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TAKE PRIDE IN AMERICA

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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 U.S. Department of the Interior (DOI) has reviewed the Draft Environmental Impact Statement (DEIS) for Remediation of the Moab Uranium Mill Tailings, Grand and San Juan Counties, Utah.

Along with no action, the DEIS evaluates four options for location of the tailings: capping in place ("on-site disposal") or relocating to the Klondike Flats, Crescent Junction, or White Mesa Mill sites. It also analyzes three transportation modes for the relocation options (truck, rail, and slurry pipeline), and a groundwater remediation strategy which is common to all action alternatives.

The Department of Energy (DOE) has not yet selected a preferred alternative, which will be chosen based upon several considerations. Among the most important will be cooperating agency comments. We are providing the following comments for your consideration in selecting the preferred alternative and preparing the final Environmental Impact Statement.

General Comments

The National Park Service (NPS), U.S. Fish and Wildlife Service (FWS), and Bureau of Land Management (BLM) have been working with the DOE for several years as cooperating agencies under the National Environmental Policy Act to provide input on the scope of analysis, lands and resources of concern for this project, and technical information. All three DOI Bureaus appreciate the opportunity to be involved with you, other Federal and State agencies, and interested publics on this important project. During the scoping of the project, BLM helped in the identification of alternative sites and has initiated planning to recognize the sites for possible disposal to the DOE for relocation of the tailings.

Generally, the DEIS is thorough and well-written with ample information and helpful graphics. However, we note that information on fish and wildlife species includes qualifying language identifying the need for additional information. The site-specific information cited is largely based on Utah Division of Wildlife Resources (UDWR) mapped observational data. Although we believe the precision of site specific wildlife data is inadequate for detailed project planning, we believe it is adequate for public disclosure and decision-making in this EIS.

Our major concerns for fish and wildlife resources arise from the significant uncertainties related to the effectiveness of groundwater remediation and the risks resulting from leaving the tailings pile located on the Colorado River floodplain. Specific conclusions for Federally listed species will be addressed in the FWS Biological Opinion on this project.

Assessment of Alternatives

No Action Alternative

The Moab tailings site is located immediately across highway 191 from Arches National Park, on the banks of the Colorado River, and upstream from other national parks including Canyonlands and Glen Canyon. The tailings pile in its current location impacts visitors and resources of all these National Park units, as well as Grand County residents and recreational users of the Moab area and the Colorado River. The current tailings site produces various impacts and prevents various benefits that the site could potentially provide.

The No Action Alternative would also continue to cause mortality of Federally endangered fish species and adverse impacts to designated critical habitat. Other fish and wildlife resources in the vicinity and downstream would continue to be detrimentally impacted as contaminated groundwater would discharge indefinitely to the Colorado River and ammonia concentrations would continue to exceed protective levels. Additionally, the tailings pile would continue to be at risk of partial or catastrophic failure which would cause contamination of National Park System Units and aquatic and riparian habitats locally and for miles downstream.

On-Site Disposal Alternative

DOE has launched a commendable research effort to control the concentration of contaminants from reaching the Colorado River. We appreciate these efforts. However, as stated in the DEIS and discussed in more depth at a Stakeholders meeting in Moab on January 14, 2005, the On-Site Alternative is fraught with uncertainties that have implications for protection and conservation of DOI lands and resources. The uncertainties involve: (1) groundwater remediation; and (2) Colorado River access to the tailings pile.

Groundwater Remediation

1. Although there are model predictions and groundwater pumping trials, the DOE acknowledges that there remains considerable uncertainty about whether groundwater remediation can be achieved to protective levels for aquatic resources and in what timeframe.

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2. Seepage from the tailings pile represents a long-term source of groundwater loading that could result in longer term active groundwater remediation and/or higher residual groundwater contamination remaining after the conclusion of the groundwater remediation time period.

3. According to the DEIS (p. 4-7) "limited data suggest that there may be significantly higher ammonia concentrations in the upper 10 feet of tailings related to a 3- to 6-inch salt layer," and "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." Nevertheless, the DEIS estimates that these high ammonia concentrations would reach the ground water in approximately 1100 years (just outside the regulatory timeframe of 1000 years) and then continue to dissolve for 440 years. It suggests that seepage from the pile during dissolution could have concentrations of up to 18,000 mg/L of ammonia, compared to "initial" (apparently current) ammonia concentrations of 1100 mg/L. Given the "insufficient" information about ammonia salts in the tailings, it would seem that this 1100 year prediction could be uncertain enough that an occurrence in less than 1000 years, within the regulatory timeframe and thus relevant to decision-making, is within the realm of possibility. A discharge of 18,000 mg/L ammonia would seem to seriously hinder the ability to reach or maintain the target goal of 3 mg/L ammonia in ground water.

Although uncertainty number 1 is common to all action alternatives, uncertainty numbers 2 and 3 are unique to the On-Site Disposal Alternative.

There is preliminary evidence that contaminated groundwater can, and already is, reaching the Nature Conservany's Matheson Wetlands Preserve (Preserve) via a gravel layer under the Colorado River (Gardner and Solomon 2004). Potential contamination of the Preserve and disturbance caused by installation and operation of a groundwater remediation system, should that be necessary, are serious concerns. The Preserve provides unique and highly valuable fish and wildlife habitat that should not be put at risk of compromise. The On-Site Disposal Alternative increases the likelihood and duration of contamination from groundwater being a significant concern for the Preserve.

Finally, as reported in a Salt Lake Tribune article dated December 1, 2004, regarding capped mill tailings in Monticello, commitment to long-term management/maintenance of capped contaminated sites can be problematic. This is of special concern when such sites are located immediately adjacent to environmental resources of special concern, such as the Colorado River and the Preserve.

Colorado River Access to the Tailings Pile

As noted in the DEIS and corroborated in presentations by U.S. Geological Survey (USGS) and others at the Moab meeting, 100- and 500-year and probable maximum flood events could reach and partially inundate the disposal cell. For example, USGS estimated inundation would be up to 4 feet with a 100-year flood event and 25 feet at the probable maximum flood. It is not clear,

however, whether the DEIS model used to predict ground water remediation results (e.g. page 4-8) factors in the high likelihood that at least one 100-year flood would occur over the predicted 80-year timeframe for ground water remediation with the tailings pile capped in place. Nor is it clear whether the high likelihood of ten 100-year floods, with two of these also reaching 500-year magnitude, and the resulting effects of rewetting the tailings, is factored into predictions for ground and surface water over the course of the 1000-year regulatory time frame. Further, there is both recent and older geological evidence that the river has been near to or within the area presently occupied by the tailings pile. Although there is uncertainty about when, how often, and how severe a breach of the tailings pile could occur due to river movement, available evidence indicates that it is reasonable to expect that the river **will** reach and/or breach the tailings pile. This could result in the following impacts to fish and wildlife resources:

- Rewet contaminated materials which could enter groundwater and then the river.
- Mobilize contaminated surface materials which would most likely settle in other slower water habitats inhabited by fish and their food base.
- Spread contaminated materials into the Matheson Wetland Preserve, thus affecting nursery habitat for both native fish species and non-native sport fish species.
- Weaken the tailings pile, making it more vulnerable during the flood event and future events.

Various geologic data and engineering designs have been contemplated to reduce the risk of the river reaching the tailings pile. Discussions at the Moab meeting indicated that a great deal more information would be needed, and significant riprapping or hardening of the river channel would need to occur to reduce, but not eliminate, this uncertainty. The DEIS presented a preliminary proposal that included the following: a buried riprap diversion wall would be constructed; Moab Wash would be rechanneled; and unspecified stormwater management measures would be installed upstream. These and similar activities to "control" the river would eliminate habitat for endangered fish, change currents and sediment deposition patterns, and possibly affect the Preserve by increasing river movement and water force at the Preserve. Rechanneling Moab Wash and altering hydrology will affect riparian vegetation and sediment movement. These measures are detrimental to stream and river function and thus to aquatic and riparian habitats and the endangered fish and other wildlife that use them.

Effects of a Disposal Cell Failure

The DEIS does not adequately address the risks to human and ecological health from contaminated sediment accumulation in the Colorado River sediment delta at the inflow of Lake Powell after a disposal cell failure. We agree with the findings in this section that there is a risk of releasing additional contaminants into the Colorado River water and downstream sediments, but we find no data to support the section's conclusion that sediment laden with uranium, ammonia and radium-226 would be deposited in the river bottom and become stabilized. We also find not data to support the conclusion that the presence of uranium, ammonia and radium-226 in the water and sediments that eventually reach Lake Powell would have only a short-term

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impact on human health, fish and wildlife resources or the environment. Our findings are that sediments in Lake Powell are relatively mobile and they get redeposited over both short-term and long-term cycles, depending on volume of inflow and other variables. Thus we question the conclusion in this section that toxic effects of a disposal cell failure would be negligible or short term. We suggest these conclusions should be reexamined in the FEIS.

The "camping" scenario is somewhat unclear, but seems to underestimate the camping use and other recreational use that occurs on the Colorado River and shores within a few miles downstream of the tailings pile. If the "two overnight camping events per year" in the scenario is meant to describe use by any single person, note that there are several popular BLM campsites along the downstream river shores, and that it is not unusual for individual visitors to camp at these sites well in excess of two days per year. Additionally, river users often spend more than two days per year boating, swimming and camping on the Colorado and shores between the tailings pile and Lake Powell. Commercial river guides may spend 75 days and nights or more per year on this section of the river. Boating use on the Colorado in Canyonlands National Park, which generally starts at various locations near or downstream from the tailings pile, is about 12,000 to 13,000 people per year, or over 31,000 visitor-use days per year. These users could be exposed to contaminants from a disposal cell failure, including radium-226 in sediments that would settle along river shores, which the DEIS predicts would be at levels "well above the 40 CFR 192 cleanup standards" and "could be of concern."

It is stated that "very small amounts of contamination would accumulate in the main river channel," but this does not consider the sediment delta, where much of the sediment would eventually accumulate. Later in the DEIS, it is stated that "much of the radium-226 would be expected to settle out in Lake Powell," reducing the risk downstream. However, risks associated with the settling in Lake Powell are not addressed. The estimated concentrations of uranium and radium in sediments that may settle out is probably sufficient to estimate contamination in the delta, but the residential scenario is inappropriate and the camping scenario is inadequate to characterize the risks. Visitors to Lake Powell generally camp on the shores of the lake. The level of Lake Powell fluctuates considerably, and visitor exposure to sediments at lower water levels is very likely. Remobilization of contaminated sediments by wind during low lake levels is also a concern. The average stay is over four days; a two day exposure, as considered in the camping scenario, is not realistic. Risk factors may also be exacerbated by the fact that Glen Canyon NRA has the highest rate of return visitors in the National Park Service. Many of the campers use Lake Powell as a source of drinking water. Risks to users of Lake Powell would also exist from bioaccumulation of contaminants in game fish. Additionally, at normal water levels, Hite Marina draws drinking water from the lake at a location directly over the sediment delta.

We also suggest that the FEIS expand its action area or at least the cumulative impact section to recognize the impact of a disposal cell failure on downstream drinking water supplies. None of the municipal water districts that currently obtain water from the Colorado River downstream from the tailings pile have the technology or funds available to remove the levels of uranium, or other contaminants from their drinking water supplies in the event of a catastrophic failure.

Visual Resources

The narrative seems to underestimate the visibility of the disposal cell. It would be visible to virtually all, rather than "a limited number of," visitors to Arches National Park, from Highway 191 and the Park headquarters area, and from the switchbacks and the Moab Fault Overlook on the park entrance road above the Moab Valley. It would also be visible from a number of residences in the northwest part of Moab, as well as from hotels and other visitor destinations along highway 191 on the north side of Moab. We concur that the short-term visual impacts from this alternative would be "strong," but we question whether the long-term impacts would be reduced to "moderate" and whether vegetation would establish on the disposal cell to the extent simulated in figure 4-6. We concur that lights for night-time operation at the Moab site or at any of the alternative disposal sites should be shielded.

Uncertainties

Discussions at the recent Moab meeting indicate that it would take a great deal of additional time, investigation, and trials to reduce the uncertainties associated with the On-Site Alternative. On the other hand, these uncertainties can be avoided by moving the tailings pile offsite. Thus, although the On-Site Disposal Alternative has the least overall short-term surface acreage impacts, based on DOE's forthright recognition of the aforementioned uncertainties and the other concerns listed above, we believe this alternative has significant impacts to DOI lands and resources that could be avoided by choosing an offsite disposal alternative. Further, in the long-term, these resources *could* be improved by choosing an offsite alternative *if* the restored bottomlands were protected from development.

Offsite Alternatives

White Mesa Mill Offsite Alternative

This site is located near perennial streams and wetlands that could be at risk from tailings disposal either through groundwater connection or loss of integrity of the stored tailings. The slurry pipeline would need to cross the Colorado River, the Preserve, 11 perennial streams, and at least 21 intermittent drainages. Both construction of crossings and potential leakage put these important aquatic and riparian habitats at risk. Trucking the tailings would result in greatly increased potential for wildlife mortality for 85 miles. These aquatic and transportation-related wildlife impacts would be greatly reduced under the other two offsite alternatives. We therefore recommend that the White Mesa Mill Offsite Alternative not be given further consideration.

Crescent Junction Offsite Alternative

The primary differences between the Crescent Junction Offsite Alternative and the Klondike Flats Offsite Alternative are: (1) Crescent Junction is subject to extreme surface water flooding potential; and (2) Crescent Junction is 12 miles farther from Moab by road, increasing the potential for wildlife mortality. These differences result in greater potential impacts to wildlife resources with the Crescent Junction Offsite Alternative than with the Klondike Flats Offsite Alternative.

Klondike Flats Offsite Alternative

As previously stated, this site is similar to the Crescent Junction site. However, there is less flood risk, and the site is closer to Moab. In addition, this site is near the existing airport and landfill, therefore disturbance has already displaced resident wildlife. Considering the soils at both sites, we believe the Klondike Flats site has the best potential (although still poor) for successful revegetation to native species. The Crescent Junction site includes Mancos shale soils and currently suffers from a cheatgrass infestation, making revegetation more problematic.

Although this and the other offsite disposal alternatives add 400 to 450 acres of temporary and permanent disturbance to surface soils and vegetation, we believe that the effects of the loss or reduced quality of these habitats is minor compared to the residual impacts and future risks to floodplain habitat associated with the onsite alternative.

We understand that the Klondike Flats Alternative may include offloading the tailings from the railroad to trucks in order to reach the site. However, extending the rail line is an option. We strongly encourage the latter, as additional handling of the tailings increases the risk of environmental contamination.

Trucking the tailings has the most potential to impact wildlife resources due to direct mortality, interference with movement from one side of the highway to the other (disruption of movement corridors and habitat fragmentation), and noise. The slurry pipeline avoids these impacts, although it would result in some depletion of water from the Colorado River. Slurried tailings may also result in localized surface or groundwater contamination. The railroad is not expected to cause significant wildlife mortality or obstruct wildlife movement; however noise would still be a consideration. Overall, we recommend avoiding the trucking alternative due to its higher potential for detrimental impacts to wildlife.

Specific Comments

Section 2.1.3 Construction and Activities at Borrow Areas: Since initiation of the DEIS project and preliminary discussions with BLM staff in the Moab Field Office, a public health and safety issue with activities in the Crescent Wash/Ten Mile drainages has been identified. Flooding and severe dust storms commonly occur along the northern section of SR-191 and I-70 from Crescent Junction to near the State line. Storms, more prevalent during the spring and summer months, have resulted in public health and safety concerns associated with highway travel. There have been vehicle accidents and injuries during these events. The borrow areas referred to as Courthouse Syncline and Tenmile (as shown on Figure 2-8, Volume I of the DEIS) are of particular concern regarding this issue.

BLM and the U.S. Geologic Survey (USGS) have been collecting information and conducting research in this area to determine locations providing dust sources and mechanisms for dust movement. Preliminary information suggests the most severe dust storms are occurring from alluvial floodplains on Mancos derived soils in the Crescent, Thompson and Sagers Wash areas. Dust movement from these areas appears to be correlated with disturbance of these soil types,

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particularly west and southwest of SR-191 in Crescent Wash. Preliminary information suggests these storms are more severe in this area due to:

- The prevailing wind direction from the southwest aligning with the topography of the greater Ten Mile Wash area as it grades into the Crescent Wash,
- The presence of sand size particles in dunes at the head of Ten Mile Wash, providing a source for surface "saltation" particles,
- Abundance of fine-grained material from the Mancos shale and the alluvial sediments, directly adjacent to and downwind from upper Ten Mile Wash, providing a source for the airborne dust particles in this drainage, and
- The flatness of the overall drainage system, which allows winds and saltation particles to move more easily along the surface.

This system is further affected by the ongoing drought as vegetation is removed from the landscape, resulting in minimal natural trapping mechanisms for the entrained dust particles.

While DOE could and would require strict BMP's to limit the quantity of dust that could come from borrow and other project areas during operations, it is the overall disturbance in these drainages from all the ancillary operations (even those activities on established roads), that would be associated with borrow or other operations over a sustained period of time that is of concern for the health and safety of the traveling public along SR-191 and I-70.

Alternatives to locating project components in the Crescent Wash/Ten Mile drainages should be considered.

Please contact the BLM Moab Field office if further information is required.

Paleontological Resources: All project areas should be analyzed for potential impacts to protected paleontological resources. Even though the geology sections of the EIS identify geologic formations in the project impact areas that have produced and have the potential to produce significant paleontological resources, the potential impacts to these resources have not been analyzed.

A baseline inventory of paleontological resources in the impact areas is needed to support an analysis of impacts. The inventory should be completed by a professional paleontologist licensed in the state of Utah. A list of paleontologists licensed in the state of Utah can be obtained from the BLM State Office.

Section 2.3.2.1 Ground Water Remediation Options (pg 2-100): We believe that evaporation ponds, identified as a primary treatment consideration for the final groundwater remediation plan, have a high probability of being an attractive hazard to wildlife, especially because of their proximity to the Colorado River and the Preserve which are high use areas for wildlife. It will be important to incorporate measures to prevent wildlife access to the evaporation ponds.

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Conclusions

The DEIS makes an effort to acknowledge and discuss various uncertainties involved in predicting impacts and costs of the various alternatives, including the possibility of river channel migration into the pile, catastrophic flooding, and the appropriate surface water quality standards and their effect on groundwater remediation time, and associated costs, with the pile left in place. There are various other uncertainties that could also come into play over the 80 to 1000+ year regulatory timeframe for management of the tailings, such as the possibility of increased upstream withdrawals from the Colorado River and consequent lower flows, and reduction of endangered fish habitat and water available for dilution of pollutants. The DEIS acknowledges that the tailings pile in its current location would be a continuing source of contamination that would maintain contaminant concentrations at levels above background concentrations in the ground water and potentially require institutional controls at the site in perpetuity to protect human health.

The current Moab tailings pile and mill site is in a prime location: on the banks of the Colorado River, next to a busy highway at the gateway to Moab, across the highway from Arches and across the river from a key Nature Conservancy wetland preserve. This location has higher and better uses than to be left contaminated and unavailable to any beneficial use in perpetuity. Removal of the tailings from this site would eliminate hazards and create benefits for wildlife, such as endangered fish and southwest willow flycatcher, as well as for humans.

We would suggest that the above factors, the uncertainties, the continuing risk in perpetuity, and the high value of the Moab site for other uses and benefits, are major drawbacks to the alternative of capping the tailings pile in its current location. The prudent alternative is clearly to move the tailings pile to a safer location. We suggest that the Klondike Flats site is the best location for the tailings, with the Crescent Junction site a second choice. Because of the infrastructure already in place and the separation from a highly traveled highway, rail transportation appears to be the best alternative for transportation of the tailings.

The Department appreciates the opportunity to provide these comments and expects NPS, FWS, and BLM to continue to work with DOE to plan and implement this project in a manner that avoids, to the greatest extent possible, detrimental impacts to DOI lands and resources. For further information please contact those Bureau staff with whom you have been working during preparation of the DEIS.

Sincerely,

Robert F. Stewart

Robert F. Stewart
Regional Environmental Officer

Literature cited:

Gardner, P.M. and D.K. Solomon. 2004. Summary Report of Hydrologic Studies of the Scott M. Mattheson Wetland Preserve. Report to The Nature Conservancy, Moab, Utah. 43pp