefully yours,

Ivan Weber

I.Weber/2-18-05

Document #689 McNeely, Jerry Grand County Council

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GRAND COUNTY COUNCIL MEMBERS

Jerry McNeely(Chair) · Rex Tanner (Vice Chair) Audrey Graham · Judy Carmichael · Jim Lewis · Nate Knight · Joette Langianese

February 15, 2005

U.S. Department of Energy Grand Junction 2597 B3/4 Road Grand Junction, Colorado

RE: Grand County Council

Response to the <u>Remediation of the Moab Uranium Mill Tailings</u>, <u>Grand and San Juan Counties</u>, <u>Utah</u>, <u>Draft Environmental Impact Statement</u>

The Grand County Council would like to thank the Department of Energy for the time devoted to the issue of remediation of the Atlas tailings pile. We recognize your agency has spent many years studying this issue and has been diligent in allowing for public input. We appreciate having this opportunity to formally respond to your study. The County, in fact, has anxiously anticipated the Draft Environmental Impact Statement on the Atlas tailings pile located at the gateway of our community on the shores of the Colorado River. After thoroughly reading and evaluating the DEIS, we would like to relay to you some continuing concerns regarding the disposition of the pile.

First, it appears that much of the document, Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement, was based on research that was conducted in 1994. Rather than approaching the subject from a broad spectrum of alternatives, the old research tends to be myopic and focus only on capping the pile in place. Newer studies approached the issue more comprehensively and used more current scientific tools and modeling. It is significant that the conclusions of all of these studies are in direct conflict with those reached by the DOE. All of the newer data suggests that moving the tailings pile is the most appropriate solution for the health and safety of all western states that rely upon the water of the Colorado River. These studies, conducted independently by the United States Geological Survey, Dr. Kip Solomon of the University of Utah, and Dr. John Dohrenwend of the University of Arizona, contradicted all of the DOE's findings regarding the stability and migration of the Colorado River. It is Grand County's position that the DOE simply did not utilize the most available and current science and that these later studies and their conclusions should be acknowledged.

It also appears that the DEIS did not take into consideration the findings of the National Academy of Science. At the core of the NAS Committee's findings is the conclusion that the DOE has made some dangerous assumptions regarding the stability of the Colorado River in its relationship to the Atlas tailings pile. These assumptions and uncertainties

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discredit the DEIS and cause Grand County to insist the DOE proceed with the solution that will afford the greatest level of protection to the health and safety of the public. That solution is to move the tailings pile to a safer location within Grand County.

Briefly, the NAS findings, with which Grand County concurs, include the following points:

- It cannot be assumed that the course of the Colorado River will remain in its current position over the next 1000 (or more) years. Specifically, their study states it is a "near certainty that the river's course will run across the Moab Site at some time in the future."
- 2) It is not accurate to suggest there is a low potential for lateral migration of the Colorado River. The NAS states that the DOE appears to be "overly optimistic" with regard to the migration of the river. Indeed, lateral movement of the river channel away from and toward the pile has been observed since this stretch of the Colorado River was first surveyed for possible dams in 1944.

Additionally, while the DOE analysis supports the position that "any potential river migration toward the pile would not occur as a catastrophic event but rather gradually in small increments..." Grand County does not believe this is a valid assumption. There is historical data substantiating floods flowing at 66,100 cubic feet per second (cfs), (1914) 76,800 cfs (1917), 65,000 (1928), 64,400 cfs (1941), 64,200 cfs (1957), 61,900 (1983) and 70,300 (1984). Additionally, a flow of 125,000 cfs was analytically presumed to have occurred in 1884. The river begins to encroach the pile starting at the lowest of these flows. Should the worst event occur, water contaminated by the highly hazardous material could actually encroach into the City of Moab leaving residential and agricultural land contaminated.

It is Grand County's position that the DOE cannot and should not make the assumption that a catastrophic event will not occur. The power of water, illustrated most dramatically by the tsunami that occurred in the Indian Ocean killing a quarter of a million people, mocks science and technology and renders short-term statistical analysis meaningless. Closer to home we have seen the same powerful impacts of water throughout California and southern Utah as homes have been swept past barriers into the sea and rivers from catastrophic rainfall and flooding.

We also cannot dismiss the presence of two reservoirs upstream from the Moab Site that have never been studied in terms of their impact in the event they fail as the result of a natural disaster or an act of human terrorism. The sudden release of those waters into the Colorado would represent a wholly unpredictable catastrophic event.

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- 3) While the DOE believes that failure of engineered barriers and the consequences of such a failure can be managed, Grand County agrees with the NAS assessment of such an assumption that "...our society's capacity to guarantee that harm will be prevented is limited."
- 4) The DOE states in the DEIS that a failure would produce "only small and transitory consequences downstream." The NAS report concludes that contamination could appear along the Colorado River from Moab to Lake Powell, requiring remedial action over a long period of time, if only to determine that the threat in a particular year or season is minimal or to declare certain areas off limits. The report discusses the potential of "hot spots" on the beaches and sandbars that could shift from place to place, year to year, or even season to season. It also suggests that the Matheson Wetlands Preserve could be damaged. Additionally, their report explains that, "Many people value the river for its religious and spiritual significance, its dramatic natural beauty, its importance as a water resource, its symbolic representation of the entire region; its importance as an ecosystem, and its centrality to the regional economy."
- 5) The DOE's conclusion is that the life-cycle cost of moving the pile is substantially higher than that of capping it in place and there is no substantial difference in the cost of ground-water remediation and long-term management between the alternatives. For reasons outlined in the following paragraphs, Grand County cannot concur that the life-cycle cost of moving the pile is less than that of capping it in place.

Among the most troubling oversights in the DEIS is the fact that the DOE dismissed any potential of damage to the environment or populations downstream from Grand County. The DEIS recognizes only minimal danger to the local area: "If 20 to 80 percent of the tailings pile were washed into the river, it would have serious adverse impacts on the riparian plant and animal life and would affect the health and safety of residents along the river and of river guides who many spend up to 50 days on the river in a given year. Such a flood event could also affect the tourist economy of Moab if users of the river corridor avoided the area after such an event." (DEIS Summary pg. S-41)

This statement by the DOE grossly and negligently underestimates the environmental and human impact of a Possible Maximum Flood or any other catastrophic event associated with the Colorado River and the Atlas tailings pile. If the 130-acre pile comprised of 12 million tons of waste were to be washed into the Colorado River, the adverse impacts would be immeasurable. Widespread and possibly permanent damage would be sustained not only in Grand County but also throughout the lower basin of the Colorado River drainage and the West. Millions of people live in cities and towns that rely upon the water of the Colorado River for agricultural purposes and/or drinking water. Most notably, major metropolitan areas such as Las Vegas, Nevada, rely upon the water from the Colorado. Likewise Los Angeles and all of southern California are dependent upon this river. The entire Palo Verde Water District including the Imperial Valley and Mohawk water districts rely upon the water from the Colorado River. Lake Havasu City,

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Arizona, Parker, Arizona, and the entire Parker Strip subsist upon water from the Colorado. Native American Indian nations use the Colorado River for agriculture and the river is, in fact, the cornerstone of their lives. Blyth, California; Yuma, Arizona, and the country of Mexico would all be significantly and irreparably impacted by damage to the Colorado River. Additionally, the water from the Colorado River is used to irrigate agricultural lands that supply crops and produce to the entire United States. The damage to the American West would extend immeasurably beyond Moab.

We suspect that the cost of moving one of the largest radioactive waste sites in the United States is at the center of the decision. We must protest such thinking, however, because no matter how high the cost of moving the tailings pile now, that cost would pale in comparison to the cost of a near impossible remediation of the Colorado River from here to the coast in the event of a catastrophic event. Additionally, the millions upon millions of agricultural lands that would be contaminated in the event of a natural or human disaster involving the Atlas tailings pile would wreak havoc upon economies throughout Utah, Nevada, Arizona and California. The cost to human lives is, frankly, not quantifiable.

A significant portion of the DEIS is devoted to the consequences of uncertainties: "It is important that decision-makers are cognizant not only of the nature and range of uncertainties, inherent in the EIS but also of the potential consequences of these uncertainties."

Finally, we would like to cite the Floyd D. Spence National Defense Authorization Act of 1999, which states:

"Subject to the availability of appropriations for this purpose, the Secretary shall conduct remediation at the Moab site in a safe and environmentally sound manner that takes into consideration the remedial action plan prepared pursuant to section 3405 (1) of the Strom Thurmond National Defense Authorization Act for Fiscal Year 1999 (10 U.S.C. 7420 note; Public Law 105-261), including – (A) Ground water restoration; and (B) the removal, to a site in the State of Utah, for permanent disposition and any necessary stabilization, of residual radioactive material and other contaminated material from the Moab site and the floodplain of the Colorado River."

According to this federal law, we should not currently be participating in a debate as to whether or not to move the pile, but rather a discussion as to how quickly we can implement the transfer to a safe site.

Just as Grand County, and all of southeastern Utah, was willing to step up to the plate and produce uranium for the United States during the Cold War, the County is now willing to help protect the whole of the American West from this imminent danger. We are willing to keep this hazardous radioactive waste in our own back yard. We are not asking that any other community take on the burden of storing this waste.

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From-2025865211

Received Feb-15-05 02:55pm

The DOE held the responsibility for ensuring that the information upon which it bases the remediation decision is sufficient and of high quality. Grand County does not believe that responsibility was met. Therefore, the members of the Grand County Council representing the citizens of Grand County, and with the welfare of millions more citizens in the states of Utah, Nevada, Arizona, and California in mind, most respectfully demand the Atlas tailings pile be moved to another location in Grand County. We believe there should be no compromise when it comes to the health and safety of the public.

Respectfully submitted,

Jerry McNeely, Chairman

Grand County Council

Document #696 Bruno, Jeanne-Marie Park Water Company



Park Water Company

#696

February 18, 2005

Mr. Don Metzler Moab Federal Project director U.S. Department of energy 2597 B ¾ Road Grand Junction, CO 81503

Dear Mr. Metzler:

Park Water Company appreciates the opportunity to provide comments on the Draft Environmental Impact Statement for Remediation of the Moab Uranium Mill Tailings. Park Water Company (PWC) is an investor-owned water utility providing water service to approximately 150,000 people in Los Angeles and San Bernardino Counties.

The Colorado River is a critical primary and supplemental source of drinking water for over 20 million consumers in Southern California. PWC consumers in Los Angeles County receive 90% of their water from the Metropolitan Water District of Southern California, a major contractor of Colorado River water. Protection of this vital resource is of paramount importance.

The Moab uranium mill tailings, however, threatens drinking water quality of the downstream users. Uranium concentrations in the tailings pore water are already over 750 times higher than the federal maximum contaminant level, and there is indication that these levels will increase. Groundwater concentrations at the site also exceed federal and/or California drinking water standards for other constituents including arsenic, mercury, thallium and radium.

With both the "no action" and "on-site" alternatives, contaminated seepage will continue to leak from the tailings pile and into the Colorado River. Reliable and permanent protection can only be achieved by moving the tailings pile off-site. This is consistent with the State of Utah's December 29, 2004 letter received by your agency that states that any remediation other than an off-site option is unacceptable. We strongly urge you to relocate the tailings pile.

Should you have any questions on this comment letter, please feel free to call me or contact me via email at imbruno@parkwater.com.

Very truly yours,

Jeanne-Marie Bruno

Senior Vice-President and General Manager

P.O. Box 7002 • 9750 Washburn Road • Downey, California 90241 • Phone 562.923.0711 • Fax 562.861.5902

Document #699 Livermore, Dave and Bellagamba, Susan The Nature Conservancy



See Co. History to reconstruct

Moab Project Office

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TEL 435 259-4629 FAX 435 259-2677 Utah Field Office 559 East South Temple Salt Lake City, Utah 84102

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Arlington, Virginia

February 18, 2005

Remediation of the Moab Uranium Mill Tailings DEIS Attention: Don Metzler, Moab Federal Project Director U. S. Department of Energy 2597 B 3/4 Road Grand Junction, CO 81503

Dear Mr. Metzler:

The Nature Conservancy ("Conservancy") appreciates this opportunity to review and provide comments on the Remediation of the Moab Uranium Mill Tailings Draft Environmental Impact Statement ("DEIS"). The Conservancy is a non-profit organization with a mission of preserving the plants and animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. Supported by approximately one million members and 1,800 corporate sponsors, the Conservancy owns over 1,400 preserves - the largest private reserve system in the world. One such preserve is the Scott M. Matheson Wetlands Preserve ("Matheson Preserve"), which is located immediately across the Colorado River from the Moab Uranium Mill Tailings site. The Matheson Preserve is home to over 220 species of birds and is the last significant remaining wetlands on the Colorado River in Utah. As one of the nearest private landowners to the Moab Mill Site, we have much at stake and are very concerned that the Department of Energy ("DOE") selects the appropriate course of action to protect our private property and the biological integrity of the Colorado River. The Conservancy believes that the best alternative will be to relocate the Moab Uranium Mill Tailings to either the Klondike Flats or Crescent Junction disposal sites.

Proceeding from our purpose as an organization and our need to protect our investment in the Matheson Preserve, this letter will focus on the DEIS's treatment of the native biotic resources of the Moab Valley and the Colorado River. More specifically, the comments in the remainder of this letter are arranged in the sequence as outlined in the list below.

- Findings by Dr. D. K. Solomon and Phillip M. Gardner in a "Summary Report of Hydrologic Studies of the Scott M. Matheson Wetlands Preserve."
- Findings of the U.S. Geological Survey ("USGS") in "Initial-Phase Investigation of Multi-Dimensional Streamflow Simulations in the Colorado River, Moab Valley, Grand County, Utah, 2004."
- · Potential Impacts to the Matheson Preserve.
- Potential Impacts to Species of Concern.

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Note: The DEIS indicates that the Matheson Preserve is owned by the Utah Department of Wildlife Resources; in actuality the northern portion (425 acres) is owned by the Utah Division of Wildlife Resources and the southern portion (470 acres) is owned by the Conservancy. This should be corrected in the Final Environmental Impact Statement.

Remediation of the Moab Uranium Mill Tailings DEIS Comments February 18, 2005 Page 2

Findings by Dr. D. K. Solomon and Phillip M. Gardner in a "Summary Report of Hydrologic Studies of the Scott M. Matheson Wetlands Preserve."

In 2002, the Conservancy and the Utah Division of Wildlife Resources ("UDWR") contracted with the University of Utah to investigate the hydrology of the Matheson Preserve, including sources of water to the wetland and the hydrologic connection between the wetland and the Moab Mill Tailings. Tritium, dissolved noble gas concentrations, and oxygen and deuterium isotope ratios were used to examine the sources and the history of the water present. Lithologic composition of the subsurface beneath the wetland was investigated by logging cores at three boreholes and examined together with the logs of 14 wells drilled by the DOE and borehole data presented by Doelling (2002). These methods, coupled with the analysis of groundwater uranium and ammonia concentrations, were used to explore the groundwater connection between the wetlands and the Moab Mill Tailings.

The results of the Solomon/Gardner Report indicate the following information (discussed in more detail in this letter) pertinent to the DEIS:

- 1. The Colorado River is not a hydrologic barrier, as the DOE's model indicates.
- 2. The Moab Mill Tailings literally rest on a foundation of sand, with the potential to be scoured away in future flood events.
- The Colorado River has occupied the present location of the Moab Mill Tailings, in the recent past.

Hydrologic Connection Between the Matheson Preserve and the Moab Mill Tailings
The river is not an absolute hydrologic barrier to groundwater movement. By examining and comparing borehole drill cores and logs, Solomon and Gardner were able to map the minimum extent of the thick permeable channel gravels which underlie the entire site (See Illustration A). These gravel deposits create a pathway for groundwater to underflow the Colorado River. Further, comparison of noble gases and tritium levels between the Glen Canyon Group Aquifer and the Matheson Preserve groundwater leads to the conclusion that water beneath the wetlands is coming from the north side of the river though these river gravels. Lastly, spatial distribution of uranium and ammonia found in wells on the Matheson Preserve suggests that uranium is migrating from the Moab Mill Tailings beneath the river and into the subsurface Matheson Preserve.

A Foundation of Sand and Future Flood Events

The core samples drilled on both sides of the river show that the Moab Mill Tailings rest on overbank deposits of very fine sands and silts that are 8 to 15 feet deep. Found beneath these fine soils is a large, continuous package of gravel and cobbles, up to 150 feet thick, that was deposited by the Colorado River during periods of large and very forceful floods. To determine the date of such past flood events, Solomon and Gardner used carbon -14 dating on organic matter found in the boreholes at depths of 24 and 30 feet. At 24 feet the organic matter was less

Remediation of the Moab Uranium Mill Tailings DEIS Comments February 18, 2005 Page 3

than 100 years old, and at 30 feet less than 1000 years old. These tests clearly illustrate that two flood events within the past 1,000 years have scoured to depths of 24 feet and 30 feet thus eroding away the foundation of sand and silt upon which the tailings currently sit.

River Migration

By mapping the known *minimum* extent of the subsurface channel gravel deposits as reconstructed from the well logs from both sides of the Colorado River, geologists can indicate the extent of past river migration. Illustration A clearly shows that the river has migrated to both the northwest and the southeast, and that the historic river bed is present beneath the current Moab Uranium Mill site. The DEIS uses engineering calculations to imply that the river will migrate only toward the southeast, and recognizes that there is some "uncertainty" in their migration model. However, the Solomon/Gardner findings unmistakably show that the river has historically occupied, and undoubtedly will again migrate in the direction of, the Moab Mill site.

Findings of the U.S. Geological Survey in "Initial-Phase Investigation of Multi-Dimensional Streamflow Simulations in the Colorado River, Moab Valley, Grand County, Utah, 2004."

The USGS recently completed a multi-dimensional stream flow model of the Colorado River near the Moab Mill Tailings. This model clearly shows the potential for developing a flow regime that exceeds the critical shear stress needed to scour the fine-grained deposits on which the Mill Tailings are founded. Although the application of rip rap at the toe of the Mill Tailings might armor the surface of the pile, it cannot prevent the river from undercutting the rip rap leading to failure. Unless the fine-grained deposits beneath the toe of pile are removed completely and replaced with rip rap that is founded on the underlying channel gravels, the rip rap armoring scheme is fundamentally flawed. As the cost of excavating the fine-grained deposits was not included in the cost estimates for the cap-in-place alternative, it too is fundamentally flawed.

Conclusions from the Above Studies

The DEIS treats the findings of the Solomon/Gardner study by acknowledging that uncertainties exist in their hydrologic and river migration model and that the State of Utah disagrees with DOE's conclusions. The Conservancy's interest in the immediate area and Colorado River system cause us to recommend vigorously that DOE, in the Final Environmental Impact Statement (FEIS), not gloss over the above findings as mere "disagreements" in models that are acknowledged to have "uncertainties". Rather, the FEIS must seriously consider and examine the data collected and conclusions of the Solomon/Gardner report and the latest information published by the USGS. Failure to do so may result in a potential mistake of catastrophic proportions – one that could have enormous, long-term adverse impacts on the Colorado River and the Matheson Preserve, including the species which depend upon these systems for their survival.

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Potential Impacts to the Matheson Preserve

The Matheson Preserve was created to ensure the lasting protection of an important desert wetland system and its associated biological diversity. To this end, the Conservancy and UDWR are managing the area to allow for the natural processes, such as flooding, that help to sustain the natural communities and critical wildlife habitat. Remediation of the Moab Mill Tailings has the following potential impacts to the Matheson Preserve.

Cap-in-Place Alternative

The On-site Disposal or Cap-in-Place alternative presents numerous concerns for the Conservancy and potential adverse impacts to the Matheson Wetlands Preserve. This alternative will reduce, but not eliminate, the leaching of contaminants into the groundwater beneath the wetlands. If this is the selected action, then the FEIS should include a ground water remediation system that protects, and does not negatively affect the Matheson Preserve. The estimated cost of such a system should be added to the cost of the Cap-in-Place Alternative.

Further, under this alternative a rip rap wall is designed to help prevent the possibility of flood events eroding the foundation of the pile.² Rip rapping the northwest shore of the Colorado River will certainly alter the morphology of the Colorado River, impact the opposite shoreline and add detrimental erosional forces on the shores of the Matheson Preserve.

Catastrophic failure of the Cap-in-Place alternative is possible due to 100 and 500 year flood events. The DEIS addresses this by indicating that there would be "only small and transitory consequences downstream." However, a Landsat satellite image taken on May 26, 1984, while the Colorado River was flowing 66,500 cfs (less than a 100 year flood event) shows that the river would be lapping at the base of the tailings and flowing through the Matheson Preserve and neighboring properties. Therefore, in future floods of this magnitude or greater, contaminants currently leaching from the tailings into the river will be deposited in hot spots throughout the Matheson Preserve and surrounding residential areas. If this were to occur, the Conservancy would have no choice but to close the preserve to the public, and could do little to prevent resulting potential mortality to native animals and plants.

Slurry Pipeline to White Mesa

The slurry pipeline route to White Mesa Mill disposal site indicates that the pipeline will cross the Matheson Preserve adjacent to an existing pipeline. The Conservancy will not willingly permit any further impact of either directional drilling or pipeline installation via open ditch through our property. The current pipeline easement allows one and only one pipeline. Therefore, this alternative as shown in the DEIS is not viable – unless the DOE asserts eminent domain and forces the issue by condemning a pipeline easement through our private property.

² Note: The Solomon/Gardner and USGS report illustrates that normal flood events will undermine the rip rap wall, erode away the fine silt and sand underlying the tailings, thus causing the tailings to spill into the Colorado River, questioning the effectiveness of any rip rap.

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Dike in the Colorado River

In the mid-1960's the Atlas Mineral Cooperation constructed a dike in the Colorado River from the southeast shore to a midstream island. The purpose of this dike was to rechannel the main river flow to the northwest shore. The construction of this dike has undoubtedly reduced the frequency of flooding events in the Matheson Preserve. Flooding is a critical natural process which helps to regenerate Fremont cottonwood trees and retain year-round surface water. The Conservancy suggests that the DOE remediate this situation by removing the man-made dike, no matter which alternative is chosen.

Potential Impacts to Species of Concern

Endangered Fish and Species of Concern in the Colorado River

The DEIS acknowledges that the Colorado River has been designated as critical habitat for four endangered fish species: the Colorado pikeminnow (Ptychocheilus lucius), razorback sucker (Xyrauchen texanus), humpback chub (Gila cypha), and the bonytail (Gila elegans). Of the eight native fish species in the Colorado River, seven are listed as either federal or state species of concern. In 2000, the Columbia Biological Laboratory of the USGS measured 100% mortality of fish placed in cages near Moab Uranium Mill shore. The level of ammonia contamination considered acutely lethal is approximately 2 mg/l; USGS measured levels of 1,500 mg/l in areas of the river adjacent to the Moab Mill Tailings. Since that time DOE has started a ground water remediation system. However, the DEIS indicates that 15,000 gallons of toxic chemicals continue to reach the river each day. The DEIS also states that "At the upper limit of uncertainty, the actual concentrations of ammonia could be at least 10 times greater than predicted. Therefore, it is possible that the On-site Alternative would never achieve the 3-mg/L ammonia target goal. For the off-site alternative, there is no uncertainty that the target level would eventually be achieved, because the tailings which are the source of some of the ammonia would be removed."

This statement alone indicates that the best solution to protect the endangered aquatic species and species of concern would be to move the tailings away from the shores of the Colorado River and the Matheson Preserve.

White-Tailed Prairie Dog Colonies

Both the Klondike Flat and Crescent Junction disposal sites are in close proximity to White-tailed prairie dog (*Cynomys leucurus*) colonies. Further, the slurry pipeline transportation route to these disposal sites would cross through White-tailed prairie dog colonies. If one of these sites were to be chosen as the preferred disposal site or if a pipeline is the preferred mode of transportation, we would recommend conducting surveys, and working closely with the UDWR to minimize any potential disturbance to these prairie dog colonies.

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Gunnison Sage-grouse

The pipeline route to the White Mesa Mill site would impact historical habitat and be in close proximity to current populations of Gunnison sage-grouse (*Centrocercus minimus*), a federal candidate for listing as an endangered species. Coupled with the impacts to the Matheson Preserve of the proposed route, the Conservancy adamantly opposes this alternative and transportation route.

Other State Sensitive Wildlife Species

Kit fox (Vulpes macrotis), burrowing owls (Athene cunicularia), black-footed ferrets (Mustela nigripes), golden eagles (Aquila chrysaetos) and ferruginous hawks (Buteo regalis) may all be impacted at the designated borrow areas or Klondike Flats and Crescent Junction disposal sites. The Conservancy recommends conducting onsite surveys in any disturbed areas and working closely with the UDWR to minimize any potential disturbance to these wildlife species of concern.

Plant Species of Concern

Although, the Conservancy knows of no occurrences of special status plants in the off site disposal areas, borrow sites, or pipeline routes, we still recommend on-site surveys be conducted, at the appropriate time of year for such plants in the selected disturbed sites.

Summary

The Nature Conservancy urges the DOE to select an action alternative that will reduce the number of uncertainties, protect the biological integrity of the Colorado River and Matheson Preserve, and avoid a catastrophic event of contaminated tailings being deposited in the Colorado River and Matheson Preserve. We encourage the DOE to refine their hydrologic model and river migration calculations to include the data and information gathered by Solomon and Gardner. With these considerations in mind, the only acceptable action is to move the tailings pile to either the Klondike Flats or Crescent Junction disposal sites. This is the obvious and safe alternative.

Sincerely,

Dave Livermore

Utah State Director

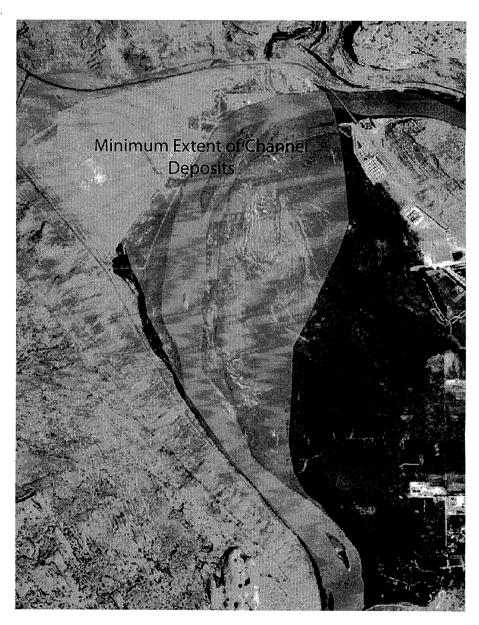
Susan Bellagamba

Canyonlands Program Director

Susan Bellagamta

CC: Chris Montague, Director of Conservation Programs, The Nature Conservancy in Utah

Illustration A - Minimum Extent of the Subsurface Channel Gravel Deposits as Mapped by Solomon and Gardner



Document #706 Fields, Sarah M. **Glen Canyon Group**

Kym Bevan

From:

Sarah M. Fields [sarahmfields@earthlink.net] Friday, February 18, 2005 4:54 PM

Sent: To:

Subject:

moabcomments Moab Mill DEIS Comments #706, pl



Unknown Document

Dear Mr. Metzler,

Attached please find comments on the Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, DEIS, November 2004, from the Glen Canyon Group of the Sierra Club.

A paper copy, with the attachment will follow in the mail.

Sarah Fields

Glen Canyon Group/Sierra Club

P.O. Box 622 Moab, Utah 84532

> February 18, 2005 via e-mail and first class mail

Mr. Don Metzler Moab Federal Project Director U.S. Department of Energy 2597 B 3/4 Road Grand Junction, CO 81503 moabcomments@gjo.doe.gov

Re: Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement, DOE/EIS-0355D, November 2004. 67 Fed. Reg. 70256 (December 3, 2004) and 69 Fed. Reg. 65426 (November 12, 2004).

Dear Mr. Metzler:

The Glen Canyon Group of the Sierra Club (GCG) appreciates this opportunity to comment on the November 2004 Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement (DEIS), DOE/EIS-0355D. The GCG represents several hundred members of the Sierra Club in southeastern Utah. Members of the GCG have been involved in the decision making processes related to the former Atlas Uranium Mill (Moab Mill Project) since 1987. The GCG made extensive scoping comments in the Environmental Impact Statement (EIS) process that lead to the publication of the DEIS. The GCG incorporates, by reference, the comments submitted on behalf of the Utah Chapter of the Sierra Club, by Jean Binyon.

A. Preferred Reclamation Alternative

- It is our position that the Moab Mill's tailings pile be moved by the existing railroad to an Off-Site Disposal Alternative in the Mancos shale deposits north of Moab. We believe that the Crescent Junction Alternative would be more protective of the environment and the health and safety of the public over both the short and long term than the Klondike Flats Alternative.
- 2. The Cap-In-Place Alternative is unacceptable because the Department of Energy (DOE) would not be able to provide reasonable assurance that the site would be reclaimed in such as manner that it would be protective of the environment and the health and safety of the public over the even the minimal reclamation standard time frame (200 to 1000 years) let alone over the thousands of years that the tailings would remain hazardous and the DOE would have total responsibility for the integrity of the site.

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3. The Moab site is an inherently unstable site, with an unknown history and an unknown future. The more the site is studied, particularly by an independent person or entity, the more questions arise related to the long-term suitability of the site. The subsurface of the site has never been adequately characterized by a full and independent study. The DOE needs to conduct a study that is solely dedicated to determining the past history of Colorado River meander under the site, the factors related to subsidence, the geological structures under the site, and the relationship of these features of the site to the Colorado River and movement of contaminants. Without such studies, the DOE has no basis for any assurances regarding the stability and suitability of the Moab site. If the DOE is unable or unwilling to assign such a study to a qualified outside entity, such as the U.S. Geological Survey (USGS), then it has no scientific basis for leaving the tailings in place.

The current uncertainties, which are accumulating, call into question past DOE and Nuclear Regulatory Commission (NRC) assumptions regarding site suitability. I would refer the DOE to the recent studies by Dr. John Dohrenwend regarding Colorado River meander, the studies by Dr. Kip Solomon, and the recent study by the USGS, Scientific Investigations Report 2005 –5022 Initial-Phase Investigation of Multi-Dimensional Streamflow Simulations in the Colorado River, Moab Valley, Grand County, Utah, February 2004, U.S. Department of the Interior, USGS.

4. The White Mesa Alternative is also an unsuitable option. It is the most costly, the most technically complex, would have unacceptable impacts on low-income and Native American communities, would have unacceptable adverse impacts on cultural resources of the Native American communities that would be impossible to mitigate, would destroy at least a dozen significant archeological sites at the International Uranium (USA) Corporation (IUSA) Uranium Mill, and is too close to a human population. There is the potential for contamination of a major water resource aquifer underneath the site. Such contamination would destroy the aquifer as a significant water resource for the surrounding community.

B. General Comments

1. The DOE failed to prepare the DEIS "in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321 et seq.), the Council on Environmental Quality (CEQ) regulations that implement the procedural provisions of NEPA (40 CFR Parts 1500-1508), and the DOE procedures implementing NEPA (10 CFR Part 1021)" as claimed by the DOE. See 67 Fed. Reg. 70256 (December 3, 2004).

The CEQ NEPA regulations set forth many agency requirements for a DEIS. As will shown below, in numerous instances, the DEIS failed to meet the directive to "provide full and fair discussion of significant environmental impacts." See 40 C.F.R. § 1502.1 (Purpose). DOE's NEPA implementing regulations state that, "it is DOE's policy to follow the letter and spirit of NEPA" and "comply fully with the CEQ Regulations." The DOE also adopted the DEQ regulations into their own regulations. See 10 C.F.R. § 1021.101 (Policy) and § 1021.103 (Adoption of CEQ NEPA regulations).

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The DEIS does not meet the requirements of 40 C.F.R. § 1502.24, (Methodology and scientific accuracy), which states:

Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement. An agency may place discussion of methodology in an appendix.

The DIES failed to properly cite references. References are very general or missing entirely. There is no cites to specific pages, paragraphs, sections, figures, tables, maps, etc. Often there is no reference at all for assertions, data, and conclusions contained in the DEIS. Contrary to CEQ regulations, there are no "explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement." The DEIS often references the 2003 Site Observational Work Plan (SOWP), never providing a page or volume number. These references to this massive, complex, 3-volume document do not suffice as "explicit references."

C. Comments on Specific Sections

1. Interim Cover

The DEIS, Section 1.2.1, states that Atlas Corporation's "decommissioning of the mill began in 1988, and an interim cover was placed on the tailings pile between 1989 and 1995." This statement regarding the presence of an interim cover on the impoundment is reiterated elsewhere in the DEIS. The statement is not followed by any other discussion of the fate of that "interim cover." Thus, the reader would get the mistaken impression that there was, indeed, an "interim cover" on the impoundment.

The placement on an "interim cover" on the impoundment was required by a condition of Atlas Corporation's license (License Condition 55, License No. SUA-917, Docket No. 40-3453), which established site reclamation milestones for Atlas's Moab Uranium Mill. That requirement was based on a Memorandum of Understanding between the Environmental Protection Agency (EPA), the Nuclear Regulatory Commission (NRC), and affected NRC Agreement States. See 56 Fed. Reg. 55432-55435, October 25, 1991.

The interim cover placed on the impoundment by Atlas did not prevent contaminants from rising to the surface of the impoundment. According to Atlas:

The capillary rise in unconsolidated silts that are as fine as Atlas' slimes can be as much as seven feet, of more - Groundwater Hydrology, by David Keith Todd, table 2.4 on page 35.

Evaporation of the upward-seeping [tailings] solutions from nearsurface³ saturated slimes has continued until three to six inch thick salt

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crusts formed over the slimes by the summer of 1995, thus contributing to the progressive stabilization of the central slimes tailings area.

See Transmittal of Atlas Corporation's As-Built Construction Report for the Completion of the Interim Cover, from Richard Blubaugh, Atlas Corporation, to Dan Gillen, NRC (October 16, 1996).

Subsequently, in 1999 PricewaterhouseCoopers (PWC) took over as trustee and licensee for the site. Contractors for PWC reworked the surface of the tailings impoundment, and contaminated materials from the site were placed on the impoundment. According to PWC's proposed dewatering program:

- 1. The existing surface of the tailings, within the limits of the ["exposed"] saturated slimes would be minimally regraded and a thin working layer would be placed as required for equipment access. The working layer is anticipated to be approximately 3.5 feet thick, and would be constructed primarily with coarse tailings (sand) from the surface of the [tailings] facility. Areas of the saturated slimes that are to be excavated to form the final subgrade surface are excluded from this step. [Page 1.]
- 6. Recontouring and grading of the remainder of the subgrade with [contaminated] fill material (e.g., up to the interim cap elevation, prior to the clay final cap) will proceed inward from the outer edges of the tailings surface. Material needed for this fill will be moved from the mill area of the Site where early characterization indicates presence of the highest levels of wind-blown tailings and other contaminants. . . . [Page 2.]

<u>See</u> letter from Keith Eastin, PWC, to Philip Ting, NRC, regarding "Docket No. 40-3453, License No. SUA-917, Atlas Moab Uranium Mill tailings Facility - Dewatering Design" (August 25, 2000).

On September 12, 2000, NRC Staff approved PWC's dewatering plan. The September 12 stated that the "design details of the dewatering plan were submitted by letter dated August 1, 2000, and supplemented by submittals dated August 3, 2000, August 4, 2000, and August 25, 2000. See letter from Philip Ting, NRC, to Keith Eastin, PWC, (September 12, 2000).

Atlas's "slimes" became PWC's "exposed" slimes. Atlas's "3 to 6 inch salt crust was proposed to be reconstituted as PWC's "soil cover [advanced] across remaining [exposed] slimes area."

On November 14, 2000, an NRC geotechnical engineer observed earthwork operations being conducted on the Moab Reclamation Trust tailings pile. The NRC viewed daily construction records and work plans for repairing the tailings pile. The construction operations included the regrading of outslopes, excavation of course tailings, and excavation/hauling of slime tailings. According to the daily summaries, construction

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operations began on September 14, 2000, and included excavation and hauling slimes, and excavation of course tailings. With permission from the NRC, the licensee began regrading the outslopes of the tailings pile on October 23, 2000. Most of a the construction activity was routine, with the following exceptions:

On October 9th, a mud wave was generated as tailings were spread over the lowest area in the center of the site." [Pages 3-4.]

The contractor indicated that about 70 percent (estimated 17, 000) of the [dewatering] wicks had been installed as of November 14, 2000. . . A small amount of saturated tailings slime was brought to the surface at each wick installation. [Page 4.]

<u>See</u> letter from D. Blair Spitzberg, Chief, Fuel Cycle and Decommissioning Branch, Region IV, NRC, Arlington, Texas, to Jim Langley, Manger, Financial Advisory Services, PWC, regarding NRC Inspection Report 40-3453/00-01 (and enclosures thereto) (February 6, 2001), Executive Summary.

During and after the PWC reworking and placement of contaminated materials on the impoundment there began a period of extensive off-site wind-blown contamination from the site. PWC eventually just stopped work and did not provide the NRC with the as-built drawings of the work that they had completed on the impoundment.

The DOE should provide the public with a complete picture of all the work done related to the disturbance of the top and slopes of the original interim cover.

The DEIS must provide complete and accurate information on the status of the cover at the site and not give the public and decision-makers the distinctly false impression that a fully operable "interim cover" is in place.

2. Disposal Cell Failure from Natural Phenomena, Section 4.1.17 of the DEIS.

2.1. The apparent purpose of this section of the DEIS is to make it appear that the impacts from a disposal failure would be minimal and acceptable. This section trivializes, distorts, minimizes, or completely ignores the impacts on the environment of a catastrophic disposal cell failure.

NEPA demands that there be a full and fair discussion, or assessment, of the significant environmental impacts of a disposal cell failure due to impacts of natural phenomena from geological forces or from the Colorado River. As will be shown below, this section of the DEIS fails to provide such a discussion. See 40 C.F.R. § 1501.1, "Purpose."

Also, see further discussion of the requirements of NEPA, below.

2. 2. DEIS (page 4-50): Although the probability of a significant release would be very small over the design life of the on-site disposal cell, this type of failure was assumed to occur in order to evaluate the potential consequences (risks).

Comment: The DOE errs in only considering the potential of severe flooding "over the design of the on-site disposal cell" and the impacts of a catastrophic during that

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time frame. There is no time limit on the consideration of reasonably expected environmental impacts that must be considered in an NEPA document.

The DIES totally ignores the fact that the DOE will have responsibility for the impoundment, essentially, forever. The DEIS fails to address the probability for a "significant release" during the length of time that the federal government will have responsibility for the site and responsibility for the clean-up of any contamination or tailings released from the site.

It is arbitrary for the DOE to assess the potential impact to the impoundment for only 200-1000 years. There is no legal basis for the DOE putting a time limit on consideration of potential environmental impacts that would result from leaving the Moab Mill tailings in place.

It was the intent of Congress that "uranium mill tailings disposal sites should in all cases be controlled and regulated by States and the Commission, to the maximum extent allowed by the state of the art, to insure that the public and the environment will be protected from the hazards of the tailings for as long as they remain a hazard." House Report No. 95-1480—Part I, p. 17-18.

2.3. DEIS (page 4-50): Several processes could affect the integrity of the disposal cell at the Moab site:

•River Migration•••• The Colorado River could migrate into the disposal cell over an extended period of time. Because this river migration would be assumed to occur over many years, a failure of long-term management of the pile would also have to occur for tailings releases to be significant.

Comment: The DEIS does not explain what the basis is for the assumption that river migration would occur over a period of years. In a flood event, the river could migrate rapidly, creating a new channel. The DEIS fails to consider the possibility of a catastrophic flood after a period of channel migration towards the impoundment.

Prudence demands that the DOE not rely on "long-term management of the pile" for assurances that the impoundment would not be compromised by natural forces. As stated in House Report accompanying the passage of the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA), "The committee believes that uranium mill tailings should be treated by the custodian in accordance with the substantial hazard they will present until long after our existing institutions can be expected to last in their present forms." House Report No. 95-1480—Part I, p. 17.

2.4. DEIS (pages 4-51 to 4-56) analyses the environmental impacts of catastrophic event: Risks to humans would be based on some type of activity that would bring people in contact with contamination. In this case, the contamination currently in the tailings pile was assumed to be dispersed downstream during an event such as a flood, and it was assumed that people would come in contact with this contamination in the water or sediments.

Comment: The impact scenarios that the DEIS discusses are totally out of touch with the reality of the use of the river as a major national recreational resource, the presence of public lands, and the desert environment. The DIES postulates a home built

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near the Colorado River. There are few places within the river basin below Moab where such a scenario could possibly take place.

The DEIS fails to mention or address the fact that the Colorado River shortly downstream from Moab flows, without a break, through 1) Canyonlands National Park, 2) Glen Canyon National Recreation Area, 3) Grand Staircase-Escalante National Monument, and 4) the Navajo Indian Nation. The confluence of the Colorado and Green Rivers occurs within Canyonlands National Park. Most of the other lands next to the river are also in the public domain. The DEIS arbitrarily excludes consideration of impacts to the Colorado River below Glen Canyon Dam down into Mexico.

The DEIS fails to include a land use and land ownership map from Moab to the Gulf of California.

The risks discussed have absolutely no relationship to the actual use by humans of the Colorado River between Moab and the Glen Canyon Dam at Page, Arizona, and beyond. The DEIS ignores the fact that the Colorado River is the 5th largest river in the United States and is the major source of drinking water, agriculture water, and recreation in the Southwest. The river provides numerous economic, social, aesthetic, and scientific resources for millions of people. Why is this not mentioned or analyzed in the DEIS?

The DEIS fails to take into consideration the recreational boating, both personal and commercial, on the Colorado. It does not identify the amount of that use, the number of trips that recreational guides take. There is no assessment of the impacts on the riverboating community by contamination from either gradual or single event scenarios, or a combination of both.

2.5. DEIS (page 4-51): Other activities such as camping in a contaminated area would yield lower risks because exposure to contamination would occur for a limited number of days per year.

Comment: There is no basis for this statement. DEIS shows that there is a complete lack of data regarding the number of days any commercial recreational worker would camp on the river. The DEIS does not contain any data regarding the use of the river as a source of drinking and wash water by the river boating community, including commercial guides. There is no assessment of the amount of time boaters and guides wade in the river, are splashed by river water, are dunked by boating accidents, and would otherwise be exposed to contaminated water, contaminated sediments, and contaminated particulates.

2.6. DEIS (page 4-51): First, it was assumed that someone would build a house on contaminated sediments released from the tailings pile at a location downstream of the pile (residential scenario). This scenario assumes a home would be built in a contaminated area and the contaminated water (in this case, contaminated surface water) would be used as the primary drinking water source for many years (in reality, the contaminant concentrations in water would only last on the order of days

Comment: There is no substantiation of the assumption that "the contaminant concentrations in water would only last on the order of days." The DEIS fails to assess a circumstance where there is a continual release of contaminants into the river from the

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tailings, contaminated groundwater, contaminated sediments, and contaminated soils outside of the impoundment.

2.7. DEIS (page 4-51): therefore, the exposures to contaminated water under a residential scenario are unrealistically high but provide an upper bound to the potential risks). The most significant risks would occur from ingestion of contaminated drinking water and exposure to the radon in air originating from radium-226.

Comment: There is no mention of ingestion of contamination from dust via ingestion or breathing. This significant exposure pathway is not considered here. The DEIS fails to acknowledge that contaminated areas would dry out, especially in the dry climate, and contaminated materials would then be dispersed by wind, of which there is plenty.

The DEIS fails to provide an accurate and realistic scenario regarding the potential impact to humans from contamination in and near the river corridor.

2.8. DEIS (page 4-51) The camping scenario assumes two overnight camping events per year in contaminated areas and the accidental ingestion of contaminated surface water and sediments.

Comment: There is nothing here to show that a study has been done of the overnight camping habits of commercial river personnel or other members of the public who camp, wade, and boat on the Colorado. There is no discussion of purposeful ingestion of contaminated surface water by campers and boaters. River water is often settled and used and consumed by boaters on the river.

- 2.9. In sum, the DEIS fails to provide an accurate assessment of the potential of humans to be exposed to contaminants downstream from the Portal below the site to Lake Powell.
- 2.10. DEIS (page 4-52): Table 4-16 presents the estimated maximum level of contaminants in water and sediment that would still be protective of human (and ecological) health. The basis for these levels is provided in Appendix D.

Comment: The DEIS does not provide a statutory and regulatory basis for applying what the DEIS believes is the "Maximum Exposure Level of Contaminants Protective of Human Health and Ecological Resources."

The DEIS fails to provide specific information regarding the applicable state of federal regulations that would apply to the tailings and contamination from the tailings that are released from the site by a natural event. Should the tailings enter the river, they will still be "residual radioactive material," and subject to the authority of UMTRCA and EPA and possibly other state and federal regulations.

UMTRCA defines "residual radioactive material":

(7) The term "residual radioactive material" means -

(A) waste (which the Secretary determines to be radioactive) in the form of tailings resulting from the processing of ores for the extraction of uranium and other valuable constituents of the ores; and

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(B) other waste (which the Secretary determines to be radioactive) at a processing site which relate to such processing, including any residual stock of unprocessed ores or low-grade materials. [42 U.S.C. Sec. 7911. Definitions, at (7).]

Any discussion of the maxim levels of contaminants must be accompanied by a clear, complete discussion of ALL the Federal and State regulations that would come into play if the tailings were left in place and if the tailings and contaminated materials from the site enter the Colorado River during a natural event. The DEIS should also discuss which Federal and State statutes, regulations, and policies, that would be violated by the release of tailings and contamination from the tailings into the Colorado River. See discussion at 2.16 below.

2.11. DEIS (page 4-52): For the purpose of analysis, a large disposal cell failure (20 to 80 percent of the tailings eroded) was assumed to occur over a short duration (10 hours). Although such a large event would be unlikely, the analysis is useful in projecting potential environmental consequences of a worst-case scenario. The Colorado River was assumed to be at high flood stage during the tailings release. Concentrations of uranium, ammonia as nitrogen, and radium-226, the most prevalent contaminants, were estimated for the failure scenarios.

Comment: The DEIS must develop a broader, more inclusive, estimation of the release of contaminants from the impoundment. The DEIS fails to provide a scientific rationale for putting such limitations on any assessment of the impacts of a large disposal failure. There is no data to support the assumption that the release of tailings into the river would occur over a single 10-hour period.

2.12. DEIS (page 4-53): Sediment released during a catastrophic event would deposit in the river bottom or along banks or become part of the suspended load. Finegrained portions of the sediment would remain in suspension and rapidly transport downstream. Where the river overflowed its banks, fine-grained sediment would be deposited by settling in standing water.

Comment: Here the DEIS only evaluates the contamination and sediments that travel downstream, away from Moab site and away from the Moab Valley. This leaves out a whole area that would be impacted by the release of tailings and contaminants during a flood.

The maps contained in the recent USGS report by Terry A. Kenney (cited above) show that during flood events river water would inundate the Scott M. Matheson Wetlands Preserve (Wetlands) and parts of Moab Valley. A similar flood scenario is also postulated in the DEIS.

The DEIS fails to access the environmental impacts resulting from dispersion of contaminated water and sediments in the Wetlands or Moab Valley. This clearly contradicts the DOE's assumptions set forth elsewhere in the DEIS.

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2.13. DEIS (page 4-53): The concentrations of contamination in backwater areas would depend on (1) the proportion of fine-grained tailings to clean suspended load, (2) concentration in the suspended tailings, and (3) the mass deposited over a given area. During periods of low flow, fine-grained sediment would be deposited; during high flow, these deposits would be remobilized and transported farther downstream. The sediment would be dispersed and mixed with clean sediment during transport, causing a continual decrease in contaminant load. Based on detailed studies of deposition of radioactive sediment in the Colorado River Basin, it would be expected that very small amounts of contamination would accumulate in the main river channel (HEW 1963).

Comment: This paragraph references a June 1963 U.S. Department of Health, Education, and Welfare report, entitled "Radiological Content of Colorado River Basin Bottom, August 1960 – August 1961." The DEIS fails to address how and why this 40-year old study is in any way related to the discussion at hand. The study itself does not discuss the amount and types of contaminants that entered the Colorado River from uranium mills. They only refer to "uranium mill wastes." The study ends with a discussion of "Future Work Desired," which includes the statement, "Another aspect which deserves special consideration is a study of the distribution of dissolved radium in river water, radium in transported (or suspended) sediment, bottom sediment material and aquatic biota." It also states, "Such a study would yield additional information on the fate of radium in the water environment."

Obviously, the HEW study was not meant to be a definitive study of radium in a river environment. In the past 40 years there should be numerous studies related to the fate of radium in a water environment. The DEIS fails to make use of such studies.

2.14. DEIS (page 4-53): The most significant mill-related contaminant in the sediment would be radium-226 because of its low tendency to partition (dissolve) in water and its abundance in the tailings (HEW 1963).

Comment: The 1963 HEW report discusses some of the complexities related to the dissolution of radium in water. The report states that dissolution is related to the chemistry of the radium bearing material, the chemistry of the leaching liquid (i.e., river water), the amount radium in relation to the volume of the leaching liquid, agitation, a cycle of dissolution and precipitation, and time. The DEIS simplifies a very complex process. The assumption that there will be minimal dissolution of radium-226 from the impoundment is unsubstantiated.

2.15. DEIS (page 4-54 to 4-56): Here, the DEIS discusses and addresses the potential adverse impacts on the environment after a catastrophic cell failure.

Comment: The DEIS acknowledges some of the many unknowns, uncertainties, and the fact that there would be long-term and short-term adverse consequences to the environment due to a catastrophic release of the tailings into the river. There is an acknowledgement that "specific impacts to endangered species are difficult to access."

The DIES presents no scientific bases for the various assumptions and "likely" scenarios related to environmental impacts of a failure of the impoundment. No study has been done that the DEIS can refer to or rely on for information regarding the

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significant short-term, long-term, direct, and indirect consequences of one or more releases of tailings into the Colorado River.

This section completely fails to acknowledge the fact that Moab and Grand County economy is a recreational tourist-based economy. Much of the recreation is associated with boating on the Colorado River. Any failure of the impoundment would have a severe negative economic impact on the local and regional community. Boating on the river downstream from the impoundment would be closed for an unknown period of time. That is, use of the Colorado River, as a navigable waterway would not be possible (impeded). The river-boating economy could be completely destroyed.

There is no mention of the impacts on the major downstream agricultural, drinking water, and recreational uses of the Colorado. There is no realistic discussion of a catastrophic tailings pile failure as a National Disaster.

The adverse impacts to the Wetlands and Moab Valley by a catastrophic failure of the tailings are completely ignored. Right now, DEIS answers to questions related to the environmental impacts of "Disposal Cell Failure from Natural Phenomena" are by-guess-and-by-golly.

These significant impacts demand a detailed and comprehensive study.

2.16. DEIS (page 4-55): If mitigated, long-term failure would not likely result in negative impacts to aquatic biota. This type of release, which is possible at all UMTRCA Title I sites, can be mitigated. DOE's newly created (2003) Office of Legacy Management is responsible for monitoring and mitigating this type of release.

Comment: Here the DEIS does acknowledge the DOE's responsibility for mitigation of impact from a release of tailings into the river environment. However, there is no actual assessment of the types of mitigation required, the clean-up standards to be applied, costs, the possibility that mitigative measures would not be possible or would be ineffective, etc.

The DEIS states that this type of release "is possible at all UMTRCA Title I sites." No data is given to support this false, misleading, inaccurate statement.

Mill tailings at other similar Title I sites have been removed from the floodplain of their respective rivers. Some of the Title I sites were not even located on a river in the first place. It is impossible for the tailings at other Title I sites to be released into the Colorado River or one of it's tributaries by a catastrophic flood or river meander. The Colorado River is the 5th largest river in the United States. There is no other comparable Title I situation.

3. Requirements of NEPA and CEQ Regulations

CEQ regulations that were promulgated in response NEPA are found at 40 C.F.R. §§ 1500-1508. These regulations set forth the requirements for draft EISs. Below is a discussion of how DEIS Section 4.1.17 meets, or fails to meet, some of the CEQ and NEPA requirements.

3.1. CEQ regulation that implement the procedural provisions of NEPA demands that the requirements of other environmental laws and policies that are applicable to the

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deposition of tailings and contaminated materials from the tailings into the Colorado River be addressed in the DEIS. See 40 C.F.R. § 1501.2, "Implementation."

CEQ regulation also demands that the agency address "whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment." See 40 C.F.R. § 1508.27(b)(10).

This section of the DEIS does not provide such a discussion. The DEIS does not address the federal and state statures and regulations are pertinent to the environmental impacts of a failure of the Moab Mill tailings impoundment. The DEIS does not address the possibility of the violation of other Federal, State, or local laws or regulations due to the presence of the tailings on the floodplain of a navigable water or the release of the tailings into such water, which includes nearby wetlands.

Some of applicable Federal and State regulations and statutes that should be addressed in any assessment of impacts from "Disposal Cell Failure from Natural Phenomena" are:

- a. The Rivers and Harbors Act of 1899, Section 13, 1899 Rivers and Harbors Act (42 U.S.C. Title 33, Chapter 9, Section 407), which prohibits 1) the discharge of refuse matter of any kind or description whatever from the shore or mill into any navigable water and prohibits 2) material of any kind to be deposited on the bank of any navigable water where it shall be liable to be washed into such navigable water by storms or floods, or otherwise, whereby navigation shall or may be impeded or obstructed.
- b. Utah State Clean Water Act Implementing Regulations (UAC. R317-2-13). The State of Utah is authorized to protect the Colorado River as a raw water source and for recreation, boating, wading, game fish, aquatic life, and agricultural use.
- c. Endangered Species Act of 1973 (PL 93-205, 87 Stat 884, 7 USC 136, as amended)
- d. Federal Water Pollution Control Act (Clean Water Act of 1972) (PL 92-500, PL 100-433, 86 Stat 816, USC 9 sec. 1251 et seq., as amended, 33 USC sec. 1251-1356, and 1987 Federal Water Quality Act)
- e. Emergency Planning and Community Right-to-Know Act (PL 99-499 Title III of SARA Sec. 300-330, 100 Stat 1725, 42 USC 1101)
- f. Federal Tort Claims Act (PL chapter 753 Title IV, 60 Stat 842, 28 USC 1346b, 2671-80)
- g. Federal Water Pollution Control Act (Clean Water Act of 1972) (PL 92-500, PL 100-433, 86 Stat 816, USC 9 sec. 1251 et seq., as amended, 33 USC sec. 1251-1356, and 1987 Federal Water Quality Act)
- h. National Park Service Organic Act of 1916 (PL Chapter 408, 39 Stat 535 et seq., 16 USC 1)
- i. Historic Sites, Buildings and Antiquities Act of 1935 (PL Chapter 593, 49 Stat 666, 16 USC 461 et seq.)
- j. Protection of Wetlands (E.O. 11990, 1977 42 FR 26961, 3 CFR 121 (Supp 177), 42 USC 4321)
 - k. Indian Sacred Sites* (E.O. 13007, 61 FR 26771)

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- 3.2. CEQ regulation requires that the DEIS shall include discussions of "direct effects and their significance" and "indirect effects and their significance." As shown above, this section did not provide a full discussion of the direct and indirect effects and their significance related to a failure of the impoundment. Too many of the effects were minimized or completely ignored. See 40 C.F.R § 1502.16 (Environmental consequences) (a) and (b).
- 3.3. CEQ regulation requires that the DEIS address the possible conflicts between leaving the tailings in place, with the potential of adverse impact from an impoundment failure, and the "objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned." The DEIS failed to mention, let alone address, pertinent objectives of Federal, State, local, tribal, and regional "land use plans, policies and controls for the area concerned." This is especially pertinent because the land that would be impacted by a failure of the impoundment at Moab, in land that belongs to Federal and Tribal governments. See 40 C.F.R § 1502.16 (c).
- 3.4. CEQ regulation requires that the DEIS consider "urban quality" and "historic and cultural resources" in the evaluation of the environmental consequences. The DEIS failed to identify and address the impacts to the urban Grand County community environmental and quality of life in the event of a disposal cell failure. The DEIS failed to address impacts on the historic and cultural resources on the Colorado River downstream from the Moab site that could be impacted by disposal cell failure. There are numerous cultural resources in the vicinity of the river downstream. These are neither identified nor addressed. See 40 C.F.R § 1502.16(g).
- 3.5. CEQ regulation requires that the DEIS address the means to mitigate adverse environmental impacts. This assumes that the adverse impacts are completely and accurately identified. This has not been done in this section. The DEIS does not state the extent of DOE responsibility for the contamination from the release of tailings from the site into the river. There is no discussion of exactly what could be done to clean up the contaminated river and wetland environment in the event of the dispersal of tailings and contamination in the Moab Valley and downstream. The DEIS does not state how the DOE would rectify the impact from a tailings impoundment failure by repairing, rehabilitating, or restoring the affected environment. See 40 C.F.R § 1502.16(h).
- 3.6. CEQ regulation requires that "agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements." It requires that agencies "identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement." In this section the DOE did not meet this requirement. The various assumptions, hypotheses, and conclusions are not footnoted and there are numerous inaccurate, incomplete, and unsubstantiated statements. See 40 C.F.R. § 1502.24 (Methodology and scientific accuracy).

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- 3.7. CEQ regulation also says that the significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality. There is no such an analysis in the DEIS related to a tailings impoundment failure. There is no recognition that such a failure would constitute "National Disaster." See 40 C.F.R. § 1508.27(a).
- 3.8. "Significantly as used in NEPA requires considerations of both context and intensity." See 40 C.F.R. § 1508.27(b)(1) to (10). Intensity means the severity of impact. NEPA requires that the following should be considered in evaluating intensity:
- (a) Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.
- (b) The degree to which the effects on the quality of the human environment are likely to be highly controversial.
- (c) The degree to which the possible effects on the human environment is highly uncertain or involves unique or unknown risks.
- (d) The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.
- (e) Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.

In the discussion of the impacts of a significant release of the tailings, the DEIS failed to be considered these aspects in evaluating intensity of the environmental consequences.

4. Regulatory Requirements

4.1. Section 7 (pages 7-1 to 7-9) of the DEIS sets forth various statutes, regulations, executive orders, and policy guidances that the DOE believes are applicable to the Moab Mill Project.

DEQ NEPA regulation at 40 C.F.R. § 1502.2(d) requires that "environmental impact statements shall state how alternatives considered in it and decisions based on it will or will not achieve the requirements of sections 101 and 102(1) of [NEPA] and other environmental laws and policies." See 40 C.F.R. § 1501.2, (Implementation). However, there is no section of the DEIS that addresses the applicability of NEPA and the other laws and policies to specific alternatives. Any discussion of regulatory requirements is scattered within the document and difficult to find.

NEPA also demands that the agency address "whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment." See 40 C.F.R. § 1508.27(b)(10). There is no such discussion in the DEIS.

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4.2. Section 7.1.7 (page 7-4) discusses the Clean Water Act. It states that "mill tailings are exempt from the definition of a pollutant," and implies that the Clean Water Act is not applicable to the tailings and any discharges from the tailings into ground and surface water, implying that the Moab Mill tailings are exempt from Clean Water Act regulations. The DEIS fails to provide a basis for this pollutant exemption.

The applicable EPA definition of "pollutant" under the Clean Water Act regulations is found at 40 C.F.R. § 122, entitled "EPA Administered Permit Programs: The National Pollutant Discharge Elimination System," Subpart A ("Definitions and General Program Requirements"). The DEIS references these EPA regulations, which are part of the EPA implementation of the Clean Water Act. Section 122.2, entitled "Definitions," states, in pertinent part:

Sec. 122.2 Definitions.

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean:

Note: Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials. Examples of materials not covered include radium and accelerator-produced isotopes. See Train v. Colorado Public Interest Research Group, Inc., 426 U.S. 1 (1976). [Emphasis added.]

First, the definition of pollutant says that it includes "radioactive materials (except those regulated under the Atomic Energy Act of 1954 (AEA), as amended (42 U.S.C. 2011 et seq.))." Next, the definition provides a note of clarification: "Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials." It also states that materials not covered by the AEA "include radium."

According to the DEIS, the AEA requirements for the Moab Mill Tailings are found at 42 U.S.C., Chapter 88 ("Uranium Mill Tailings Radiation Control"), §§ 7901 et seq. These regulations apply to UMTRCA Title I inactive mill tailings sites, such as the Moab Mill Project site. These inactive sites are the responsibility of the DOE. Congress amended the AEA in October 2000 and designated the Moab Mill site as a Title I site under UMTRCA. See the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001 (Public Law No. 106-398). Because of that authorization act, the Moab Mill tailings are no longer regulated under 42 U.S.C. §§ 2021 et seq., which provides for (among other things) regulation of commercial uranium and thorium processing sites by the NRC and Agreement States.

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Under 42 U.S.C. Chapter 88, § 7911(7) the Moab tailings meet the definition of "residual radioactive material." Section 7911, states, in part:

Sec. 7911. Definitions

(7) The term "residual radioactive material" means -

(A) waste (which the Secretary determines to be radioactive) in the form of tailings resulting from the processing of ores for the extraction of uranium and other valuable constituents of the ores; and

(B) other waste (which the Secretary determines to be radioactive) at a processing site which relate to such processing, including any residual stock of unprocessed ores or low-grade materials.

Under the provisions of Title I, the Moab Mill tailings now fall within the definition of "residual radioactive material." They no longer fall under the definitions of source, byproduct, or special nuclear materials found in 42 U.S.C. Chapter 23. (It might be argued that the tailings contain "source material" and, thus, are exempt from the definition of "pollutant." However, that would only exempt the radioactive uranium portion of the tailings, not the other radioactive (e.g., radium-226), toxic, and hazardous constituents of the tailings and ground and surface water contamination from the tailings. The DOE has authority under Title I for "residual radioactive material," but not for "source material.")

There is no indication that the EPA has exempted "residual radioactive materials," or radioactive materials "regulated" under Sections 7901 et seq. of 42 U.S.C., from the regulatory definition of the term "pollutant."

The DEIS should clarify this matter of statutory authority under the Clean Water Act, with cites.

4.3. Section 7.1.8 (page 7-4) discusses the applicability of the Rivers and Harbors Act of 1899 (RHA). The only section discussed is Section 10. There is no mention of Section 13 of the RHA, sometimes known as the "Refuse Act" (42 U.S.C. Title 33, Chapter 9, Section 407). This is strange, because in the scoping process, I submitted an extensive comment regarding the applicability of this statute to the Moab Mill situation. Further, this issue is not listed in the DEIS under "Issues/Concerns Raised in the Scoping" (Section 1.5.2, pages 1-13 to1-20).

Section 13 of the RHA, entitled "Deposit of refuse in navigable waters generally," reads:

It shall not be lawful to throw, discharge, or deposit, or cause, suffer, or procure to be thrown, discharged, or deposited either from or out of any ship, barge, or other floating craft of any kind, or from the shore, wharf, manufacturing establishment, or mill of any kind, any refuse matter of any kind or description whatever other than that flowing from streets and sewers and passing therefrom in a liquid state,

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into any navigable water of the United States, or into any tributary of any navigable water from which the same shall float or be washed into such navigable water; and it shall not be lawful to deposit, or cause, suffer, or procure to be deposited material of any kind in any place on the bank of any navigable water, or on the bank of any tributary of any navigable water, where the same shall be liable to be washed into such navigable water, either by ordinary or high tides, or by storms or floods, or otherwise, whereby navigation shall or may be impeded or obstructed: Provided,

That the Secretary of the Army, whenever in the judgment of the Chief of Engineers anchorage and navigation will not be injured thereby, may permit the deposit of any material above mentioned in navigable waters, within limits to be defined and under conditions to be prescribed by him, provided application is made to him prior to depositing such material; and whenever any permit is so granted the conditions thereof shall be strictly complied with, and any violation thereof shall be unlawful. [Emphasis added.]

The pertinent provisions of this statute read:

- It shall not be lawful to discharge, or deposit, or cause, suffer, or procure to be deposited from the shore or mill of any kind any refuse matter of any kind or description whatever into any navigable water of the United States from which the same shall float or be washed into such navigable water; and
- 2) It shall not be lawful to deposit, or cause, suffer, or procure to be deposited material of any kind in any place on the bank of any navigable water where the same shall be liable to be washed into such navigable water by storms or floods, or otherwise, whereby navigation shall or may be impeded or obstructed.

With respect whether the Colorado River in the vicinity of the Moab Mill is a "navigable water," the U.S. Army Corps of Engineers informed the DOE that "the [Moab Mill] project site is also located within a declared navigable reach of the Colorado." See letter from Ken Jacobson, Chief, Colorado/Gunnison Basin Regulatory Office, Grand Junction, Colorado, U.S. Army Engineer District—Sacramento, Department of Army, to Joel Berwick, Grand Junction Office, DOE, August 14, 2003; Attachment 2 to "Migration Potential of the Colorado River Channel Adjacent to the Moab Project Site: Letter Report," MOA 19.1.2, November 2003, Rev. 2.

The DEIS should contain a full, authoritative discussion of the applicability of both Section 13 prohibitions to the Moab Mill site. This statute should be addressed pursuant to the requirements of 40 C.F.R. § 1502.2(d) and 40 C.F.R. § 1508.27(b)(10).

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4.4. Section 7.3.1 (page 7-8) Discusses the State of Utah Clean Water Act Implementing Regulations found in the *Utah Administrative Code* (U.A.C.) Section R317-2-13 (Water Quality Standards).

This very short section indicates that the Colorado River is protected by the State as a raw water source, for boating, wading, water skiing, warmwater game fish and necessary aquatic organisms in their food chain, and agricultural uses.

But, contrary to the requirements of 40 C.F.R. § 1502.2(d) and 40 C.F.R. § 1508.27(b)(10), the DEIS fails to "state how alternatives considered in it and decisions based on it will or will not achieve the requirements of" R317-2-13. Additionally, contrary to the requirements of 40 C.F.R. § 1508.27(b)(10), the DEIS fails to address whether the current situation or any of the proposed alternatives threaten a violation of R1317-2-13.

The DOE must implement these CEQ requirements in all respects.

- 4.5. The DEIS fails to list and address other requirements that would be violated or would in some way be applicable in the event of a catastrophic failure of the tailings impoundment. These would include the Emergency Planning and Community Right-to-Know Act (PL 99-499 Title III of SARA Sec. 300-330, 100 Stat 1725, 42 USC 1101), the Federal Tort Claims Act (PL chapter 753 Title IV, 60 Stat 842, 28 USC 1346b, 2671-80), and the National Park Service Organic Act of 1916 (PL Chapter 408, 39 Stat 535 et seq., 16 USC 1).
- 4.6. CEQ regulation at 40 C.F.R. § 1502.16(c) requires that the DEIS address "possible conflicts between the proposed action and the objectives of Federal, regional, State, and local (and in the case of a reservation, Indian tribe) land use plans, policies and controls for the area concerned." The DEIS discussion of Regulatory Requirements fails to identify and address specific objectives of Federal, regional, State, and local, tribal land use plans, policies and controls" for the impacted areas of concern. Further, there is no such discussion elsewhere in the DEIS.
- 4.7. Section 7.1.2 (pages 7-1 to 7-3) addresses the Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA). Unfortunately, this section also includes the implementing EPA regulations, rather that providing a separate section for the discussion of 40 C.F.R. Part 192, Subparts A, B, and C. The DEIS mixes the provisions of Title I of UMTRCA with the applicable provisions of Part 192.

Neither the discussion of Title I nor the discussion of applicable subparts of 40 C.F.R. Part 192 state how alternatives considered in the DEIS and decisions based on the DEIS will or will not achieve the requirements of UMTRCA and Part 192. This is contrary to the expectation set forth in 40 C.F.R. § 1502.2(d).

4.8. In sum, the DEIS discussion of Regulatory Requirements, itself, fails to meet the regulatory requirements set forth in the applicable CEQ regulations implementing NEPA.

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Further, DOE NEPA regulations state that, "to the extent possible, DOE shall determine the applicability of other environmental requirements early in the planning process, in consultation with other agencies when necessary or appropriate, to ensure compliance and to avoid delays." See 10 C.F.R. § 1021.341 (Coordination with other environmental review requirements). As shown above, this directive was not fully implemented.

The CEQ regulations were promulgated for a reason. It was the intent of the NEPA and the CEQ that all significant circumstances affecting a major federal action be considered by the public and the agency. When an agency leaves pertinent information out of a DEIS, it limits the ability of the public and the agency to make sound environmental decisions. This is especially relevant in these circumstances, where there has been a massive failure of the regulatory oversight process since 1956. Fifty years of unsound Moab Mill decision making with respect the protection of the environment and the health and safety of the workers and the public is an unfortunate heritage. It is not a heritage to build on.

5. White Mesa Alternative

5.1. It was not until less than two weeks ago, at my request, that the DOE made one of the important documents related to the White Mesa proposal publicly available and placed it in the DOE reading files in Grand and San Juan Counties. The International Uranium (USA) Corporation (IUSA) report, *Preliminary Cost Estimate and Technical Report: Moab Tailings Project White Mesa Slurry Pipeline Option.* May 9, 2003, is a large document that, according to law, should have been made available to the public last May.

Although the DEIS discussion of the White Mesa Alternative is, in part, based on that submittal, it is not referenced in the DEIS. The failure of the DOE to make this record publicly available was a clear violation of the AEA (42 U.S.C. Chapter 88, § 7924(e); UMTRCA, Section 114(e), Documentation of information; public availability; trade secrets and other disclosure exempt information). Section 7924(e) states:

The Commission, in cooperation with the Secretary, shall ensure that any relevant information, other than trade secrets and other proprietary information otherwise exempted from mandatory disclosure under any other provision of law, obtained from the conduct of each of the remedial actions authorized by this subchapter and the subsequent perpetual care of those residual radioactive materials is documented systematically, and made publicly available conveniently for use.

The Final EIS should include in its discussion of the White Mesa alternative the applicable references to the 2003 Preliminary Cost Estimate and Technical Report and other IUSA documents, with "explicit reference by footnote," as required by 40 C.F.R. § 1502.24.

#706, p2/

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- 5.2. The DEIS sheds little light on the process that resulted in the White Mesa proposal appearing as a viable remedial action alternative.
- 5.3. It is unclear whether IUSA is acting as an applicant or as a potential future contractor to the DOE, and how, specifically, the IUSA proposal fits into the regulatory scheme of things under UMTRCA and other applicable DOE regulations related to applicants and contractors. This aspect of the IUSA proposal should be outlined in the DEIS, rather than hidden from the public.
- 5.4. The DEQ NEPA regulations include provisions that apply to "applicants," which IUSA appears to be. IUSA did submit a substantive proposal to the DOE and that proposal was accompanied by environmental information: Description of the Affected Environment, White Mesa Mill, Blanding, Utah, for Transport by Slurry Pipeline and Disposal of the Moab Tailings, May 2003.

40 C.F.R. § 1506.5 (Agency responsibility), states at (a):

(a) Information. If an agency requires an applicant to submit environmental information for possible use by the agency in preparing an environmental impact statement, then the agency should assist the applicant by outlining the types of information required. The agency shall independently evaluate the information submitted and shall be responsible for its accuracy. If the agency chooses to use the information submitted by the applicant in the environmental impact statement, either directly or by reference, then the names of the persons responsible for the independent evaluation shall be included in the list of preparers (Sec. 1502.17). It is the intent of this paragraph that acceptable work not be redone, but that it be verified by the agency.

There is no specific reference to this requirement in the DEIS. The DOE did use the information submitted by IUSA in the DEIS and, however vaguely, did reference that document. However, there is no indication that the DOE independently evaluated and verified the information in that IUSA submittal. The DEIS does not indicate that the DOE is responsible for its accuracy. The DEIS does not list the preparers of the Description of the Affected Environment in the list of DEIS preparers in Section 8 of the DEIS.

The status of IUSA as an "applicant," the relationship of the IUSA environmental report to the DEIS, and the applicability of the requirements of 40 C.F.R. § 1506.5(a) should be clarified by the DOE.

5.5. Section 2 of the DEIS is supposed to contain a Description of Proposed Alternative Action. However, there is not a full description of any of the off-site disposal alternatives. The description of those alternatives is scattered throughout this section. Information regarding the White Mesa slurry pipeline alternative is presented on pages

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2-34, 2-46, 2-56, 2-59, 2-61 to 2-66, 2-78 to 2-83, and then some. It is very hard for a reviewer of the DEIS to get a complete, comprehensive picture of the totality of the White Mesa alternative or the two other off-site disposal alternatives.

The DEIS should be rearranged to include a descriptive section for each off-site alternative in Section 2. All this descriptive information for each alternative should be in one place. Section 2 is very confusing.

5.6. Section 1.4.2 (page 1-8) introduces the White Mesa proposal. It states that the Mill has the potential to process material from the Moab site." Neither here, nor in subsequent DEIS discussion of the possibility of the processing of slurry water or tailings, is there any mention of necessary findings by the Secretary of Energy that are required prior to the processing of any Moab materials at White Mesa. The specific provisions set forth in UMTRCA related to such processing are not included in the DEIS discussion. Here the applicable statute is found at 42 U.S.C. Sec. 7918(b), which states:

(b) Mineral concentration evaluation; terms and conditions for mineral recovery; payment of Federal and State share of net profits; recovery costs; licenses

Prior to undertaking any remedial action at a designated site pursuant to this subchapter, the Secretary shall request expressions of interest from private parties regarding the remilling of the residual radioactive materials and the site and, upon receipt of any expression of interest, the Secretary shall evaluate among other things the mineral concentration of the residual radioactive materials at each designated processing site to determine whether, as a part of any remedial action program, recovery of such minerals is practicable. The Secretary, with the concurrence of the Commission, may permit the recovery of such minerals, under such terms and conditions as he may prescribe to carry out the purposes of this subchapter. No such recovery shall be permitted unless such recovery is consistent with remedial action. Any person permitted by the Secretary to recover such mineral shall pay to the Secretary a share of the net profits derived from such recovery, as determined by the Secretary. Such share shall not exceed the total amount paid by the Secretary for carrying out remedial action at such designated site. After payment of such share to the United States under this subsection, such person shall pay to the State in which the residual radioactive materials are located a share of the net profits derived from such recovery, as determined by the Secretary. The person recovering such minerals shall bear all costs of such recovery. Any person carrying out mineral recovery activities under this paragraph shall be required to obtain any necessary license under the Atomic Energy Act of 1954 [42 U.S.C. 2011 et seq.] or under State law as permitted under section 274 of such Act [42 U.S.C. 2021]. [Emphasis added.]

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This statute related to recovery of minerals from "residual radioactive material" by a Title II licensee requires various findings by the Secretary of Energy.

There is no indication that the Secretary has made the required findings related the processing of Moab tailings or slurry water by IUSA. There is no indication that the Secretary has evaluated the mineral concentration of the residual radioactive materials at the Moab site, determined whether mineral recovery is practicable and consistent with remedial action, or has determined the share of the net profits that should to the Secretary.

The DEIS's failure to include this pertinent information is consistent with the DEIS's failure, described above, to include specific information regarding the implementation of applicable statute, as required.

These statutory requirements must be discussed in the DEIS.

 Section 3.4.11 (pages 3-155 to 3-157) discusses Cultural Resources at the IUSA Mill.

The discussion of the adverse impacts to the cultural resources in Section 4.4.9 (pages 4-135 to 4-138) reference the 2003 Class I Cultural Resource Inventory of the Proposed White Mesa Mill Site, White Mesa Mill Materials Borrow Area, and Two Associated Corridor Routes, Grand and San Juan Counties, Utah, Abajo Archeology, Bluff, Utah. There is no mention in the DEIS that this document is not publicly available. Apparently, no attempt was made to make a copy that did not contain sensitive information available to the public. 40 C.F.R. § 1502.21 states, "No material may be incorporated by reference unless it is reasonably available for inspection by potentially interested persons within the time allowed for comment."

Section 3.4.11 states that the various sections of land on White Mesa, however there is no mention of Section 16, Township 38 South, Range 22 East. Since this section contains IUSA's proposed borrow area, I would think that that area would be included in the study.

The information in this discussion of cultural resources is minimal and in no manner informs the reader of the types of cultural sites that would be destroyed should the White Mesa alternative be approved. The DEIS should include pictures of the types or archeological sites that would be destroyed. Attached is a publication that includes pictures: White Mesa Archeological Sites: A Report, Sarah M. Fields, June 2004. This document is available at http://www.utah.sierraclub.org/. As the author of that document, I give the DOE permission to make use of any pictures or text from that document. Please! Download, cut, and paste.

The DEIS references a document, still in the works, by J. Fritz, Potential Traditional Cultural Properties within Moab Project Study Areas: A Preliminary Ethnographic Overview. Information from this study should be included in the final DEIS. Additionally, during the scoping process, much information was provided the DOE regarding the traditional uses of cultural resources in the vicinity of White Mesa. This information has not been included in the DEIS. It must be incorporated in the DEIS.

The DEIS fails to acknowledge that "mitigation measures" usually means the complete destruction of the archeological resources on the ground, after excavation.

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This DEIS discussion does not include any reference to the license condition in IUSA's license (License Condition 9.7, NRC Source Material License SUA-1358) related to the identification and mitigation of archeological sites. The terms of this license condition should be included in the DEIS, as required by CEQ NEPA regulations at 40 C.F.R. §1502.25(b).

5.8 It is clear that the numerous adverse impacts to significant, treasured, culturally meaningful resources on and in the vicinity of White Mesa, which cannot in any manner be mitigated, make consideration of the White Mesa option completely unacceptable.

Thank you for this opportunity to present comments.

Sincerely, Sara 4/1. Fields Sarah M. Fields

for the Glen Canyon Group

P.O. Box 143 Moab, Utah 84532

Enclosure: As stated

White Mesa Archeological Sites A Report



Site 42Sa6386 at White Mesa Uranium Mill Site

By Sarah M. Fields
Glen Canyon Group/Sierra Club
Funded by a grant from the National Sierra Club

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White Mesa Archeological Sites in Danger of Destruction

Although hidden from view, scattered across White Mesa in San Juan County, Utah, are hundreds of prehistoric archeological sites from settlements that date back 700 to 1,500 years ago. At least nine of these sites on White Mesa would be completely obliterated if the U.S. Department of Energy (DOE) chooses International Uranium (USA) Corporation's (IUC's) Uranium Mill in San Juan County, Utah, as the final resting place for the Moab Uranium Mill tailings.¹

There are more than 24,000 archeological sites in the State of Utah. About 8,000 are in San Juan County. Over 300 of the San Juan County sites are on White Mesa within the IUC Mill's approximately 5,240 acres.

It would be impossible to dispose of the Moab Mill tailings at White Mesa without destroying some of the numerous archeological sites. Nineteen White Mesa archeological sites were excavated in 1979 to 1981 when the uranium mill and four disposal cells were originally con-

structed. Most of these ancient structures were completely destroyed.

IUC has proposed transferring the approximately 13 million tons of Moab Mill tailings to White Mesa via a slurry pipeline. Disposal at White Mesa would include the construction of two new disposal cells, to the south and west of the current disposal cells.

Two of the archeological sites that would be impacted by the proposed new cells were excavated in 1981. The larger site, with four pithouses and a shallow trash midden, was not impacted by earlier mill construction. The other, smaller site, may already be covered by tailings Cell 3.

Five sites will need to be excavated if the

new impoundments are built. Two sites will need to be tested to determine whether they should be excavated. Six of the un-excavated sites are quite large, from 100 to 325 feet in diameter, and are thought to have been occupied from 900 to 1,100 years ago.

Other archeological structures and cultural materials might be impacted by other mill construction activities. Additional cultural sites might be discovered during construction and archeological mitigation.



Site 42Sa6388. This pithouse is probably covered by overburden from cell construction.

Moab Mill Project Environmental Impact Statement to Address Cultural Resources

The White Mesa disposal option will be evaluated by the DOE in the Draft Environmental Impact Statement (DEIS), along with other disposal alternatives. As part of this National Environmental Policy Act (NEPA) process, the DOE will identify and evaluate the impacts of the proposed alternatives on the cultural sites. Any adverse impacts to cultural resources, if White Mesa is chosen, would have to be mitigated pursuant to federal laws and the IUC mill's license conditions. The DEIS is currently due to be released for public comment in the late summer or fall of 2004.

The DOE has published a "Cultural Resources Management Plan" (GJO-MOA 1.24) for the Moab Project. This publication discusses the applicable statutes and regulations. A copy is available from the DOE Grand Junction Office. See contact information on page 8.

White Mesa Cultural Sites

White Mesa is a large, rugged, gently sloping mesa south of the Abajo Mountains in southeastern Utah. It is a dry mesa, with seeps and springs in the canyons providing temporary and permanent sources of water. Westwater and Cottonwood Canyons border the mesa is to the west and Coral Canyon borders it to the east. These canyons lead south to the San Juan River, not far from the town of Bluff, Utah.

The vegetation is primarily grasses and sage, with desert scrub and scattered pinyon and juniper trees. Current annual rainfall is about 12 inches.

The White Mesa archeological sites are the temporal and spiritual remains of the early people who lived there over many hundreds of years. Archeologists have divided the early settlements into chronological cultural classifications. These classifications apply to numerous ancient settlements throughout the Four Corners region: Arizona, Colorado, New Mexico, and Utah. The White Mesa prehistoric period of occupation are estimated to range from Basketmaker III (A.D. 450-750), Pueblo I (A.D. 750-900), Pueblo II (A.D. 850-1100), and Pueblo III (A.D. 1100-1300). Cultural sites as early as A.D. 115 have been identified.

Little is visible on the surface now. The scattered pieces of pottery, building stones, middens, burned stone and materials, and depressions in the ground provide an indication that there may once have been a structure underneath the fill material. Most structures were only revealed by digging. Underneath the surface archeologists have discovered large pit houses and kivas, storage structures, burial sites, fire pits, middens, and numerous artifacts of daily life. Many of the sites are extensive and contain more than one type of structure. Sites can range from 15 to 300 feet in diameter.

The prehistoric habitations on White Mesa exhibit a great deal of architectural variety.

Kivas and pits (habitation, fire, storage) were built into the massive caliche deposits underneath the surface. Mud and stone was used as building material and roofs were created with vegetation, usually over an internal log support system.



Site 42Sa6437. Pithouse with ceremonial kiva in upper right corner. Site was destroyed by construction of tailings Cell 2.

Basketmaker III inhabitants built small, semipermanent deep pithouses to live in and small specialized structures for the processing and storage of food.² Pueblo I habitations were not as numerous and situated on canyon rims near springs.

Pueblo II peoples reinhabited Basketmaker III habitations and built new ones. It is believed that the numerous shallow pit structures were primarily temporary, seasonal habitations used to harvest, accumulate, and store food resources.

Food was then transported to the permanent settlements in the area. Nearby canyon rock shelters and canyon bottom-land habitations were also used. The many man-made artifacts include manos, metates, stone hammers, flaked implements, pottery, woven pieces, pipes, and agricultural implements. The architecture, animal and wild and domestic plant remains, and other evidence of community life provide a unique picture of the people who came to live on White Mesa and the nearby canyons.

The sites provided much information on the relationship between the settlements on White Mesa and larger, permanent settlements in San

Juan County and in distant areas, such as Mesa Verde, Colorado.

Eighteen excavated White Mesa cultural sites are now gone and cannot be viewed, studied, and appreciated by the public. We no longer have access to this part of White Mesa's rich cultural history and heritage.

Impacts to Archeological Sites

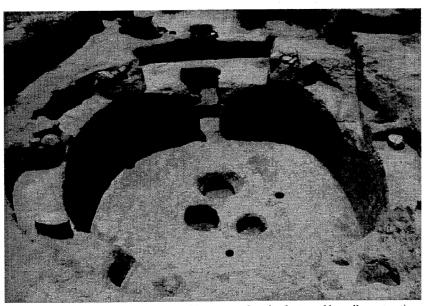
Over the years, ever since the first humans lived on the mesa, natural and man-made forces brought changes to the early habitations. As one group of people left

and others came, some structures were reused and rebuilt. When the structures were inhabited, fire sometimes burned down the wood and brush that made up the roofs and walls. Stone walls and wooden beams collapsed, animals moved in and made burrows, wind and water brought in soil, and plants sprouted.

It is estimated that the last of the ancient people left their homes in the area in about A.D. 1260, most likely due to continued drought throughout the southwest. Later, Ute, Navajo, and Paiute communities moved into the area,

establishing temporary and permanent homes.

Much of the evidence of historic and pre-historic native habitations and life has been erased by natural forces and human activities. When farming and ranching communities moved into that area, new human and human related activities began to seriously impact the remnants of the early cultures. The European settlers who immigrated to San Juan County starting in the 19th century had little cultural connection with the ancient and recent native inhabitants. Mechanized range improvements (chaining, disking, plowing, and railing), cattle grazing, vandalizing, and pot hunting were carried out with impunity.



Site 42Sa6385. Ceremonial kiva. Part of large, complex site destroyed by cell construction.

These activities took their toll on the remains of the area's cultural sites. Structures and artifacts were knocked down, removed, eroded, displaced, and destroyed. Similar destructive activities continue to impact White Mesa archeological sites today.

Uranium Mill on White Mesa

In the late 1970s, a new industry moved into the area. This was the uranium mining and milling industry. It was to have an extremely adverse and long-lasting impact on the cultural resources on White Mesa. In 1977 Energy Fuels Nuclear, Inc. (Energy Fuels) proposed to build a uranium mill on White Mesa. The mill would be licensed by the Nuclear Regulatory Commission (NRC) as a uranium recovery facility under the Atomic Energy Act of 1954, as amended.

Since the facility was to be licensed by the federal government, the National Historic Preservation Act and related federal regulations were applicable to the development of the proposed uranium project. The NRC was required to consult with the Advisory Council on Historic Preservation and the Utah State Historic Preservation Officer. The NRC did not consult with local tribal members and tribal governments regarding the impacts of the proposed mill on White Mesa archeological and cultural resources.

Energy Fuels contracted with the Antiquities Section of the Utah Division of State History to conduct historical and archeological surveys. One survey identified over 100 cultural sites within the original mill site boundaries. Another preliminary survey identified over 200 prehistoric archeological sites on the BLM and School and Institutional Trust Lands Administration (SITLA) land that would be transferred to Energy Fuels.

Determinations of the significance of some of the sites on the original mill site property were made by digging to discover whether there were subsurface structures or deposits. Eventually, it was determined that a number of sites would need to be excavated and studied to supposedly mitigate the adverse effects of the construction of the Energy Fuels' uranium mill.

The Antiquities Section carried out full-scale excavations in 1978 (one site) and 1979 (eleven sites). Two reports, which included the descriptive data and preliminary interpretations, were published by the Antiquities Section. Photographs from some of the beautiful sites excavated in 1979 are presented here.³ The artifacts recovered by the Antiquities Section were given to the University of Utah in Salt Lake City.

Plano Archaeological Consultants (Plano) excavated two sites in 1980, and Plano and Abajo Archeology excavated six sites in 1981. Reports with descriptive data and interpretations were published.⁴ The artifacts from these excavations are stored, but not displayed, at the Edge of the Cedars Museum in Blanding, Utah.

Naming the Archeological Sites

One of the troubling aspects of the 1979 excavations was the naming of each excavated archeological site by the researchers for the Antiquities Section of the Division of State History. It is not known whether the archeologists conducting the research (who were paid by Energy Fuels) did this on their own or at the request of Energy Fuels.

The names given the sites did not reflect the prehistoric native culture, the historic native culture, or even the local and regional geographic characteristics. The Antiquities Section chose, instead, to legitimize the new nuclear industry culture by giving each site a name that is associated with atomic weapons and atomic energy. The names given to the eleven excavated sites were: Reactor Ridge, Half-Life House, Isotope Slope, Proton Point, J/PSI Point, Three Meter Isle, Radon Ridge, Plasma Point, Alpha House, Barium Bottoms, and Tailings Terrace.

It is hard to comprehend how the archeologists working with the Antiquities Section justified this total indifference to the historical culture associated with the sites they were studying. They knew the sites would soon be eliminated to facilitate the growth of this new destructive nuclear industry—destructive to the environment and to community health and safety. Perhaps they thought that, by giving the sites names associated with the new atomic industrial culture that was moving onto White Mesa, the obliteration of the archeological sites was justified and acceptable.

White Mesa Archeological District and the National Register of Historic Places

When the Uranium Mill on White Mesa was originally constructed during the early 1980s, the mill property was specifically designated as the White Mesa Archeological District. Two parcels (about 2,000 acres) owned by the original licensee made up the archeological district. The uranium mill and the tailings impoundments were constructed in this area.⁵

In 1979, at the request of the NRC, the White Mesa Archeological District was found eligible for inclusion in the National Register of Historic Places by the Secretary of Interior. The National Register is the national list of lands recognized

for their significance in American history, architecture, engineering, archeology, and culture. However, the White Mesa district has not been "listed" in the National Register. Few people are aware that the White Mesa Archeological District even exists and has been found eligible for the National Register.

The NRC also requested that several White Mesa historical sites be found eligible for the National Register. These sites were "Earth Dam," "Range War Site, "Proposed Townsite," "Posey War Site," "Kunen Jones Homesite," and the "White Mesa Community." For some inexplicable reason, no eligibility determination for the White Mesa historical sites was ever made. The eligibility of the White Mesa historical sites for the National Register remains an unresolved question.

BLM Addition to the White Mesa Archeological District

In the late 1970s, Energy Fuels and the BLM began a lengthy negotiation to arrange for a land exchange. The purpose of the exchange was to provide a "buffer zone" around the mill. The exchange would give Energy Fuels ownership of about 2,600 acres of BLM land on White Mesa, adjacent to the mill.⁶ It was not until 1985 that the land exchange was finalized.

As part of the land exchange, in August 1980, the BLM requested that White Mesa BLM parcel be found eligible for the National Register as an addition to the White Mesa Archeological District. The Secretary of Interior found the BLM parcel eligible for the National Register, and it was added to the White Mesa Archeological District

Also, Energy Fuels purchased a section (640 acres) of Utah State Institutional Trust Lands Administration (SITLA) land adjacent to the BLM land.⁷ It does not appear that that section of land is part of the White Mesa Archeological District, although it contains numerous archeological sites.

Legal Requirements Related to the Archeological Sites

The current NRC requirements for the archeological sites within the original mill site property are found in License Condition 9.7 of IUC's license (SUA-1358). IUC would be required to

conduct a cultural resource inventory for the construction of any new cells, such as the ones proposed to accommodate the Moab Mill Tailings.

In July 1988 the new licensee (Umetco Minerals Corporation) submitted a list of White Mesa archeological sites identified within the original site boundaries.⁸ The list identifies the status of each site.⁹

The sites within the land transferred from the BLM to Energy Fuels in 1985 are the subject of the August 26, 1985, "Cultural Resource Easement: Energy Fuels — BLM Land Exchange." The BLM retained exclusive use and control of all cultural sites on the BLM land transferred to Energy Fuels along with the right to visit the cultural sites. Part of Cell 1 and excavated soil overburden are in a quarter section of former BLM land. Ourrently, IUC does not have plans to construct new tailings impoundments on the former BLM land.

The 1985 Easement also required the BLM to conduct periodic inspections of the archeological sites to assure compliance with the Easement's provisions "at intervals not greater than three (3) years." As of 2004, the BLM should have conducted at least six archeological site inspections. But, **NO** archeological site inspections have been conducted by the BLM on White Mesa, as the easement requires.

The Monticello BLM office is now aware of their responsibility to conduct archeological site inspections and is in the process of hiring a new archeologist and moving to fulfill its responsibilities under the Cultural Resources Easement.

Ute Mountain Ute Tribe Opposes Moving Moab Tailings to White Mesa

A few miles to the south of the mill is the home of the White Mesa Band of the Ute Mountain Ute Tribe. Their land is adjacent to the IUC Mill property. Navajo Nation tribal members reside in the area and in the Westwater community to the west.

In March 2003, the Ute Mountain Ute Tribal Council passed a resolution opposing IUC's proposal to construct a slurry pipeline and move the Moab Mill tailing to White Mesa.

At a September 2003 meeting in Moab, representatives of the Ute Mountain Ute Tribe, the Southern Ute Tribe, and the Northern Ute Tribe informed the DOE that disposing of the Moab Mill



Site 42Sa7754. Kiva. Probably covered by overburden from tailings cell construction.

Tailings at White Mesa was totally unacceptable.

The meeting between tribal representatives was part of the regulatory review and consultation process, pursuant to Section 106 of the National Historic Preservation Act and 43 C.F.R. Part 800. The consultation with the tribes and the DOE relates to the effects of the proposed disposal options on tribal cultural resources. These resources include gravesites, artifacts, traditional cultural practices (such as modern-day ceremonial practices and the harvesting of food and material for traditional crafts), and spiritual values. Clean water and air are also part of the important cultural resources to be preserved.

Members of the White Mesa Band and Navajo Nation living in the vicinity of White Mesa have publicly stated their numerous concerns regarding the operation of the IUC Uranium Mill and the adverse impacts to cultural resources should the Moab Mill tailings be disposed of on White Mesa.

There are tribal members who support the operation of the mill and the slurring of the tailings to White Mesa because of the jobs that are expected. The nuclear industry has a long history of dividing tribal communities over questions

of expected jobs and financial gains versus adverse environmental, health, safety, social, and cultural resource impacts.

Public Participation

There is a great deal of additional information related to the archeological sites on White Mesa. Many documents are available from the NRC. Information related to the DOE's evaluation of the impacts on White Mesa Cultural Resources, including the archeological sites, will be placed in the Blanding and Moab public libraries. There will be opportunities to submit written and oral comments

on the DEIS, and public hearings will be held in San Juan County and Grand County.

Footnotes

 Archeological Sites (Map), Department of Energy, Grand Junction Office, Filename: X0039500-02, May 6, 2002.
 "1981 Excavations on White Mesa, San Juan County, Utah," William E. Davis, Plano Archeological Consultants

and Abajo Archeology, February 1983.

- 3 "Archeological Excavations on White Mesa, San Juan Couty, Utah, 1979," Laurel Casjens, et al., Antiquities Section, Division of State History, June 1980, Volumes I-IV.
 4 "1980 Excavations on White Mesa, San Juan County, Utah," Larry D. Agenbroad, et al., Plano Archeological Consultants, 1981, and "1981 Excavations on White Mesa, San Juan County, Utah," William E. Davis.
- ⁵ Township 37 South, Range 22 East.
- ⁶ Most of the BLM land was in Township 38 South, Range 22 East, just south of the Energy Fuels' property.
- ⁷ Section 16, Township 38 South, Range 22 East.
- ⁸ Archeological Sites Related to the White Mesa Project, Attachment 2 to letter from J.S. Hamrick, Umetco Minerals Corporation, to Harry J. Pettingill, Uranium Recovery Field Office, NRC, July 28, 1988.
- ⁹ Sites identified as "Excavated" (30 sites), "Contributing Sites to be Excavated" (38 sites), and "Undetermined sites" (49 sites), "Non-Contributing sites" (7 sites). Eleven of the sites identified as "Excavated" have not been excavated. ¹⁰ SE 1/4 of Section 29, Township 37 South, Range 22 East.

CONTACTS AND INFORMATION

To request a copy of the DEIS, contact: Wendee Ryan: Wendee.Ryan@gjo.doe.gov or the DOE Grand Junction Office.

U.S. Department of Energy Moab Mill Project

Toll-free hotline: 1-800-637-4575 Website: http://www.gjo.doe.gov/moab E-mail: moabcomments@gjo.doe.gov

Mail: Mr. Don Metzler

U.S. Department of Energy

2597 B 3/4 Road

Grand Junction, CO 81503

U.S. Nuclear Regulatory Commission

Web page: http://www.nrc.gov

Dr. Myron Fleigel

NRC Moab Mill Project Manager

Toll-free number: 1-800-368-5642, ext. 6629

E-mail: mhf1@nrc.gov



Utah Division of Radiation Control

Website: http://www.radiationcontrol.utah.gov

National Register of Historic Places Website: http://www.cr.nps.gov/nr.

Advisory Council on Historic Preservation

Website: http://www.achp.gov

International Uranium (USA) Corporation Website: http://www.intluranium.com

Federal Statues:

National Historic Preservation Act, Archeological Resources Protection Act, American Indian Religious Freedom Act Native American Graves Protection and Repatriation Act,

Website: http://www.gpoaccess.gov/index.html

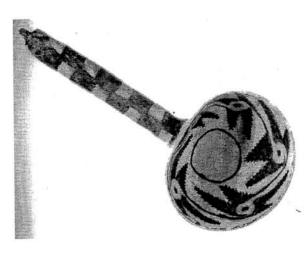
Federal Regulations:

Title 36 C.F.R. Parts 60, 63, 68, and 78

Title 36 C.F.R. Part 800 Title 43 C.F.R. Part 7

Title 43 C.F.R. Part10

Website: http://www.gpoaccess.gov/index.html



Published June 2004

Document #707 Fields, Sarah M. Individual

----Original Message----

From: Sarah M. Fields [mailto:sarahmfields@earthlink.net]

Sent: Wednesday, February 16, 2005 10:12 PM

To: Donald Metzler

Cc: Loren Morton; Mike Fleigel

Subject: IUSA's Proposal for the Moab Mill Project

Dear Mr. Metzler,

Upon review of International Uranium Corporation's (IUSA's) submittal, "Moab Tailings Project White Mesa Slurry Pipeline Option: Preliminary Cost

Estimate and Technical Report" (May 9, 2003), I have some questions regarding the applicability of the various sections of the Uranium Mill Tailings Radiation Control Act of 19789 (UMTRCA) to the proposed project and question about rights of way.

I. IUSA Operations

The activities at the Moab Mill are currently under the supervision and direction of the Department of Energy (DOE) pursuant to Title I of UMTRCA.

IUSA's proposal contains three major operations: 1) a slurry preparation plant at the Moab Mill, 2) slurry and recycle pipelines between the preparation plant and the IUSA Mill at White Mesa, and 3) the disposal site at White Mesa. Currently the IUSA mill is operated under a 10 C.F.R. Part 40 source material license pursuant to Title II of UMTRCA.

IUSA proposal states that the slurry preparation plant will be under IUSA's supervision and direction. The pipelines will also be under their control and direction. It appears that IUSA would own both operations.

QUESTIONS:

1. Since IUSA believes that they would control and operate the slurry preparation $% \left(1\right) =\left(1\right) +\left(1\right) +$

plant and the materials that enter that plant at the Moab Mill will, at that point,

become the property of IUSA, under what regulatory regime would IUSA operate that slurry preparation plant?

- 2. Would that slurry plant become part of IUSA's Title II licensed activities? If so, is the DOE authorized to have a Title II operation at a Title I facility?
- 3. Would IUSA operate the slurry preparation plant as a contractor to the ${\tt DOE?}$

If so, would the DOE have oversight responsibility for that Moab Mill operation?

4. Would the pipelines become part of IUSA's licensed activities? If not, which

State or Federal agency or agencies would have oversight over the construction and operation of the pipeline. Which statutes and regulations apply?

5. If IUSA takes ownership of the tailings at the Moab site and their slurry operation and/or pipelines are part of their uranium mill facility operation, where in statute and NRC or State of Utah regulations is this authorized? What

Part 40 regulations, guidances, manuals, etc., apply to this type of operation?

6. I may have missed some questions. Basically, I would like to know what statutes and regulations would apply and how they would be applied to the slurry

preparation and pipeline facilities and operations if the IUSA proposal is approved.

II. Rights of Way

The fact that it is doubtful that IUSA would be able to get a right of way over the Matheson Wetlands Perserve would seem to be something that would preclude the implementation of IUSA's proposed project. Yet, many FTE's and funds have been spent on considering a proposal that would be moot because the required rights of way are likely not available to this private entity.

I do not understand why this basic issue has not been brought up and settled. IUSA seems to think that a non-publicly available memo from a law office suffices as a reasonable assurance that there is no problem with rights of way.

QUESTION:

- 1. Why has the DOE gone ahead with consideration of the the IUSA proposal when it it quite possible that IUSA will not be able to abtain the required rights of way?
- 2. Why has the DOE not even bothered to inquire of the various owners or responsible parties for the land that IUSA would have to cross with a pipeline in order to determine whether any right-of-way difficulties might arise that would block IUSA's proposed project?
- 3. If the IUSA Mill alternative is chosen as the preferred alternative, is the DOE authorized or prepared in any way to exert federal authority in order
- to obtain the required rights of way on behalf of IUSA?

The DEIS sheds no light on these legal and regulatory authority questions.

Thank you for your attention to these matters. If you are unable to answer these questions with authority, please refer them to the appropriate persons.

Sincerely,

Sarah M. Fields P.O. Box 143 Moab, Utah 84532

Document #1368 Davenport, James H. Colorado River Commission of Nevada

KENNY C. GUINN, Governor RICHARD W. BUNKER, Chairman JAY D. BINGHAM, Vice Chairman GEORGE M. CAAN, Executive Director STATE OF NEVADA



ANDREA ANDERSON, Commissioner
OSCAR B, GOODMAN, Commissioner
ACE 1. ROBISON, Commissioner
ROLAND D. WESTERGARD, Commissioner
MYRNA WILLIAMS, Commissioner

ommission #1368, p/

COLORADO RIVER COMMISSION OF NEVADA

February 17, 2005

Moab DEIS Comments
U.S. Department of Energy Grand Junction
2597 B 3/4 Road
Grand Junction, CO 81503

RE: Comments on the Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement

Dear Madam or Sir:

The Colorado River Commission (CRC) has reviewed the Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement (DEIS) dated November 2004. That DEIS was prepared on behalf of the U.S. Department of Energy (DOE) in order to assess the potential environmental impacts of remediating the Moab uranium mill tailings site and vicinity properties.

The Colorado River Commission is an agency of the State of Nevada, created in 1935 and charged with the responsibility of securing and protecting the rights and interests of the State in waters of the Colorado River and electric power generated thereon, including distribution. The agency is the statutory trustee of the State of Nevada's interests in the Colorado River.

The integrity of the Colorado River water resource is vitally important to the more than 20 million people in the Lower Colorado River Basin states of Arizona, Nevada, and California, including the growing populations of Southern Nevada who rely on the River as the major source of their water supply. Protection of this important natural resource requires that the Moab uranium mill tailings site be cleaned up in a manner that provides absolute, long-term protection for the Colorado River.

There are numerous factors related to Colorado River water resource protection that warrant relocation of the tailings pile to a safer and more secure location. These include (without limitation): the potential for catastrophic discharge due to impoundment failure resulting from natural subsidence and periodic inundation by the Colorado River (portions of the tailings impoundment are located within the 100- and 500-year floodplains); the potential for the Colorado River to migrate and de-stabilize the pile; and the potential for continued, long-term

555 E. Washington Avenue, Suite 3100, Las Vegas, Nevada 89101-1065

Phone: (702) 486-2670 Fax: (702) 486-2695 TDD: (702) 486-2698 http://www.crc.nv.gov

(NSP() Rev. 7-(M)



Moab DEIS Comments U.S. Department of Energy, Grand Junction #1368, p2-February 17, 2005 Page 2

discharge of elevated contaminant concentrations from groundwater emanating from beneath the pile.

Among the alternatives proposed and discussed in the DEIS, the only alternative which accomplishes this resource-protection objective is Off-Site Disposal. Among the Off-Site Disposal alternatives, the best off-site disposal location appears to be Klondike Flats utilizing rail transportation.

The Klondike Flats location is sufficiently distant (18 miles) from the Colorado River to preclude tailings pile-riparian conflict. The dry-material handling approach, enabling mixing, surface transportation, and even distribution and compaction of spoils at the new disposal site, is capable of being interrupted in the event operational problems arise. The new disposal site is capable of being designed with maximum security and safety in mind. The rail transportation approach, using sidings already constructed and serving both the Moab and Klondike Flats sites, permits separation of transportation of spoils from transportation on U.S. 191 by the general public. The Klondike Flats location does not implicate interstate traffic on I-70, as would the Crescent Junction site.

The Colorado River serves not only as a critical water supply for the Southwest, but as a paramount ecological resource as well. According to the DEIS the primary contaminant of concern with respect to water quality and impacts to the Colorado River is ammonia, specifically, its high concentrations and corresponding toxicity to aquatic organisms. Federally listed species that could potentially be adversely affected by ammonia and other contaminants include the endangered Colorado pikeminnow, razorback sucker, humpback chub, and bonytail.

The CRC, other participating Nevada agencies, agencies from Arizona and California, and the U.S. Bureau of Reclamation have initiated a long-term, comprehensive initiative to recover endangered species and protect wildlife habitat on the Colorado River from Lake Mead to the U.S.-Mexico border. The Lower Colorado River Multi-Species Conservation Program (MSCP) is a 50-year initiative designed to create more than 8,100 acres of riparian, marsh and backwater habitat for 31 covered species at a cost of more than \$620 million. Included in the list of MSCP-covered species are the razorback sucker, humpback chub, and bonytail, three of the four endangered species listed above. Ongoing discharge of contaminated groundwater, emanating from beneath the Moab uranium mill tailings pile, to the Colorado River is presumably deleterious to them. The Department of Energy should choose an alternative that endorses and enhances the actions of Lower Colorado River Basin states and the Bureau of Reclamation, that complements the strategy of the MSCP and ensures the protection of sensitive, threatened, and endangered species of fish, wildlife, and their habitat, rather than one that operates contrary to those actions.

Moab DEIS Comments U.S. Department of Energy, Grand Junction #/368, p3
February 17, 2005
Page 3

Thank you for the opportunity to review and comment on the Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement. If you have any questions, please feel free to contact us at (702) 486-2670.

Sincerely,

James H. Davenport Chief, Water Division

Colorado River Commission of Nevada

Sincerely,

Nicole A. Everett

Natural Resource Analyst Colorado River Commission

NAE/jln

Mr. Allen Biaggi, Director, Nevada Department of Conservation and Natural Resources Mr. Steve Robinson, Advisor on Wildlife, Conservation and Rural Nevada Issues

Document #1396 Feinstein, Dianne U.S. Senate

TO-US DEPARTMENT OF ENE Page 02

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DIANNE FEINSTEIN

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COMMITTEE ON APPROPRIATIONS
COMMITTEE ON THE PROPRIET OF THE PROPRIET ON THE JUDICIARY
COMMITTEE ON HOLE AND ADMINISTRATION
SELECT COMMITTEE ON INTELLIGENCE

#1396,

United States Senate
WASHINGTON, DC 20510-0504
http://teinstoin.senate.gov

March 7, 2005

The Honorable Samuel Bodman Secretary of Energy Department of Energy 1000 Independence Avenue, SW Washington, DC 20585

Dear Secretary Bodman,

I am writing to urge the Department of Energy to adopt an off-site remediation plan for the uranium mill tailings pile at the site near Moab, Utah. The Moab site lies adjacent to the Colorado River, which serves as a water resource for the citizens of Utah, Nevada, Arizona, and California.

The Draft Environmental Impact Statement (EIS) the Department of Energy released last November identified the environmental impacts of two primary remediation alternatives: one that would cap the tailings pile on site and one that involves off-site disposal. The Department did not, however, identify a preferred alternative as part of the Draft EIS. I wish to bring to your attention several of the reasons why the on-site alternative will not provide a long-term solution to this problem.

In response to the Draft EIS, the Environmental Protection Agency (EPA) indicated that because the on-site remediation alternative does not involve use of a liner underneath the disposal pile, contaminants from the tailings pile, including uranium and ammonia, will continue to seep into the groundwater and into the river. The EPA also pointed out that the eventual deterioration of the salt-beds underlying the disposal site will result in subsidence in the area of the site, compromising the integrity of the proposed cap and leading to radon releases and water infiltration through the pile.

The location of the Moab site within the 100-year floodplain for the Colorado River presents an increased risk of reintroducing contaminants into the groundwater and surface waters should heavy flooding occur. A recently released study by the

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To-US DEPARTMENT OF ENE Page D3

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U.S. Geological Survey indicated that part of the pile would be inundated by up to 25 feet of water during the flooding associated with 100-year to 500-year storms.

It is clear to me that the on-site alternative presents the possibility for significant adverse impacts on the Colorado River in the event of flooding or river migration, natural subsidence, or disposal cell failure. Because of the potential for prolonged environmental and public health risks associated with continued release of toxic contaminants into ground and surface waters, off-site disposal is the only option that offers a long-term solution.

I greatly appreciate your attention to this issue. It is my hope that the Department of Energy will move forward with a final remediation plan for the Moab site that includes off-site disposal of the uranium mill tailings and a comprehensive groundwater remediation strategy that provides long-term protection of the local citizens, and almost 25 million Americans who use the Colorado River water downstream.

Sincèrely,

Dianne Feinstein United States Senator

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03/21/2005 14:31 FAX

Document #1398 Smith, Darrell H. Salt Lake County Council of Governments

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#1398

Loren M

Salt Lake County Council of Governments

March 11, 2005

Governor Jon M. Huntsman, Jr. State of Utah 210 State Capitol Salt Lake City, Utah 84114-2220

Dear Governor Huntsman:

Executive Secretary

Edwin E. Blaney 295 North Jimmy Doolittle Road Salt Lake City, Utah 84116 Phone: (801) 363-4250

Fax: (801) 363-4250 Email: eblaney@wfrc.org

At our Council of Governments meeting held March 3, 2005, COC members briefly discussed the studies currently underway to identify the best alternative for managing the 12 million tons of radioactive waste located next to the Colorado River near Moab. They were reminded of a site visit to the Moab area several of them participated in on October 2, 1998. The purpose of the visit was to receive a briefing on management problems involving the National Parks and other recreational facilities located nearby. The invitation for the visit was extended by Mr. Walt Dabney, Superintendent at that time for the Southeast Utah National Parks and Monuments group. Mr. Dabney realized that a large percentage of his visitors were residents of the Wasatch Front. He wanted the local elected officials from the Salt Lake County area who represented many of the urban visitors to understand the concerns he was dealing with.

One of the concerns identified by parks management was the Atlas Mineral Corporation tailing pile, sitting like a time bomb near the banks of the Colorado River. Our delegation stood on the road next to the tailings pile and observed where a portion of the tailings had already drained toward the River. Noting the devastated vegetation in the drain fields, COG members unanimously agreed that this toxic material should be moved. Given the fragility of the desert lands that make up so much of Utah, we agree with the notion that it is not a question of if the tailings will be washed into the Colorado River, but when. We support the removal of the tailings to a more appropriate site.

While moving the tailings will cost more in the short run, it does represent the most permanent and environmentally sound management alternative. The Colorado River plays such a vital role in the West as to render any alternative plan for onsite storage unacceptable. We cannot leave the lower Colorado River system at risk.

We appreciate your strong support of the removal option. We may have missed the deadlines for formal comment on the draft Environmental Impact Statement. We would appreciate it, therefore, if you would forward our views to the United States Department of Energy officials responsible for developing the Altas Tailing management plan in any of your subsequent communications.

Sincerely,

Mayor Darrell H. Smith President

Vanill H. Am

CC:

Mr. Don Metzler Mayor William H. Levitt Mr. Sam Taylor Dr. Dianne Nielsen MAR 2005

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AN ASSOCIATION OF LOCAL GOVERNMENTS IN SALT LAKE COUNTY, UTAH

Alta - Bluffdale - Cottonwood Heights - Draper - Herriman - Holladay - Midvale - Murray - Riverton - Salt Lake City

Salt Lake County - Sandy - South Jordan - South Salt Lake City - Taylorsville - West Jordan - West Valley City

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To-US DEPARTMENT OF ENE Page 02

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FAX		
DATE: TIME: A.M P.M.		PAGES: 1 + cover
TO: Don Metzler	FROM: LoRen W	beton Faxed Bv:
CO.JDEPT. DOE-6JO PHONE # FAX #: 970-248-6023	State of Utah Department of Environmental Quality Dianne R. Nielson, Ph.D. Executive Director DIVISION OF RADIATION CONTROL Dane L. Finentrock Director	JON M. HUNTSMAN, JR. Governor GARY HERBERT Lieutenant Governor Department of Environmental Quality Division of Radiation Control 168 North 1950 West Sait Lake City, Utah 94116 (801)538-4250 Main Office/Voice Mail (801)539-4097 FAX (801)539-4414 TDD http://www.radiationcontrol,utah.gov
SUBJ: 3/11/05 Letter from Salt Lake County Council of Government		
COMMENTS		
Dan,		
I am forwarding the attacked letter to you, in		
Response to a recent request of Goternor Huntsman.		
Call me if you have guestrons.		
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To-US DEPARTMENT OF ENE Page 01



State of Utah

JON M. HUNTSMAN, JR. Governor

GARY R. HERBERT Lieutenant Governor Office of the Governor
JASON CHAFFETZ
Chief of Staff

APR 6 2005

March 28, 2005

Mayor Darrell H. Smith Salt Lake County Council of Governments c/o Edwin E. Blaney 295 North Jimmy Doolittle Road Salt Lake City, Utah 84116

Dear Mayor Smith:

Governor Huntsman received your letter regarding the removal of the Moab Uranium Mill Tailings and asked that I respond on his behalf.

We are grateful for your support and the support of additional local authorities with regard to the removal of the mill tailings near Moab, Utah. Governor Huntsman agrees with you in the fact that removing the tailings from the banks of the Colorado River must take place as quickly, and as safely as possible. I have taken the liberty of enclosing a copy of Governor Huntsman's letter regarding this matter to the United States Department of Energy.

Once again, thank you for your interest in very important environmental issue and for your support of the Governor's efforts to preserve and protect the State of Utah.

M)

Sincerely,

Jason Chaffetz Chief of Staff

cc: Dr. Dianne Nielson, DEQ

Mr. Don Metzler

Mayor William H. Levitt

Mr. Sam Taylor

Enclosure (1)

Utah!

East Office Building, Suite E220, Salt Lake City, Utah 84114 • telephone 801-538-1000



STATE OF UTAH

JON M. HUNTSMAN, JR.
GOVERNOR

OFFICE OF THE GOVERNOR
SALT LAKE CITY, UTAH
84114-2220

GARY R. HERBERT LIEUTENANT GOVERNOR

February 15, 2005

Mr. Don Metzler Moab Federal Project Office U.S. Department of Energy 2597 B 3/4 Road Grand Junction, Colorado 81503

Dear Mr. Metzler,

RE: Moab Uranium Mill Tailings, Draft Environmental Impact Statement, DOE/EIS-0355D, State of Utah Comments

Thank you for the opportunity to provide comments on a significant project for the State of Utah, remediation of the Moab Uranium Millsite and Tailings Pile. I urge the U.S. Department of Energy (DOE) to remove the Moab Mill Tailings Pile from the banks of the Colorado River, transport the tailings to a repository to be constructed at Klondike Flats, clean up the remainder of the Millsite, and treat groundwater contamination at the site for the period necessary to ensure that contamination does not migrate offsite through groundwater or into the Colorado River in violation of Utah surface and groundwater quality standards. This work should be commenced immediately, and federal funding should be sought to complete the work as promptly as possible. Now is the time to act – to move the Tailings Pile.

The State of Utah appreciates DOE's work in preparation of the Draft Environmental Impact Statement (DEIS), as well as the ongoing work to minimize contamination from moving off the Millsite. However, it is clear that the Tailings Pile cannot be left in the floodplain of the Colorado River. Recent studies by the U.S. Geological Survey and the University of Utah, as well as the reviews by the Utah Department of Environmental Quality, document that the river has migrated historically within the floodplain and over geologic time and that the force of the river at both a maximum flood event and even a 100-year event will generate forces sufficient to erode the adjacent banks of the river and undercut the tailings pile. The National Academy of Sciences Committee also recognized the critical importance of that risk when it reviewed remediation plans for the site. Recent flooding in the St. George and Santa Clara regions

of Utah also demonstrated the swift and immense force of moving water in the desert. We cannot afford to assume the risks associated with having uranium tailings strewn along river banks and bars of the Colorado River below Moab. Good science and good sense tell us the tailings must be moved.

Furthermore, moving the uranium tailings to a constructed repository at Klondike Flats creates the smallest impact and the most reasonable expenditure of funds to solve the problem. The repository site at Klondike Flats has broad support from federal, state, and local agencies, and from local residents. Transportation along the existing rail line reduces transportation impacts. Removing the tailings from the banks of the Colorado River would eliminate the risk of river undercutting, remove the source of groundwater contamination, and reduce the time needed for treatment of contamination at the river's edge.

Additional, detailed comments on the DEIS will be submitted by the Utah Department of Environmental Quality on behalf of the State. We look forward to working with you to initiate the removal of the last of the uranium mill tailings piles on the banks of the Colorado River. Thank you for your consideration of this essential work.

Sincerely,

Jon M. Huntsman, Jr.

Governor

Document #1400 Zimmerman, Gerald R. Colorado River Board of California

STATE OF CALIFORNIA - THE RESOURCES AGENCY

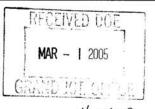
ARNOLD SCHWARZENEGGER, Governor

COLORADO RIVER BOARD OF CALIFORNIA

770 FAIRMONT AVENUE, SUITE 100 GLENDALE, CA 91203-1035 (818) 543-4676 (818) 543-4685 FAX

February 18, 2005

Mr. Donald R. Metzler Moab Federal Project Director U.S. Department of Energy 2597 B ³4 Road Grand Junction, CO 81503-1789





#1400, pl

Subject:

Remediation of Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement (DOE/EIS-0355D)

Dear Mr. Metzler:

The Colorado River Board of California (CRB) has received and reviewed a copy of report entitled "Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement, November 2004, (DOE/EIS-0355D)" (DEIS). The DEIS was issued by the Office of Environmental Management, U.S. Department of Energy (DOE).

The purpose of the DEIS is to provide information on the environmental impacts of DOE's proposal to 1) remediate approximately 11.9 million tons of contaminated materials located on the Moab Uranium Mill Tailings site and approximately 39,700 tons located on nearby properties; and 2) develop and implement a groundwater compliance strategy for the Moab site. In the DEIS the surface remediation alternatives include on-site disposal of the contaminated materials and off-site disposal at one of three alternative locations in Utah. The DEIS also analyzed a no action alternative, under which DOE would not implement any surface or ground water remedial actions. So far, DOE has not yet identified a preferred alternative. A preferred alternative will be identified in the final EIS after consideration of public comments on this DEIS and other factors, including the costs associated with alternative actions.

I would like to thank you for the opportunity to comment on the DEIS and have comments as follows:

Moving the Moab Tailings Pile Off-Site

The CRB in its letter of June 22, 1999, to the Nuclear Regulatory Commission concluded that on-site capping of the mill tailings raised serious concerns due to the site's location adjacent to the Colorado River, and that the prudent and environmentally sound method of dealing with this problem would be to remove the tailings to another site. The CRB continues to hold that position. Please refer to the enclosed letter.

Also, one of the CRB's member agencies, The Metropolitan Water District of Southern California (MWD), in its letter dated February 17th to your agency, strongly believes that moving the Moab pile off-site is the only reliable and permanent alternative sufficient to protect the Colorado River from further contamination by radioactivity, organics, and inorganics; i.e. radium-226, ammonia and the

1400, p2

Mr. Donald R. Metzler February 18, 2005 Page 2

total dissolved solid (TDS), etc.

Additionally, the CRB concurs with the State of Utah's December 29, 2004, and February 15, 2005, letters to the DOE, which state that any remediation other than an off-site option is unacceptable (copies enclosed). With both the no action and the on-site alternatives, contaminated seepage will continue to leak from the tailings pile and into the Colorado River. Also, as pointed out by MWD there are potential adverse impacts to the Colorado River from both the no action alternative and the on-site alternative through natural subsidence, river migration, flooding, incision, and disposal cell or tailings pile failure.

The CRB strongly supports the off-site disposal option, as this is the prudent option, which offers long-term, permanent protection to the quality of water received by downstream Colorado River users. With both the no action and the on-site alternatives, contaminated seepage will continue to leak from the tailings pile and into the Colorado River, which is not acceptable.

Groundwater Remediation

DOE has not identified a preferred option yet; however, Groundwater Extraction and Disposal are main components of the Groundwater Remediation proposal, which are addressed below.

Groundwater Extraction

In Section 2.3.2.1, two methods for extracting contaminated groundwater, i.e., "extraction wells" and "interception trenches" are mentioned. For the extraction wells method, 50 to 150 wells to depths of up to 50 feet would be installed. For the shallow trenches option, up to 2,000 lineal feet of trenches would be constructed to intercept shallow groundwater (the depth of the shallow trenches is not mentioned in the DEIS). It is indicated in the report that with both methods approximately 150 gallons per minute (gpm) of contaminated water would be extracted.

The CRB's concern is that it is not conclusive whether any of these methods would capture all of the contaminated groundwater, that otherwise would reach the Colorado River. In Section 3.1.6.1 of the DEIS, it is mentioned that "site-related groundwater contamination occurs in the unconsolidated basin-fill aquifer in the upper hydrologic system." Also, in Section 3.1.6.2, it is reported that the "average saturated thickness of the gravelly sand that constitutes the unconsolidated basin-fill aquifer is approximately 70 feet." It is not clear whether a number of 50-foot deep wells or the trenches would capture the water in the 70-foot deep saturated aquifer and whether the 150 gpm extracted from these extraction wells or trenches is equal to or greater than the amount of groundwater flow to the Colorado River.

The CRB suggests that the following questions be addressed in the final EIS:

 The mechanism that would guarantee that the 50-foot deep wells would capture all of the contaminated groundwater.

#1400, p3

Mr. Donald R. Metzler February 18, 2005 Page 3

- The same question is asked regarding the trenches option in light of the fact that the depth of
 the trenches is not indicated in the DEIS.
- Indicate the amount of contaminated groundwater that reaches the Colorado River. This should be compared with the amount of water that would be extracted.

Groundwater Disposal

In Section 2.3.2.1 of the DEIS, three methods of disposal of the extracted and treated groundwater are offered. These disposal options are: "discharge to surface water", "shallow injection" and "deep well injection." Although the "deep well injection" may provide more of a safety factor; there may be some restrictions and obstacles that would prohibit implementing this option, such as the rate that water can be continuously injected into the deep aquifer. Have those been identified and evaluated?

Colorado River Basin Salinity Control Forum Policies

The alternative selected should at least meet all Colorado River Basin Salinity Control Forum (Forum) policies. The "Policy for Implementation of Colorado River Salinity Standards Through the NPDES Permit Program for Intercepted Groundwater" states that the discharge of intercepted groundwater into the Colorado River needs to be evaluated in a manner consistent with the overall objective of "no-salt" return whenever practical. The no-salt discharge requirement may be waived at the option of the permitting authority in those cases in which the discharge salt load reaching the main stem of the Colorado River is less than one ton per day or 350 tons per year, whichever is less. The water currently migrating from the bottom of the tailings pile has a composition of approximately 24,600 mg/L TDS and a flow rate of 20 gallons per minute. This data indicates that the TDS loading to the Colorado River under the no action alternative is 2.9 tons/day and the TDS loading to the Colorado River will remain above the threshold of one ton per day for the next 20 years under the no action alternative. If water is extracted and returned to the Colorado River, the Colorado River Basin Salinity Control Forum's "Policy for Implementation of Colorado River Salinity Standards Through the NPDES Permit Program" should be met.

Please feel free to contact me at (818) 543-4676, if you have any questions, or require additional information. Additionally, please ensure that the CRB continues to receive copy of supplemental information or update regarding this process.

Sincerely

Gerald R. Zimmerman Executive Director and

Member, Colorado River Basin Salinity Control Forum

Enclosures

STATE OF CALIFORNIA - THE RESOURCES AGENCY

GRAY DAVIS, Governor

COLORADO RIVER BOARD OF CALIFORNIA

770 FAIRMONT AVENUE, SUITE 100 GLENDALE, CA 91203-1035 (818) 543-4676 (818) 543-4685 FAX #1400, p4

June 22, 1999

Ms. Shirley Ann Jackson Chairman Nuclear Regulatory Commission One White Flint North Building 11555 Rockville Pike Rockville, MD 20852

Dear Chairman Jackson:

I want to take the opportunity to thank the Nuclear Regulatory Commission (NRC) for the action it took in responding to the Colorado River Board's letter of February 9, 1999, concerning the Atlas Corporation's uranium mine tailings near Moah, Utah. Mr. John Holonick, from your Rockville, Maryland office attended the Board's May 5th meeting in South Lake Tahoe, Nevada and did an excellent job in presenting the NRC's position regarding the mine tailings.

The issue of the mine tailings, however, was again discussed in some detail at the Board's June meeting and the Board concluded that it was unacceptable that contaminants from the pile are continuing to pollute the Colorado River and even after reclamation, as proposed by the Atlas Corporation, would continue but at a reduced rate. During the discussion, the Board voted to request the NRC, or the appropriate federal agencies, to remove the tailings to a remote location. The Board concluded that on-site capping of the mill tailings raised serious concerns due to the site's location adjacent to the Colorado River, and that the prudent and environmentally sound method of dealing with this problem would be to remove the tailings to another site.

The Colorado River Board understands the regulatory limitations of the NRC and, therefore, has supported H.R. 393, introduced by Rep. George Miller of California, that would require the Secretary of Energy to remove the tailings from the site and provide for groundwater remediation and additional water quality monitoring.

If you have any questions, give me a call at (818) 543-4676.

Sincerely,

Gerald R. Zimmerman

Executive Director



1404, 01

Document #1404 Fields, Sarah M. Individual

Kym Bevan

From:

Sarah M. Fields [sarahmfields@earthlink.net]

Sent: To: Sunday, March 06, 2005 5:30 PM moabcomments

To: Subject:

Moab Mill DEIS Comments



Unknown Document

Dear Mr. Metzler,

Attached are comments on the "Floodplain and Wetland Assessment for Remedial Action at the Moab Site," related to the Moab Mill Project DEIS.

A paper copy will follow in the mail.

Sarah M. Fields

#1404, p2

March 7, 2005 via e-mail and first class mail

Mr. Don Metzler Moab Federal Project Director U.S. Department of Energy 2597 B 3/4 Road Grand Junction, CO 81503 moabcomments@gjo.doe.gov

Re: Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement, DOE/EIS-0355D, November 2004. 69 Fed. Reg. 70256 (December 3, 2004) and 69 Fed. Reg. 65426 (November 12, 2004).

Dear Mr. Metzler:

I appreciate this opportunity to comment on the November 2004 Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah, Draft Environmental Impact Statement (DEIS), DOE/EIS-0355D.

Comments on Floodplain and Wetlands Assessment for Remedial Action at the Moab Site

- 1. The U.S. Department of Energy (DOE) has included the *Floodplain and Wetlands Assessment for Remedial Action at the Moab Site* in the DEIS, pursuant to DOE requirements at 10 CFR Part 1022, Executive Order 11988, *Floodplain Management*, and Executive Order11990, *Protection of Wetlands*. DEIS, Volume II, Appendix F (pages F-1 to F-18). As will be shown below, the DOE has failed to implement these regulatory and Executive Order requirements.
- 2. Section F1. Introduction (page F-1). In this section, the Assessment fails to inform the public that if the DOE determines that "that no practicable alternative to locating or conducting the action in the floodplain or wetland is available," then the DOE must issue a floodplain statement of findings, pursuant to 10 C.F.R. § 1022.14 (Findings). In other words, if the DOE determines that there is no practicable alternative to disposing of the tailings on-site, then a statement of findings must be issued for that action. Similar findings would be required for a decision to slurry or truck the tailings to White Mesa, due to the adverse impacts on the Scott M. Matheson Wetlands Preserve (Matheson Wetlands) and other waterways and wetlands from that alternative.

Further, in accordance with Section 1022.14(e), if there are "proposed floodplain actions that may result in effects of national concern, DOE shall publish the floodplain statement of findings in the *Federal Register*." Section 1022.4 defines "effects of national concern" as "those effects that because of the high quality or function of the affected resource or because of the wide geographic range of effects could create

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concern beyond the locale or region of the proposed action." The Assessment must include a discussion of all the requirements related to a statement of findings.

2. Section F2.1 (Proposed Actions at the Moab Site—On-Site Disposal Alternative), at F2.1.1 (Remediation of Contaminated Materials) (page F-4). This section discusses the removal of "surface contamination" from the top layer" and removal of tamarisk.

There is no discussion of the depth of the "top layer" or the extent of surface and subsurface contamination on the balance of site (i.e., outside the tailings pile footprint).

The Assessment must include a map of the areas of contaminated materials that the DOE expects to excavate, including depth of materials, and areas that would need to be filled in with clean materials.

This section fails to mention the fact that the balance of contaminated site materials will be placed on the impoundment for de-watering purposes prior to placement of the final cover. The Assessment fails to address the future adverse impacts of the placement of that material on the amount of contaminants in the floodplain over time.

This section (and related sections in the DEIS) fails to acknowledge the presence of a 6.6-acre area at the southeast toe of the impoundment where the highest contamination is at moderate depth (below 30 cm). The area of contamination extends 200 feet from the toe of the tailings impoundment, encompassing an area approximately 1,500 long. The estimated volume of the contaminated material, which may have come from an old tailings' spill, is 25,000 cubic yards. See letter from Richard E. Blubaugh, Atlas Minerals, to Harry J. Pettengill, Uranium Recovery Field Office, Nuclear Regulatory Commission (NRC), June 29, 1987 (NRC Accession No. 8708050343), with enclosed "Evaluation of Sourtheast Area, Atlas—Moab Mill Facility," with eleven oversized drawings, EnecoTech Inc., June 30, 1987.

Please correct these oversights.

3. <u>Section F2.1.2 (On-Site Disposal)</u> (page F-4). This section states, in part: *To further protect the disposal cell, a buried riprap wall would be installed in the Colorado River floodplain. The wall would protect the stabilized tailings pile from river migration and erosion to meet the design life of the disposal cell.*

This section fails to reference any maps or specific engineering plans for the proposed riprap wall. There is no mention of any studies or technical evaluations regarding how the wall would protect the tailings pile from the Colorado River meander, erosion, and flood potential. There is no technical report discussing the location and extent of the wall, its depth and width, material size, etc.

The assertion that the wall would "protect the stabilized tailings pile from river migration and erosion to meet the design life of the disposal cell" is not substantiated. The DEIS provides no data whatsoever that demonstrates that a wall would be protective of the tailings impoundment.

Further, there is no mention of the specific length of said "design life." There is no discussion of any need to protect the disposal cell beyond the so-called "design life" or how that need would be met.

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This section must substantiate its assertions regarding the ability of a riprap wall to protect the tailings pile for the length of time that river migration and erosion could impact the tailings. This time frame should not be limited. The requirements of 10 C.F.R. Part 1022 to assess floodplain and wetland impacts and avoid adverse impacts to wetlands and floodplains are not bounded by any "design life" time frames.

These failures in the Assessment must be corrected.

- 4. Section F2.1.2 (On-Site Disposal) (page F-4). This section indicates that the only activities that would take place within the 100-year floodplain would be interim storage of borrow materials. The Assessment fails to mention of the interim and long-term groundwater correction activities that are in the floodplain. The Assessment fails to assess activities within the 500-year floodplain. The Assessment must give a full description of all on-site reclamation activities on the 100 and 500-year floodplains and describe how those activities will be protected from flood hazards.
- 5. Section F2.1.2 (On-Site Disposal) (page F-4). This section states, in part: Long-term maintenance and monitoring of the disposal cell would include inspecting the floodplain and river boundary and the buried riprap wall.

Here there is no mention of the length of time that "long-term maintenance and monitoring of the disposal cell" would be required. There is no mention of the costs involved in long-term maintenance. There is no assessment of the possibility that, over time, the ability of institutions to continue to monitor and maintain the disposal site and any protective wall will diminish, while, at the same time, the potential for degradation of the impoundment (from all causes) will increase. The Assessment must address these long-term maintenance issues.

6. Section F3.0 (Floodplain and Wetlands Descriptions), at F3.1 (Moab Site) (page F-5): The 100-year and 500-year floodplains for Moab Wash and the Colorado River occupy 150 acres, or the easternmost third of the Moab site (see Figure F-1). Floodplain alluvium consists of shallow sandy sediments and deeper gravelly sediments.

Here the map and the statement fail to discuss whether the area under the tailings impoundment is also on the flood plain of the Colorado River and Moab Wash and are also underlain by sediments. The Assessment fails to delineate the areas of the floodplain underlain by sediments from the Colorado River, the areas are underlain by sediments from Moab Wash, or areas underlain by both. Further, there is no mention of any past Moab Wash and Colorado River channel beds that underlie the site. Where the Colorado River has deposited sediments and created channels in the past is an important factor in assessing the potential for the Colorado River to create new channels in the floodplain.

The DOE should take all current data related to the sediments underneath the site and in the area, develop new data based on fieldwork, and properly characterize the sediments and structures (including their source) that underlie the Moab site. The DOE should create a three-dimensional characterization of the geological structures, channels, and sediments and create a history of the river/wash/site interactions. This has NEVER

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been done. Without such data and interpretations, the DOE has no basis for many of its assumptions related to long-term site stability.

7. Section F4 (Floodplain and Wetlands Impacts), F4.1 (Moab Site—On-site Disposal Alternative) (page F-14). The Assessment improperly limits the consideration floodplain and wetland impacts to the impacts associated with the site itself. This Assessment fails to address the potential adverse impacts of the on-site disposal alternative on the Matheson Wetlands. There is no assessment of the potential of contamination from the site to impact the Matheson Wetlands via a pathway underneath the Colorado River. There is no mention of impacts to the Matheson Wetlands via air-borne contamination from the site. The Assessment must be revised to include these aspects of floodplain and wetland impacts, in a comprehensive manner.

The Assessment must address the continued contamination of the Moab site floodplain. The Assessment must address the extent to which the removal of the tailings from the floodplain would impact future floodplain and site contamination emanating from the impoundment.

The Assessment fails to address potential adverse impacts to floodplains and wetlands in the in the event of a tailings impoundment failure. A tailings pile failure would result in significant adverse impacts to the floodplain of the Colorado River downstream, the Moab Valley, and Matheson Wetlands. The Assessment must include a full description and evaluation of those adverse impacts on the floodplain of the Moab Valley and the Colorado River downstream and the Matheson Wetlands.

8. Section F4.1.1 (Floodplains). This section states, in part: The buried riprap wall would permanently alter the floodplain by stabilizing soils in the floodplain.

Here the Assessment does not evaluate the potential adverse impacts on the Colorado River, the Moab Valley, and the Matheson Wetlands of the riprap wall during a flood event. The Assessment must include such an evaluation.

This section fails to discuss the impacts to the Matheson Wetlands and floodplain at the site, downstream, and at Moab in the event that the riprap wall fails to serve its design function. The Assessment must include such an evaluation.

9. Section F4.4 (Off-Site Disposal—White Mesa) (page F-16): The slurry pipeline transportation option would involve crossing the Colorado River and the Matheson Wetlands Preserve, along with 11 perennial streams and at least 21 intermittent drainages. There have been previous utility crossings in the Matheson Wetlands Preserve, and the pipeline for this project would follow these as closely as possible.

The DIES and Assessment fail to discuss whether the pipeline and slurry operation would be owned an operated by a private entity or the federal government. It fails to state what federal regulations apply to the construction and operation of the pipeline. At times, the DEIS gives the impression that the pipeline and slurry operation would be a DOE operation. However, International Uranium (USA) Corporation (IUSA), in its May 2003 proposal, specifically stated its desire that the slurry operation and pipeline be under their ownership and control. This must be clarified.

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The Assessment gives the impression that no new pipeline corridors would be involved in the construction of the slurry pipeline. This is backed by the failure to include a map in the Assessment that identifies current pipeline corridors and proposed new pipeline corridors.

There is no basis for the assumption that permission would be given to build a pipeline to carry the slurry across the Matheson Wetlands. There is also no basis for the assumption that permission would be given to build a pipeline across federal lands. The Assessment fails to reference the Federal Regulation applicable to obtaining a pipeline permit over Department of Interior, Bureau of Land Management, lands—43 C.F.R. 2800.

Here the Assessment must provide information regarding what permissions and permits are required for the pipeline, applicable statutes and regulations, who will apply for such permissions and permits, the position of The Nature Conservancy and the State of Utah regarding whether they would grant permission for a slurry pipeline across the Matheson Wetlands, and whether the DOE can or is willing to exert powers of eminent domain to assure that a pipeline can be constructed over private or State of Utah land. The DOE has not been forthright in discussing these important aspects of the slurry pipeline in the DEIS and Assessment.

9. Section F4.4 (Off-Site Disposal—White Mesa) (page F-16). This section states, in part: Unavoidable disturbance to wetlands along waterways would be mitigated in accordance with USACE Section 404 guidelines (see Section F4.1.2).

The Assessment fails to map and clearly identify the disturbances (unavoidable and avoidable) along and through waterways. No pictures or technical studies to back up any of the discussion of wetland, stream, and dry watercourse disturbances. Everything is very general and specificities are avoided. The Assessment must provide more specifics and substantiation with respect waterway disturbances.

10. <u>Section F4.4 (Off-Site Disposal — White Mesa)</u> (page F-16). This section states, in part: Some of the springs or seeps adjacent to the White Mesa Mill site may be hydrologically connected to the site, and there could be a potential for ground water contamination due to spills, pipeline rupture, or other accidents. Mitigation to minimize the possibility of exposure would be implemented.

No impacts to floodplains and wetlands would be expected from monitoring and maintenance of this facility.

The Assessment fails to provide an evaluation of the long-term impacts of the White Mesa alternative on the springs and seeps that are "hydrologically connected to the site." The Assessment fails to provide any basis for its assumption that, over the long term, monitoring and maintenance of the facility would prevent adverse impacts to the seeps and springs. The Assessment fails to acknowledge that, over the lifetime of the hazard, the potential for adverse impacts to the seeps and springs will increase, while the effectiveness of monitoring and maintenance of the facility will inevitably decrease.

The potential for adverse impacts on ground water will, in great part, be dependent on the design and construction of the impoundment and the placement of the

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tailings in that impoundment. At this time, there is no information available on these aspects of the White Mesa proposal.

The Assessment fails to provide any bases for its assumptions re the impacts related to the White Mesa alternative. These failures must be corrected in the final Assessment.

11. Effects of National Concern. The Assessment fails to discuss whether the proposed floodplain actions may result in effects of national concern. According to 10 C.F.R. § 1022. 4, such effects are those that, because of the high quality or function of the affected resource or because of the wide geographic range of effects, could create concerns well beyond the locale or region of the proposed action.

The Assessment improperly fails to acknowledge that the potential adverse shortterm and long-term effects of the disposal of the Moab tailings in the floodplain of the Colorado River creates a concern far beyond the Moab Project site and the Moab Valley.

The Colorado River is the 5th largest river in the United States and is the source of drinking water for millions of people. It is a recreational resource for millions and the source of agriculture waters thousands. The waters of the Colorado below the site flow though federal parks and recreation areas, tribal sovereign lands, and a foreign state. A tailing failure scenario would be a catastrophe of national and international, not just local, proportions.

It is unconscionable for the DOE not to have recognized, identified, and considered effects of national concern in the Assessment and in the DEIS.

12. Navigable Waterway. There is no mention in the Assessment that the wetlands associated with the site and the Matheson wetlands are part of a navigable waterway and subject to the provisions of Section 13 of the Rivers and Harbors Act of 1899. Section 13 (the "Refuse Act"), in part, prohibits the deposition of any material on the bank of any navigable water where it is liable to be washed into the navigable water, whereby navigation may be impeded or obstructed.

The Assessment must include a discussion of this act and its relation to the impacts to wetlands and floodplains under consideration here.

- 13. <u>Subsidence</u>. The Assessment fails to discuss and address the impacts on the floodplain and wetlands that will take place over time due to the dissolution of salt below the site. The DOE must take into consideration long-term subsidence of the site when it assesses adverse impacts to the floodplain and wetlands related to the Moab site.
- 14. 10 C.F.R. Part 1022—Compliance With Floodplain And Wetland Environmental Review Requirements.

As stated in Part 1022, it is the intent of the DOE to incorporate floodplain management goals and wetland protection considerations into its planning, regulatory, and decision-making processes, and preserve natural and beneficial values served by floodplains and wetlands. Part 1022 implements the directives set forth in Executive Order 11988 and Executive Order11990.

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The Executive Orders demand that a floodplain and wetlands assessment serve as a decision-making document. In order to fulfill that function, the assessment must include several things. Below is an evaluation of how well the *Floodplain and Wetlands Assessment for Remedial Action at the Moab Site* meets the Executive Order and regulatory requirements.

A. 10 C.F.R. § 1022.13 (Floodplain or wetland assessment), at (a)(1), requires a map showing the location of the proposed action with respect to the floodplain and/or wetland.

None of the maps in the Assessment show the location and extent of the Matheson Wetlands. There is no map that shows the floodplain of the Colorado River that would be impacted in the event of a failure of the tailings impoundment. The map of the White Mesa site does not show the full extent of the pipeline. The size of the map makes it impossible locate any of the washes or streams that might be impacted by the pipeline.

B. 10 C.F.R. § 1022.13 (a)(2) (Floodplain or wetland Impacts) requires:

This section shall discuss the positive and negative, direct and indirect, and long- and short-term effects of the proposed action on the floodplain and/or wetland. This section shall include impacts on the natural and beneficial floodplain and wetland values (Sec. 1022.4) appropriate to the location under evaluation. In addition, the effects of a proposed floodplain action on lives and property shall be evaluated. For an action proposed in a wetland, the effects on the survival, quality, and function of the wetland shall be evaluated.

The Assessment clearly fails to provide a discussion of the long-term effects of the on-site disposal alternative on the Matheson Wetlands, the floodplain in rest of the Moab Valley, and the Colorado River floodplain down river from the site.

There was no assessment of the long-term impacts on the" natural and beneficial floodplain and wetland values" associated with those floodplains and wetland. According to Section 1022, floodplain and wetland values include, but are not limited to, "living values (e.g., conservation of existing flora and fauna including their long-term productivity, preservation of diversity and stability of species and habitats), cultural resource values (e.g., archeological and historic sites), cultivated resource values (e.g., agriculture, aquaculture, forestry), aesthetic values (e.g., natural beauty), and other values related to uses in the public interest (e.g., open space, scientific study, outdoor education, recreation)." There is no discussion in the assessment of how, over the long-term and the very-long term, the Moab disposal alternative will eventually impact these values at the Matheson Wetlands, Moab Valley, and floodplain downstream from the site.

There is no discussion of either short or long-term impacts on lives and property associated with the failure of the tailings impoundment or and failure of the proposed mitigative measure (riprap wall).

There is no discussion of the long-term effects on the survival, quality, and function of the Matheson Wetlands as a result of on-site disposal.

#1404, 09

C. 10 C.F.R. § 1022.13 (a)(3) (Alternatives) requires that DOE evaluate measures that mitigate the adverse effects of actions in a floodplain and/or wetland.

The Assessment mentions the construction of a riprap wall that would act to mitigate adverse effects, but that measure has in no way been "evaluated" for short or long-term effectiveness in the Assessment.

D. 10 C.F.R. § 1022.3 (Policy) sets forth various mandates related to floodplain management and wetland protection applicable to the Moab Mill Project. This section requires, in part, that the DOE:

- · Minimize the impact of floods on human safety, health, and welfare;
- · Restore and preserve natural and beneficial values served by floodplains;
- Minimize the destruction, loss, or degradation of wetlands;
- · Preserve and enhance the natural and beneficial values of wetlands.
- Undertake a careful evaluation of the potential effects of any proposed floodplain or wetland action.
- Avoid to the extent possible the long- and short-term adverse impacts associated with the destruction of wetlands
- Identify, evaluate, and as appropriate, implement alternative actions that may avoid or mitigate adverse floodplain or wetland impacts.

The Assessment must provide information regarding how each of these mandates would be met for each alternative under consideration. The Assessment must provide a table comparing the floodplain and wetland impacts of the various alternatives and how the wetland and floodplain requirements would be met.

15. <u>Conclusion: On-Site Disposal Alternative</u>. Due to the potential of the tailings impoundment to continue to adversely impact the floodplain of the Colorado River at the site and the long-term potential for impacts of the Matheson Wetlands and floodplains in the Moab Valley and downstream, the only alternative that would remove the source of those adverse impacts is an off-site disposal alternative.

There is no basis for a finding that "no practicable alternative to locating or conducting the action in the floodplain or wetland is available." The DOE has already identified three "practicable" off-site disposal alternatives and evaluated them in the DEIS. Since they were considered in the DEIS, by definition, there are "practicable" alternatives. The DOE in not authorized to consider **impracticable** alternatives in the National Environmental Policy Act (NEPA) process.

Therefore, in order to avoid the short-term and long-term adverse impacts to the wetlands and floodplains impacted by the proposal, the on-site disposal alternative must be rejected.

16. <u>Conclusion: White Mesa Disposal Alternative</u>. The off-site disposal alternative that would have the most impacts on wetlands is the slurry pipeline to White Mesa. The pipeline would adversely impact the Matheson Wetlands, watercourses, and other wetlands.

#1404, p10 9

The disposal of the tailings at White Mesa has the reasonable potential to impact a unique wetland at Ruin Spring, which is on land belonging to the people of the United States. I have visited this spring. Grazing cattle (associated with a Bureau of Land Management grazing permit) and wildlife depend on the spring, which is a rare spring in a very, very dry area. The DOE cannot rely on monitoring and maintenance of the facility over the long term to protect the spring from contamination.

There is no basis for a finding that there is "no practicable alternative" to disposing of the tailings at White Mesa or slurrying the tailings to White Mesa. The DOE has already identified two "practicable" off-site disposal alternatives, Klondike Flats and Crescent Junction, and evaluated them in the NEPA process. Implementation of either of these two off-site disposal alternatives would result in few, if any, adverse wetland and floodplain impacts.

Therefore, in order to avoid the short-term and long-term adverse impacts to the wetlands by the White Mesa proposal, that disposal alternative must be rejected.

Sincerely,

Sarah M. Fields P.O. Box 143

Moab, Utah 84532

Sarah M. Feelds

Document #1405 Brian, Danielle Project on Government Oversight



Mr. Don Metzler Moab Federal Project Director U.S. Department of Energy 2597 B^{3/4} Road Grand Junction, Colorado 81503

RE: Draft Environmental Impact Statement for the "Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah"

Dear Mr. Metzler:

The Project On Government Oversight (POGO) investigates, exposes, and seeks to remedy systemic abuses of power, mismanagement, and subservience by the federal government to powerful special interests. Founded in 1981, POGO is a politically-independent, nonprofit watchdog that strives to promote a government that is accountable to the citizenry. POGO appreciates the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the "Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah" (69 Fed. Reg. 70,257 (2004)). POGO vehemently requests that the government relocate the Moab Uranium Mill Tailings to a safe location.

Since the late-1990's, POGO has voiced concerns about the government's plan to decommission the Moab Uranium Mill Tailings – located in a 130-acre unlined pile about 750 feet from the Colorado River. At that time the tailings pile was the jurisdiction of the Nuclear Regulatory Commission (NRC).

In 1999, POGO released its report NRC Sells Environment Down the River, which confirmed that the Atlas Corporation, the polluter that owned the Moab site, had bullied the NRC into accepting a cleanup plan that would have saved the company millions of dollars. That plan, however, fell far short of government and public safety standards. The NRC considered capping the nearly 12 million tons of uranium mill wastes at its current location rather than moving it to a safe location.

As you probably know, studies showed that merely capping the 130-acre tailings pile would allow the continued contamination of the ecosystem in and around the now defunct mill. The leaching from the tailings pile has negatively affected the Colorado River. Additionally, the pile is only

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10-15 feet above an aquifer, is situated on the flood plane of the Colorado, and is filled with radioactive uranium, ammonia, molybdenum, aluminum, iron, nitrates, and sulfates that are contaminating groundwater that feeds into the river. Specifically, groundwater from the Moab site would continue to seep into the Colorado River, the source of drinking water for more than 25 million residents in California and Arizona and home to several endangered species of fish.

In 2000, POGO and many conservation groups pushed for and won their battle to have the jurisdiction of the tailing pile moved to the Department of Energy (DOE), which possessed the required experience in moving similar sites.

Now DOE is in the same position that the NRC was in nearly ten years ago – a drawn out decision to cap or relocate the uranium tailings. The current DEIS states that relocation of the uranium tailings pile will cost from \$329 to \$464 million, which is a far cry from the NRC's and Atlas' estimates in the late-1990s that relocating the tailings pile would cost \$60 to \$114 million. After years of delay and debate on relocation verses capping the uranium tailing pile at its current location, the taxpayer is left holding a ballooning bill in a financially restrictive budget crisis. More disturbing is the fact that radioactive and toxic waste is still affecting the Colorado River and the drinking water for the 25 million people who live downstream. DOE must do the right thing and end the debate.

As a government watchdog POGO does not often encourage the spending of tax dollars, but in this case it is clearly worth the investment. POGO urges DOE to consider these comments and relocate the Moab Uranium Mill Tailings to a safe location – a location that is both safe for the environment and the public.

Sincerely,

Executive Director

Danielle Brian

Document #1430 Darke, John Individual

John Darke 4:30 PM February 22, 2005

I'm happy to hear in your message that there is going to be a public hearing in January. I'm also happy that you're still receiving comments. This is a request: the DOE Grand Junction Office received emails suggesting that it was the appropriate in conformance and CEQ intent that the Initial Phase Investigation particularly be made available in the reading room and also in respect that some of the data set that is mentioned in that record, USGS record, it is there that the data set be made available. I would refer you to the USGS website and the link the appropriate link indicates that in order to receive the data set is essentially to treat it as a commercial enterprise. Some can't afford \$100 an hour or \$70 or whatever. The download time of the initial investigation report itself is 48 megabytes. It's intent was to place copies have been received of the report at the courthouse. It was quite a delay until after the suspense on the comment period. Suggest that we lighten up in a group-phased effort to provide affordable records. This is John Darke.

Document #1432 Gosnell, James Individual

From: J. Gosnell [ravens1988@hotmail.com] Sent: Tuesday, February 22, 2005 10:53 AM

To: moabcomments

Subject: Uranium Tailings Pile in Moab, Utah

To whom it may concern,

As I resident of San Diego, California, the current state of the uranium tailings pile concerns me. San Diego currently gets about two-thirds of its water from the Colorado River. This is the water that I use to wash laundry, drink, and bathe. Yet out in Moab, Utah a major health risk and threat to our water supply exists. The uranium tailing pile located in Moab is a diaster waiting to happen. Daily the pile leaks 15,000 agllons of toxic chemical chemicals into the river in a day, it could be easily subjected to a terrorist attack and used to poision the water in all of Southern California, Nevada, and Arizona. If it isn't attacked by terrorists a flood could easily wipe 80% of the pile into the river, spelling diaster for the Untied Sates Government and all citizens using the Colorado for a water supply. According to a recent survey by the US Deparment of Energy, the uranium tailing pile currently is not in compliance with EPA standards for Unarium concentration or Ammoniium concentration. The alloted uranium concentration is .04 mg per 1; yet in some parts of the pile the concentration is as high as 15 mg per L. That is 37500% percent apove the EPA's accepted level! That kind of violation causes unneccesary stress to many concerned residents. Simularily, the ammonian level set by the EPA is 3mg per L; despite this alloted concentration the entire pile never drops below 50mg per liter. That figure is a staggering 1667% above the alloted EPA levels. I propose that the citizens of all areas drinking the Colorado river water, that is consistently poisioned by the Uranium tailings pile at Moab, Utah, petition for the pile to become part of the EPA Superfund Act. Superfund is the perfect solution because it will call for removing and clearing the waste at no cost to the victims of hazardous waste poisioning, even if that poisiong may not be lethal.

Sincerely,

James Gosnell

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Document #1501 Eddy, Jr., Daniel Colorado River Indian Tribes



COLORADO RIVER INDIAN TRIBES

Colorado River Indian Reservation

ROUTE 1, BOX 23-B PARKER, ARIZONA 85344 TELEPHONE (928) 669-1280 FAX (928) 669-1391

#1501



March 25, 2005

Moab DEIS Comments U.S. Department of Energy Grand Junction 2597 B3/4 Road Grand Junction, Colorado 81503

Dear Sirs:

On behalf of the Colorado River Indian Tribes (CRIT), I write regarding an issue that has potential to significantly impact the members of this tribe as well as a number of communities along the Colorado River for generations to come.

That issue involves the approximately 11.9 million tons of radioactive uranium tailings sitting on the banks of the Colorado River in Moab, Utah. This pile contains very high levels of radioactive and toxic materials that are already leaking into the river and if left unchecked, will have a detrimental effect on virtually everything downstream. This is especially alarming to us because our entire economy centers primarily on agriculture and tourism. Our very existence is therefore heavily dependent on the water quality of the Colorado River.

To remediate the site, the Department of Energy is currently considering three options. One is to move the tailings off the river to a secure and safe location north of Moab. A second is to cap and leave the pile in place. The third option is to send the radioactive and toxic material to a facility near White Mesa, Utah.

While none of the options considered offers any safe long-term solution, we stand with our Ute neighbors in opposition to relocating the material to the proposed White Mesa site. The White Mesa site is too close to the Ute reservation and is situated atop and next to ancient sites that have profound cultural and spiritual significance to the tribe. The site north of Moab makes the most sense and is preferred over the other two options.

Unquestionably, because of the tremendous presented threat, the pile must be removed away from the Colorado River. However, serious consideration needs to be given to the location of any potential dumpsite and its proximity to neighboring communities and any relevant cultural and spiritual sites.

Moab DEIS Comments March 25, 2005 Page 2

Thank you for taking the time to hear our concerns and if you should have any questions in this regard, please feel free to contact me at the number provided above.

Sincerely,

COLORADO RIVER INDIAN TRIBES

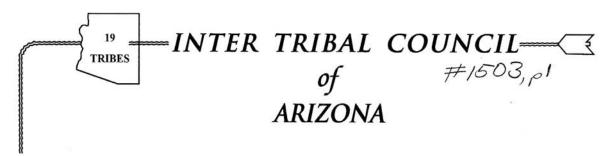
Daniel Eddy, Jr., Chairman

Tribal Council

Cc: Mayor Dave Sakrison, City of Moab

Chairman Selwyn Whiteskunk, Ute Mountain Ute Tribal Council

Document #1503 Juan-Sanders, Vivian Inter Tribal Council of Arizona



MEMBER TRIBES
ANC-CHIN INDIAN COMMUNITY
COCOPAH TRIBE
COLOGRADO RUYER INDIAN TRIBES
FORT MADOWELL YAVAPAI TRIBE
FORT MOLAVE TRIBE
GILA RIVER INDIAN COMMUNITY
HAVASUPAI TRIBE
HUALAPAI TRIBE
HUALAPAI TRIBE
PASCUA YAQUI TRIBE
QUECHAN TRIBE
SALT RIVER PIMA-MARICOPA
INDIAN COMMUNITY
SAN CARLOS APACHE TRIBE
TOHONO ODHAM NATION
TOHON TO APACHE TRIBE
YAVAPAI APACHE TRIBE

Moab DEIS Comments
U.S. Department of Energy Grand Junction

2597 B 3/4 Road Grand Junction, Colorado 81503

Re: Atlas Mill/Moab Uranium Tailings

Dear Sir or Madam:

The Inter Tribal Council of Arizona, an organization of 19 Tribal governments, is hereby expressing its support of the Ute Mountain Ute Tribe and the City of Moab, Utah regarding remediation of the Atlas Mill Site. The approximate 11.9 million tons of uranium tailings now sitting on the banks of the Colorado River in Moab at said Site should be removed off the River to a secure and safe location north of Moab.

March 29, 2005

A number of Indian Reservations, including the Quechan, Cocopah, Colorado River Indian Tribes, Havasupai and Haulapai, are directly located on the Colorado River within the geographic boundaries of the States of California, Arizona and Nevada, downriver from the Atlas Mill Site. The tribes have rights to the Colorado River stemming from the establishment of their reservations. The river is central to the culture and economy of each tribe. The release of hazardous substances into the River would threaten their subsistence and way of life. All member tribes of the ITCA join with the Ute Mountain Ute Tribe and the City of Moab in their opposition to any Atlas Mill Site remediation plan whereby the uranium tailings would remain in place on the River's bank. Even if the pile is capped, no guarantee can be given that contamination of the River, due to gradual leaking or catastrophic event such as flooding, will never occur. So long as the uranium tailings remain on the River's bank, a serious threat exists for all downriver communities and tribes as well as Moab.

All of the named tribes have many cultural, traditional and sacred places both within and without their reservations. All too often, the United States contemplates or takes action without proper consideration of the depth

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and scope of the hurt and harm experienced by Native people by the destruction and desecration of sacred places. We join with the Ute Mountain Ute Tribe and the City of Moab in their opposition to any Atlas Mill Site remediation plan whereby the uranium tailings would be sent to a facility near White Mesa, Utah. The White Mesa facility is located near and/or at the Ute Reservation and sacred places with profound cultural and spiritual significance to the Ute Tribe.

The United States has a trust responsibility for all the above named Tribes. It should not allow or pursue any remediation of the Atlas Mill Site which disturbs the Reservations or sacred sites of these tribes in any way.

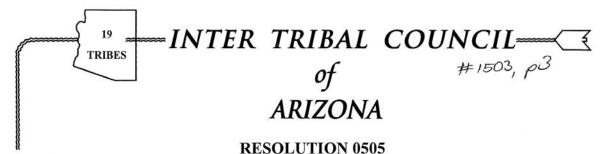
We strongly support the Ute Mountain Ute Tribe in its recommendation that Atlas Mills remove the uranium tailings off the Colorado River to a safe and secure location north of Moab. Remediation which threatens the Colorado River, such as capping the existing pile in place, or which disturbs Ute Mountain Ute Tribe sacred places, such as sending the tailings to White Mesa, should not be considered.

The 19 member Tribes of the Inter Tribal Council of Arizona urge you to take action as identified in this letter. Your attention to this matter is greatly appreciated.

Sincerely,

Museum Samula

Vivian Juan-Suanders, Presiden Inter Tribal Council of Arizona



MEMBER TRIBES
AK-CHI INDIAN COMMUNITY
COCOPAL TRIBE
COLORADO RIVER INDIAN TRIBES
FORT MODOWELL YAVAPAI TRIBE
FORT MOLOWELL YAVAPAI TRIBE
FORT MOLOWER
FORT MOLOWER
FORT MOLOWER
HAVASUPAI TRIBE
HOPI TRIBE
HOPI TRIBE
HOLIAPAI TRIBE
KAIBAD-PAIUTE TRIBE
PASCIA YACIUT TRIBE
QUECHAN TRIBE
SALT RIVER PIMA-MARICOPA
INDIAN COMMUNITY
SAN CARLOS APACHE TRIBE
TOHONO O'ODHAM NATION
TOHON APACHE TRIBE
YAVAPAI APACHE NATION
YAVAPAI PRESCOTT INDIAN TRIBE
YAVAPAI PRESCOTT INDIAN TRIBE

RESOLUTION OF THE INTER TRIBAL COUNCIL OF ARIZONA

Title:

Support of the Fort Mojave Tribe's opposition to movement of uranium tailings to White Mesa, Utah

WHEREAS.

the Inter Tribal Council of Arizona, a council of 19 tribal governments in Arizona, provides a forum for tribal governments to advocate for national, regional and specific tribal concerns and to join in united action to address these issues; and

WHEREAS,

the member tribes of the Inter Tribal Council of Arizona have the authority to act to further their collective interests as sovereign native governments; and

WHEREAS.

the member tribes of the Inter Tribal Council of Arizona support the sovereign right of Indian nations to protect their traditional lands, environments, sacred sites and cultural resources; and

WHEREAS.

the Inter Tribal Council of Arizona has the charge to support and represent particular member Tribes on matters directly affecting them upon their request; and

WHEREAS,

The Fort Mojave Indian Tribe is requesting support opposing the transfer of 11.9 million tons of uranium tailings presently located on the banks of the Colorado River in Moab, Utah to a facility in close proximity to White Mesa, Utah, and leaving the mine tailings capped or uncapped at its present location; and

2214 North Central Ave. • Suite 100 • Phoenix, Arizona 85004 • (602) 258-4822 • Fax (602) 258-4825

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WHEREAS,

the uranium tailings now located on the banks of the Colorado River threaten not only the health and viability of the Colorado River but all communities specifically Ft. Mojave, Colorado River Indian Tribes, Hualapai, Havasupai, Quechan and Cocopah Tribes, downriver from the Atlas Mill site where the uranium tailings are presently stored; and

WHEREAS,

the Ute Mountain Ute Tribe, the Fort Mojave Tribe and the above named tribes have many cultural, traditional and sacred places along the Colorado River, both within and in close proximity to their reservations and the release of or leaking from the tailings into the Colorado River or the relocation of the tailings to or near these sacred sites would have devastating effects on the Tribes' cultural, spiritual and traditional existence; and

WHEREAS,

the White Mesa facility is located near the Ute Reservation and sacred sites culturally and spiritually significant to the Ute Mountain Ute people; and

NOW THEREFORE BE IT RESOLVED, that the Inter Tribal
Council of Arizona supports the Ute Mountain Ute
Tribal Council and the Ft. Mojave Tribal Council in
their opposition to moving the mine tailings,
contaminated soils and cover material from the Atlas
Mill site in Moab, Utah to a facility near White
Mesa, Utah; and

BE IT FURTHER RESOLVED, the Inter Tribal Council of Arizona opposes leaving the mine tailings capped or uncapped on the banks of the Colorado River.

BE IT FURTHER RESOLVED, that the Inter Tribal Council of Arizona requests that the United States Department of Energy remove the 11.9 million tons of uranium

2

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tailings off the banks of the Colorado River to a secure and safe location north of Moab.

BE IT FURTHER RESOLVED that the Executive Director of the Inter Tribal Council of Arizona forward this resolution to the U.S. Department of Energy and other pertinent agencies.

CERTIFICATION

The foregoing resolution was presented and duly adopted at a meeting of the Inter Tribal Council of Arizona, where a quorum was present on **Friday, March 18, 2005**.

Vivian Juan-Suanders, President Inter Tribal Council of Arizona

Chairwoman of the Tohono O'odham Nation