APPENDIX I

Design Features

Appendix I. Design Features for Alternatives A and C*

Design Feature Alternative A (Applicant Committed Measures)	Design Feature Alternative C (Conditions of Approval, Appendix G of EA)	Effectiveness	Rational
Dust suppression measures would be implemented in the mine, such as watering, which limits dust emissions from the vent shafts. Operations would be consistent with air quality permit (DAQE- AN14151003-12). Visible emissions from the following emission points would not exceed the following values: Haul roads – 15 percent opacity Operational areas – 20 percent opacity All diesel engines – 20 percent opacity All other points – 20 percent opacity	Same as alternative A	High	MSHA regulations - Standard operating procedures and experience. As such, exposure to silica to members of the public is expected to be kept to minimal levels
Monitor and control particulate and radiation exposure to workers at the mines. This program involves monitoring and control of dust, radon daughters and gamma radiation within the working areas of the mine. Within the mine, Applicant would perform annual gamma exposure measurements consistent with MSHA requirements.	Same as Alternative A. In addition, pre-construction radon modeling for new shafts would be required. The modeling would evaluate potential adverse effects associated with radon emissions prior to commencing operation of the new vent shaft.	High	MSHA regulations - Standard operating procedures and experience. Compliance with the requirements of 40 CFR 61 Subpart B which limit the impact of vent shaft radon emissions on members of the public.

Design Feature Alternative A (Applicant Committed Measures)	Design Feature Alternative C (Conditions of Approval, Appendix G of EA)	Effectiveness	Rational
Cultural Resources			
If cultural resources are discovered during project-related operations, all ground-disturbing activities in the vicinity of the resource would cease immediately. The discovery would be immediately reported to BLM or USFS as appropriate. BLM or USFS would arrange for a determination of significance, and if necessary, recommend a recovery or avoidance plan.	Same as Alternative A	High	Standard Operating procedures. Ceasing activity limits impacts, and a permitted archeologist would inspect and evaluate the discovery.
Not Required	Require preconstruction cultural resource surveys of the specific locations for exploration drill holes, ventilation shafts, and associated access roads, and require avoidance of any cultural resources listed on or eligible for listing on the NRHP.	High	Experience. This component would allow for the identification and avoidance of historic properties (cultural resources listed on or eligible for listing on the NRHP) in the areas proposed for exploration drilling, vent construction, and road construction in all three phases,
Access is restricted in some locations.	Require Energy Fuels to construct gates and warning signs to restrict public access vent shaft access roads.	High	Experience. Restricting access would limit the public access.
All vehicular traffic, personnel and equipment movement, and construction activities would be confined to the locations surveyed for cultural and paleontological resources, or to the existing roadways and/or inventoried access routes.	Same as Alternative A	High	Standard Operating Procedure and Experience. Confinement to surveyed areas would provide protection to historic properties

Design Feature Alternative A (Applicant Committed Measures)	Design Feature Alternative C (Conditions of Approval, Appendix G of EA)	Effectiveness	Rational
Developmental Rock Areas			
BMPs, such as diversion ditches, would be implemented (See Plan of Operations-Appendix E) to control stormwater run-off to these areas and to reduce the effects of erosion and the potential for runoff of contaminated water. Earth/rock berms would be used on the downslope side of ore piles to control stormwater runoff.	Same as Alternative A with the addition of required annual environmental characterization of development rock (DRA) produced at the La Sal Mines Complex. If necessary, with the expansion of the DRA, the ephemeral drainage may be relocated.	High	Industry standard - in the event that the environmental characteristics of the development rock produced at the La Sal Mines Complex change over time, potentially deleterious characteristics would be identified and appropriate modifications to the POA could be made if necessary. Standard practices for water quality management.
Groundwater			
Ventilation shaft construction methods such as lining and sealing shafts that penetrate would be completed according to UDOGM requirements.	Same as Alternative A. In addition the construction would include installation of low-permeability seals within backfilled ventilation shafts above and below the D-aquifer. All methods would be on federal-managed lands.	Moderate	Compliance with UDOGM requirements. Denison would provide engineering designs and specifications for reclamation of shafts that penetrate the D-aquifer to BLM or FS, as appropriate, before shaft reclamation.
Not Required	Development rock would not be permitted for backfilling of vent shafts that intercept within the D-aquifer in the Dakota Sandstone and Burro Canyon Formations. At those locations, development rock would be placed both below and above the D aquifer and low-permeability, inert fill material would be placed within the vertical interval of the D aquifer.	High	No development rock within the D aquifer prevents contamination of the aquifer from development rock as fill material.

Design Feature Alternative A (Applicant Committed Measures)	Design Feature Alternative C (Conditions of Approval, Appendix G of EA)	Effectiveness	Rational
Exploration drill holes that do not encounter groundwater would be plugged by setting a nonmetallic perma plug at a minimum of five ft below the surface and filling the hole above with concrete. Holes that encounter groundwater would be plugged by placing a 50-foot cement plug immediately above and below the aquifer(s) or filling the hole from the bottom up with a high-grade bentonite/slurry mixture in accordance with UAC Rule R647-4-108.	The same as Alternative A. In addition, the operator shall provide a vent shaft plugging plan for BLM or FS approval (as appropriate based on land status) for all shafts that intersect the D-aquifer on BLM or FS lands.	High	Vent shaft plugging plan shall be submitted for agency approval at least 6-months prior to vent shaft reclamation.
Not Required	A water quality monitoring program would be implemented to monitor for any potential changes or other effects to water quality or quantity. This program would be initially designed by Energy Fuels and submitted to BLM and FS for approval. After agency approval, the monitoring instrumentation would be installed and monitoring would commence. Groundwater monitoring would continue until cessation of monitoring is approved by the agencies.	Moderate	This would provide for additional protection of groundwater as compared to Alternatives A or B, because, in the event that unanticipated effects to groundwater occurred, these effects would be identified and appropriate modifications to the POA could be made in accordance with BLM and FS regulations (i.e. 43 CFR 3809 and 36 CFR 228 Subpart
The authorized officer of BLM or USFS, as appropriate based on land status, shall be notified if a spill of a hazardous material occurs on public lands that exceeds a reportable quantity of 5 gallons. Spill containment shall be initiated immediately and contaminated material shall be moved to the nearest approved landfill or disposal facility as appropriate.	Same as Alternative A	High	Standard Operating Procedure

Design Feature Alternative A (Applicant Committed Measures)	Design Feature Alternative C (Conditions of Approval, Appendix G of EA)	Effectiveness	Rational
Radiation			
Reclaim the DRAs to a standard dose of 100 millirem (mrem) above background to a person camping on or near a DRA for 14 days for its mines in Utah.	Disturbed areas at the La Sal Mines Complex shall reclaimed such that the potential dose to a member of the public, assumed to be a person camping on or near reclaimed areas for 14 days, is less than 15 mrem/yr above background. In addition, before exploration drilling starts, the operator shall record background gamma radiation levels in the exploration area. The 95th percentile upper confidence limit of the mean of background measurements shall be the target level for reclamation of exploration drilling sites. If this target is not achieved, the authorized officer of BLM or USFS as appropriate based on land status may require further reclamation until it is attained.	High	This standard falls within the radiation protection concept of ALARA (As Low As is Reasonably Achievable). The 100 mrem standard is supported technically by recommendations from the National Council on Radiation Protection and Measurements (NCRP). In addition, the standard is consistent with the numerical public dose protection standard set by the NRC for uranium milling facilities as set forth in 40 CFR Part 20.1301, Subpart D.
After drilling is completed, the drill site and the pit would be reclaimed.	All drill cuttings that show gamma exposure values in excess of background levels shall be buried and covered with no less than 3 feet of earthen material and covered with soil to attenuate gamma exposure values to background levels. In some cases where it is impractical to dig a pit for cuttings, such as when bedrock is at the surface, the cuttings shall be removed to another approved site for disposal. No cuttings, even if not radioactive, shall be left on the surface.	High	If the radioactive cuttings are buried 3 feet or greater or removed, the potential of exposure to radiation would be reduced.

Design Feature Alternative A (Applicant Committed Measures)	Design Feature Alternative C (Conditions of Approval, Appendix G of EA)	Effectiveness	Rational
Noise			
Not Proposed	Alternative C would require installation of ventilation fans underground in all new shafts to the extent practicable and feasible. This would place the fans approximately 1,000 ft below the surface.	Moderate	Noise levels from the new underground fans would be more than 10 dBA lower at a given distance to nearby receptors than the existing fan noise levels shown in Table 3-9 at the same distance from the receptors. The 10 dBA difference would be heard by a listener as half as loud as Alternative A at each receptor location.
Where existing fans present a localized noise concern to La Sal residents, installation of sound barriers to direct noise away from receptors, extended risers on fans to dissipate noise, and baffles in cases where such modifications to existing fans are available.	Same as Alternative A. In addition, where feasible, the vent fans would be placed below ground surface. This would further minimize the sound level of the fan at the ground surface.	Moderate	Industry standard
Reclamation			
Cover development rock piles with soil, as possible based on the availability of stockpiled soil, and the surface of the DRA would be vegetated with native plant species.	The same as alternative A with the addition that a vegetated soil cover would be required to be placed on all DRAs during reclamation. Revegetation test plots would be designed to evaluate reclamation practices at DRAs, exploration areas, and ventilation shafts, and would be installed and monitored at the La Sal Mines complex prior to final reclamation.	Moderate	Research demonstrates vegetated soil covers would reduce percolation of water into the DRAs over the long-term (decades to centuries) and further reduce the likelihood of leachate generation from the reclaimed DRAs.
Not proposed	Identify an alternative source for soil to use during reclamation to ensure sufficient soil is available for use during reclamation; and test the performance of the soil, soil amendments, seed mixtures and	Moderate	

Design Feature Alternative A (Applicant Committed Measures)	Design Feature Alternative C (Conditions of Approval, Appendix G of EA)	Effectiveness	Rational
	reclamation methods using reclamation test plots constructed prior to mine closure.		
When mining activities are completed, the sites (per mine plan modification) would be reclaimed. During this process, it is likely that the mine would be capped by covering any potentially mineralized rock with available topsoil, development rock and till.	Provide for stockpiling of additional soil for use during reclamation. Assuming that soil removed to a depth of 3 ft. before construction of the DRA expansion, this would provide for stockpiling of approximately 23,800 cy of additional soil, an important resource to support mine reclamation.	Moderate	This was identified as a measurement indicator for reclamation. The depth of soil placed during mine reclamation would likely be in the range of 6 to 12 inches. Alternative C would provide more soil to use in reclamation as compared to Alternatives A or B.
The maximum slope lengths would be expected to be approximately 250 to 300 ft.	Maximum slope length would be 100 ft., which are measurement indicators for the issue of reclamation Slope breaks would be installed during final grading of Pandora DRA to reduce soil erosion and promote development of vegetative ground cover	Moderate	Common practice in mine reclamation.
Surface Water			
Best management practices (BMPs) are currently being applied and monitored in accordance with the existing SWPPP. Includes modification of the existing SWPPP to address additional mine disturbance. To control erosion and sediment transport, BMPs would continue to be utilized and include sediment and erosion controls, inspections, and maintenance schedules to control potential migration of sediment in surface water runoff. Further, all drainage control structures route offsite surface flow around the affected areas, and BMPs in the affected areas would be designed to detain the 100-year, 24-hour storm event.	Same as alternative A	High	Experience
Not proposed	Provide for installation of additional erosion control	High	Would be conducted in accordance with

<table>
<tr><th>Design Feature Alternative A (Applicant Committed Measures)</th><th>Design Feature Alternative C (Conditions of Approval, Appendix G of EA)</th><th>Effectiveness</th><th>Rational</th></tr>
<tr><td></td><td>structures (slope breaks) during reclamation. Additional terms and conditions designed to prevent soil erosion and protect surface water quality.</td><td></td><td>approved permits, the Federal Clean Water Act, and associated state and Federal regulations.</td></tr>
<tr><td>Vegetation</td><td></td><td></td><td></td></tr>
<tr><td>The proposed reclamation plan for Alternative A establishes a reclamation performance criterion to achieve 70 percent of the pre-mining vegetative ground cover.</td><td>Same as Alternative A</td><td>Moderate</td><td>Standard</td></tr>
<tr><td>Removal of vegetation shall be limited to that necessary for operations and approved by the authorized officer of BLM or USFS, as appropriate based on land status. Removal or trimming of trees shall be avoided whenever possible.</td><td>Same as Alternative A.</td><td>High</td><td>Standard practice</td></tr>
<tr><td>All equipment, including on-road and off-road equipment, shall be cleaned to remove weed seed and soil (may contain weed seed) prior to commencing operations on public lands within the project area. The operator shall treat weed infestations as necessary and as approved by the BLM or USFS to prevent additional spread.</td><td>Same as Alternative A</td><td>High</td><td>Standard practice</td></tr>
<tr><td>Wildlife</td><td colspan="3"></td></tr>
<tr><td>Biological surveys for the areas of future disturbance, including exploration, that are not yet complete would be performed when specific areas of future disturbance are identified.</td><td>Same as Alternative A. With the addition of buffers and standard timing restrictions.<table><tr><th>SPECIES</th><th>SPATIAL BUFFER</th><th>TIMING RESTRICTION</th></tr><tr><td>Bald Eagle</td><td>1 mile</td><td>1/1- 8/31</td></tr></table></td><td>High</td><td>Standard operating procedure. Experience indicates that advoiding disturbance during the nesting period prevents nest abandonment due to the activity.</td></tr>
</table>

Design Feature Alternative A (Applicant Committed Measures)	Design Feature Alternative C (Conditions of Approval, Appendix G of EA)	Effectiveness	Rational
	<table><tr><td>Flammulated Owl</td><td>.24 mile</td><td>3/1-9/30</td></tr><tr><td>Golden Eagle</td><td>.5 mile</td><td>1/1-8/31</td></tr><tr><td>Northern Goshawk</td><td>.5 mile</td><td>3/1-8/15</td></tr><tr><td>Ferruginous Hawk</td><td>.5 mile</td><td>3/1–8/1</td></tr><tr><td>Peregrine Falcon</td><td>1 mile</td><td>2/1–8/31</td></tr></table>		
Biological surveys for all raptors would be performed in the nesting season preceding any anticipated disturbances for the following years. Survey results would be reported to BLM and USFS.	Same as Alternative A. In addition, to reduce impacts to potential nesting birds within the project area, vegetation removal shall not occur during the breeding season (most migratory birds nest between May 15 to July 15) unless nest surveys are conducted within a five-day window of vegetation removal to aid in nest avoidance.	High	Standard practice
If construction is scheduled between the dates of January 1 and September 31, breeding season raptor surveys would be required prior to construction. Field surveys would be conducted as determined by the authorized officer of BLM or the USFS as applicable. Based on the result of the field survey, the authorized officer would determine if appropriate buffers and timing limitations are necessary.	Same as Alternative A	High	Standard practice
When employees enter a mine for the first time following the breading season (spring and summer), a visual observation for bats would be made. In the event that any bats are observed in the mine workings, employees would cease all activities in the area and report the findings to BLM and USFS.	Same as Alternative A with the addition of during times of temporary cessation, entrances to the mine would be closed to exclude bats from entering the mine. The preferred method for exclusion of bats from an adit or shaft is to block the portal or collar with 1-inch– diameter chicken wire.	High	Experience - Excluding bats from entering the mine with chicken wire has shown to be more effective than just gates.
No surface disturbing activities would occur from November 15 to April 15 within crucial deer and/or elk winter range to minimize	Same as alternative A.	High	Standard practice

Design Feature Alternative A (Applicant Committed Measures)	Design Feature Alternative C (Conditions of Approval, Appendix G of EA)	Effectiveness	Rational
stress and disturbance to deer and elk during winter months. This stipulation does not apply to maintenance and operation of existing facilities. An exception may be granted by the Authorized Officer.			
Access Roads			
Vehicle traffic and equipment operation on exploration and ventilation shaft access roads would be restricted to prevent rutting in excess of one inch on gravel roads, 2 inches on native surface roads and 4-6 inches in other work areas. The operator shall provide maintenance equipment to repair rutting as soon as ground conditions permit.	Same as Alternative A	High	Standard Practice
During extended periods of dry weather, the authorized officer of BLM or USFS may recommend additional protective measures for exploration or ventilation access roads, including vehicle and equipment restrictions to prevent powdering of soils, to maintain firm working surfaces, to limit fugitive dust, and to maintain appropriate moisture conditions to protect soil resources	Same as Alternative A	High	Standard Practice
Prior to construction of access roads, exploration drill holes or vent shafts within the phase boundaries established by the Plan, the operator shall submit detailed location information for placement of these facilities. This information shall be supplemented by wildlife surveys, vegetation surveys, and cultural resource surveys of all proposed affected areas.	Same as Alternative A	High	Standard practice

Design Feature Alternative A (Applicant Committed Measures)	Design Feature Alternative C (Conditions of Approval, Appendix G of EA)	Effectiveness	Rational
Ground-disturbing activities associated with access road, exploration drill hole or vent shaft construction shall not begin until a notice to proceed is issued by the authorized officer.			
Not Required	Ventilation shafts would be fenced with chain link or other appropriate fencing material at a distance that would minimize or prevent vandalism of the shafts. Roads constructed to facilitate access to the vent shafts would be gated and locked when not in use unless otherwise specified by BLM or FS as appropriate based on land status. All roads used/constructed would not become designated as part of the BLM and USFS Moab Travel Plan located in Sections 5 and 35, T28S, R24E shall be gated and/or signed Administrative Use Only" or "Closed to the Public" .	High	Standard practice
Facility Operations			
A roll-off container or other approved container for disposal of trash shall be located on site. All trash shall be placed in the container and transported to an approved land fill.	Same as alternative A	High	Standard Practice
All equipment and debris must be removed from the Forest System or BLM lands upon completion of operations. All trash and garbage must be properly disposed of at an approved refuse area. Disposal or burial of any such materials in mud pits or other areas, or by burning, on BLM or Forest System	Same as Alternative A	High	Removing the equipment and debris keeps the landscape clean – Industry standard.

Design Feature Alternative A (Applicant Committed Measures)	Design Feature Alternative C (Conditions of Approval, Appendix G of EA)	Effectiveness	Rational
lands is prohibited.			
Not Required	The operator shall place temporary fencing around vent shafts during construction when the crew is not on site. Permanent fences would be installed and maintained until the vent shafts are reclaimed.	Moderate	Industry standard.
Nor Required	Vent shaft surface infrastructure should be designed to blend in with natural surroundings to the extent practicable, and shall be limited to the minimum height necessary to facilitate proper functioning of the vent shaft.	High	Minimizing the vet shafts and blending them into the natural surrounding reduces visibility – Industry standard.
Appropriate disposal or recycling of applicable materials such as batteries, scrap metal, used oils, tires, and antifreeze shall take place during mine operations temporary cessation and reclamation	Same as Alternative A as presented in the POA presented in Appendix E of the EA.		Industry standard.

*Design features and best management practices (BMPs) are based on practices and best reasonable scientific information that have been shown to be effective on similar projects.

* Authorized Officer: BLM lands - Moab Field Manager or designee; USFS lands - Manti-La Sal N.F. Forest Supervisor or designee.

*All required surveys (wildlife, vegetation, or cultural resources) will be performed by qualified specialists (agency or contract) as approved by the applicable authorized Officer.